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The Contribution of College Students' Attachment Styles and Social Media Practices on their Relationship Development

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THE CONTRIBUTION OF COLLEGE STUDENTS' ATTACHMENT STYLES AND SOCIAL MEDIA PRACTICES ON THEIR RELATIONSHIP DEVELOPMENT

by

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ABSTRACT

The purpose of this research study was to investigate the directional relationship between college students' attachment styles and social media practices with their relationship development. This investigation tested the theoretical model that undergraduate students' (*N* = 717) attachment styles (as measured by the *Experiences in Close Relationships-Short form* [ECR-S; Wei et al., 2007]) and social media practices (as measured by the *Facebook Intensity Scale* [FBI; Ellison et al., 2007] and *Motives for Going Facebook Official Scale* [MGFBO; Fox & Warber, 2013]) contributed to their quality of relationship development (as measured by the *Parks Relational Development Scale* [PRDS; Parks & Roberts, 1998]). Specifically, this investigation tested the hypothesized directional relationship that students scoring in the insecure attachment range (i.e., avoidant or anxious) with higher levels of social media practices would have lower levels of relationship development quality. In addition, this investigation examined the relationship between college students' attachment styles, social media practices, and relationship development quality with their reported demographic information (e.g., age, current school level, and ethnicity).

The results of the structural equation model (SEM) analyses identified that college students' attachment style contributed to the relationship development quality (96.04% of the variance explained) and their social media practices (2.56% of the variance explained). Furthermore, the results of the analyses identified that students' social media practices contributed to their relationship development quality (.4% of the variance explained).

Implications of the findings from the study include (a) the inclusion of additional psychosocial intake questions for college counselors; (b) identification of current trends in undergraduate students' attachment styles, social media practices, and relationship development functioning for counselor educators to support the development of counselors-in-training; and (c) insight into the instrument development of the ECR-S, FBI, MGFBO, and PRDS.

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CHAPTER ONE: INTRODUCTION

The purpose of this research study was to investigate the directional relationship between emerging adults' attachment styles, social media practices and relationship development. The research hypothesis for this investigation was that the influence of college students' attachment styles (as measured by the *Experiences in Close Relationships Scale- short form* [ECR-S; Wei et al., 2007)] on their relationship development (as measured by the *Parks Relational Development scale*, [PRDS; Parks & Roberts, 1998]) is partially mediated by their social media practices (as measured by the *Facebook Intensity Scale* [FBI; Ellison, Stenfield, & Lampe, 2007] and by the *Motives for Going Facebook Official* scale [MGFO; Fox & Warber, 2013]). Specifically, the investigation tested the directional hypothesis that young adults' scoring in the insecure attachment range (i.e., avoidant or anxious) with *higher* levels of social media practices have *lower* levels of relationship development quality (as measured by the PRDS; Parks & Roberts, 1998]). In addition, this investigation examined the relationship between college students' attachment styles, social media practices, and relationship development quality with their reported demographic information (e.g., age, current school level, and ethnicity).

Justification for the Investigation

The accrediting body of counseling programs, the Council for Accreditation of Counseling and Related Educational Programs (CACREP), supports the importance of studying contemporary societal issues within the counseling field. CACREP (2009) standards indicate that students preparing to work as clinical mental health counselors and marriage and family therapists demonstrate the professional knowledge, skills, and practices necessary to address a

wide variety of circumstances within the appropriate setting. Developing counselors necessitate the ability to recognize and understand issues of relationship dynamics, as well as appreciate the influence of societal trends on their therapeutic work with diverse individuals and couple systems (CACREP, 2009). In addition, many individuals seek counseling services due to distress within an intimate relationship (Berscheid, 1985; Olson, DeFrain, & Skolgrand, 2010); therefore, developing counselors require an awareness of current influences within individuals' lives, including their interpersonal relationships, as these contemporary trends may influence clients' levels of functionality.

The construct of attachment is examined in the counseling literature (e.g., Trusty, Ng, & Watts, 2005; Kietaibl, 2012); however, there is a void in the counseling research regarding social media practices, and quality of relationship development in conjunction with attachment styles. Fox and Warber (2013) identified a need for further understanding of the development and manifestations of intimate relationships through online media, such as Facebook. In addition, differences are identified between men and women regarding attachment styles and dating relationships (Collins & Read, 1990). Attachment styles are linked to interpersonal behaviors and competencies from satisfaction in romantic love, friendships, and emotional functioning (Fraley & Shaver, 2000). Nevertheless, no published research was found that examined the relationship between attachment style, social media practices, and relationship development quality. Therefore, this investigation aligned with the professional accrediting body of counselor education programs, and addressed the need for research focused on the constructs of attachment styles, social media practices, and relationship development in college students.

Attachment Styles, Social Media Practices, and Relationship Development

Scholars note the importance of attachment styles, social media practices, and relationship development in emerging adults' interpersonal functionality. Therefore, each of these three constructs of interest is described to set the context for the study.

Attachment Style

Attachment theory is specific to: (a) individual's biologically-based, typical predisposition for closeness in an emotionally important relationship that fosters protection, a safe haven and felt security, as well as a platform for exploration; and (b) the typical emotional distress reaction that results when the acceptable limits of the closeness are exceeded (Pistole & Watkins, 1995). The working model of attachment theory relates to the self's worthiness of care or lovability; expectations about the other's predictable accessibility; and strategies, rules, or expectations for interpreting and regulating attachment-related information regarding these interpersonal relationships (Pistole & Watkins, 1995).

Bowlby (1980) suggested that attachment styles were developed by children's beliefs about themselves and their world. He believed that the combinations of these beliefs (positive or negative beliefs about self and positive or negative beliefs about others) created the different attachment styles described by Ainsworth (1989). Hazan and Shaver (1987) expanded the attachment of adult love relationships, while Cassidy (1999) suggested that the behaviors used to maintain the relational attachment styles are motivated by the belief about the self and others. Therefore, attachment behaviors sustain the relationship congruent with the individuals' beliefs

about the self and others (Hollist & Miller, 2005). In other words, individuals' attachment styles influence their ability to have functional interpersonal relationships.

A central premise of attachment theory is that attachment relationships remain important throughout the life span (Ainsworth, 1982, 1989; Bowlby, 1977, 1980, 1982). Furthermore, attachment theory provides a framework for understanding individual differences in the way people rely on their partners' for security and support (Fraley & Shaver, 2000). Attachment style can be conceptualized in terms of the dimensions of attachment anxiety and avoidance (Fraley & Shaver, 2000). The *anxiety* dimension is characterized by a preoccupation with the partner's accessibility and excessive worry about rejection and abandonment, while the *avoidance* dimension is characterized by being uncomfortable with closeness and a preference to remain independent and self-reliant (Schindler, Fagundes, & Murdock, 2010).

The primary developmental task of adolescence and young adulthood is the development of identity (Erikson, 1968). Romantic experiences may play a role in the development of identity for young adults in two ways; (a) young adults' development of distinct perceptions of themselves in their romantic self-concept; and (b) young adults' global self-esteem being influenced by their romantic experiences and romantic self-concept (Furman & Buhrmester, 1992). Furthermore, developing and maintaining romantic relationships is central to developmental activities in early adulthood and is important for emotional well-being (Erickson, 1982). For example, Simon and Barrett (2010) found that romantic involvements in young adults (N = 1,611; 18-23 years old) correlated with fewer depressive symptoms (as measured by the *Center for Epidemiologic Studies Depression Scale*; CES-D).

Bowlby (1988) noted that although the attachment patterns that individuals form in infancy tend to persist in adulthood, they may change. Sroufe, Egeland, Carlson, and Collins (2005) supported Bowlby's hypothesis, suggesting that adults with insecure attachment patterns could develop a secure attachment style when they experienced supportive adult relationships. Therefore, counselors have an opportunity to facilitate change in their clients' dysfunctional attachment styles through establishing stable and supportive relationships (i.e., a strong therapeutic alliance; Kietaibl, 2012).

Attachment styles affect the development of relationships inside and outside of counseling. Therefore, counselors incorporating attachment theory into their work with clients may strengthen the working alliance and lower the risk of client attrition (Kietaibl, 2012). Counselors have a responsibility to integrate means to develop a relationship that encourages client growth, and integrating an awareness of client attachment styles assists counselors in meeting this challenge (Daly & Mallinckrodt, 2009). Therefore, developing counselors may benefit from learning about emerging adults' attachment styles and their influence on interpersonal relationships.

Attachment styles were investigated regarding counselor education as they relate to (a) session evaluation and countertransference (Mohr, Gelso, & Hill, 2005); (b) perceptions of the working alliance with counselor trainees (Satterfield & Lyddon, 1995); (c) emotional empathy of counseling students (Trusty, Ng, & Watts, 2005); and (d) clinical supervision (Gunn & Pistole, 2012; Riggs & Bretz, 2006). This study focused on the attachment styles of college students as college is a time of transition and stress, and should provide an optimal opportunity to examine

how attachment security operates within individuals' relationships (Duemmler & Kobak, 2001). Overall, understanding college students' working models of attachment may aid college counselors in adjusting their interpersonal style to facilitate the formation of more viable working alliances with their clients and their supervisors.

Social Media

The field of social media and social networking is large; therefore, the researcher identified Facebook as the focus of social media within this study. Facebook is a social networking service launched in 2004. Facebook users must register before using the site, after which they may create a personal profile, add other users as friends, and exchange messages, photos and videos. As of September 2012, Facebook had over 1 billion active users, and is the second most accessed website after Google (Pollet, Roberts, & Dunbar, 2011). For the purposes of this study, Facebook was examined in two ways: (a) the intensity of Facebook usage; and (b) relationship broadcasting. The intensity of Facebook usage includes the amount of time individuals spend on the site, their emotional connectedness to the site, the number of friends they have on the site, and the number of actual friends they have. Relationship broadcasting is individuals' motives for going Facebook Official, relating to their reasons for updating their relationship status to "in a relationship with_____". College students have two main incentives for updating their relationship status, interpersonal motives and social motives (e.g., Fox & Warber, 2013). Examining college students' relationship broadcasting may offer insight into the relationship between their intensity of social media use, as well as their attachment style and relationship development quality.

No published empirical research involving Facebook was found in counseling journals; however, research studies involving Facebook were published in psychology and human behavior journals. These Facebook studies examined the relationship between Facebook usage and: (a) well-being (Kalpidou, Costin, & Morris, 2011; *N* = 70 undergraduate students); (b) shyness (Orr et al., 2009; *N* = 103 undergraduate students); (c) emotional and cognitive responses to being unfriended on Facebook (Bevan, Pfyl, & Barclay, 2012; *N* = 547 adults over the age of 18); (d) gender differences within relationship status (Fox & Warber, 2013; *N* = 403 undergraduate students); (e) jealousy and relationship satisfaction (Elphinston & Noller, 2011; *N* = 342 undergraduate students); and (f) intimacy (Hand et al., 2013; *N* = 233 undergraduate students). Nevertheless, none of these Facebook usage studies investigated social media's contribution to relationship development; more specific, these studies did *not* examine the overall constructs of this study.

Communication among college-aged intimate couples is predominantly through text messaging and mobile internet (Bergdall et al., 2011); despite individuals reporting that they prefer more face-to-face communication with their significant other (Emmers-Sommers, 2004). The use of social networking sites, specifically Facebook, has increased (Pollet et al., 2011) and from its inception, Facebook has changed the way individuals relate and communicate with each other (Hand, Thomas, Buboltz, Deemer, & Buyanjargal, 2013). The public nature of Facebook makes it easier for individuals to share information about their romantic relationships to larger networks of people, and to do so quicker than through traditional face-to-face communication (Fox & Warber, 2013). Social networks are a primary determinant in college students' romantic relationships, and understanding how these intimate relationships develop on Facebook is

essential in understanding the expanding role of Facebook in interpersonal communication (Fox & Warber, 2013).

Relationship Development

Parks and Roberts (1998) describe relationship development as the sequence of romantic escalation. For the purposes of this study, *relationship development* refers to the sequence of romantic escalation ending in the formation of an intimate or romantic relationship. Relationship development research has identified that romantic escalation is a typical developmental process of young adults (Erikson, 1968). Moreover, healthy romantic relationships contribute to the well-being of college students (Simon & Barrett, 2010) and to appropriate formations of interpersonal boundaries (Rosenberger, 2011). Emerging adulthood is designated as the ages of 18 to 25, and is the period in life that offers the most opportunity for identity exploration in the area of love (Arnett, 2000). Furthermore, research findings identify that college students are engaging in a variety of types of relationships within their romantic escalation (i.e., Jackson et al., 2011; Owen et al., 2008); therefore, college counselors may benefit by learning about contemporary issues that are influencing college students' relationship development.

Statement of the Problem

Attachment theory conceptualizes "the propensity of human beings to make strong affectional bonds to particular others" (Bowlby, 1977, p. 201). Bowlby further postulated that an attachment system evolved to maintain closeness between infants and their caregivers in situations of danger or threat. The attachment system functions to provide children with a sense of felt security which aides in the child's exploration (Ainsworth, Blehar, Waters, & Wall, 1978).

Over time, children internalize experiences with caretakers in a particular way that early attachment relations form a pattern for later relationships outside of the family. Bowlby (1973) posits that there are two central tenets of these internal representations, or *working models,* of attachment:

> (a) whether or not the attachment figure is judged to be the sort of person who in general responds to calls for support and protection; [and] (b) whether or not the self is judged to be the sort of person towards whom anyone, and the attachment figure in particular, is likely to respond in a helpful way. (p. 204)

Although individual differences in attachment style influence interpersonal functioning over the life course (Diamond & Fagundes, 2008), there is limited examination into how attachment style influences intimate relationship development. Furthermore, the published research identified that examined the relationship between attachment style and social behavior online is limited to three studies that examined: (a) surveillance behaviors (Jenkins-Guarnieri, Wright, & Hudiburgh, 2012); (b) social capital (Lee, 2013); and (c) personality traits (Marshall, Bejanyan, Di Castro, & Lee, 2013). However, attachment style's identified correlation to social behavior in offline intimate relationships also support the correlation between attachment style and social behavior online (Jenkins-Guarnieri et al., 2012). Therefore, examining emerging adults' attachment styles may help college counselors identify attachment styles that may influence clients' abilities to create and maintain important interpersonal relationships.

Research investigating romantic involvements on college campuses involves a number of types of intimate relationships, including: (a) dating (Jackson, Kleiner, Geist, & Cebulko, 2011);

(b) hooking up (Owen, Rhoades, Stanley, & Fincham, 2008); (c) stayover relationships (Jamison & Ganong, 2011); and (d) friends with benefits (Gusarova, Fraser, & Alderson, 2012); yet research is limited on how these relationships influence college students' functioning. Moreover, young adults' attachment styles, combined with contemporary issues, such as their use of social networking sites and evolving communication styles may influence their development of intimate relationships. Thus, investigating college students' relationship development may offer insight into emerging adults' methods and motivations for developing intimate relationships.

The knowledge regarding the association between usage of social media and the development of romantic relationships is limited. The three constructs of attachment styles, social media practices, and relationship development have *not* been investigated together; therefore, this investigation made a unique contribution to both research and theory. As a result, the purpose of this research study was to examine the attachment styles, social media practices, and romantic relationship development experienced by college students.

Significance of the Study

This study offered potential contributions to the counseling literature, including: (a) increased awareness of social media within the emerging adult population; (b) additional understanding of the relationship between attachment style, social media practices, and relationship development; and (c) greater knowledge about young adult qualities in relation to their online relationship development. Furthermore, this investigation clarifies the constructs of social media and relationship development as well as provides instrument development insight.

Social Significance

College students report using Facebook for a variety of reasons, yet students express stronger interest in using Facebook to maintain relationships than to initiate new relationships (Yang & Brown, 2013). In addition, students report using Facebook to (a) post, comment, or reply to messages (Junco, 2012); (b) check up on others at a higher frequency than sending private messages, sometimes referred to as stalking or lurking (Antheunis, 2010); (c) reveal personal attitudes and interests as well as social connections through pictures, wall posts or friend lists (Manago et al., 2008); and (d) to play games (Junco, 2012). Therefore, college students live in a technological age where they are often physically alone, yet somehow enmeshed in social relationships that are often established and predominantly maintained online (Junco, 2012).

The widespread use of social networking sites among adolescent and emerging adult populations has begun to attract attention from mental health professionals and researchers interested in how this social phenomenon influences interpersonal development (e.g., Tao, 2013). Students can spend hours reviewing the intimate details of friends' or acquaintances lives without physical proximity or actually talking. Social connectedness and the ability to form close relationships are necessary to well-being and psychological functioning. Similar to children, adults also seek stable, trusting, and responsive relationships, especially in times of need or distress (Bowlby, 1969).

Consequently, the popularity of technologically mediated social relationships seems to have an important influence on how individuals communicate and interact with one another.

These influences may have certain benefits. Studies identify the positive influence of technology-facilitated relationships, including the association between online identity experimentation and positive social competence among adolescents (Valkenburg & Peter, 2009). However, individuals also maintain many relationships without any physical or face-to-face interpersonal communication, and several studies link extensive use of technology to negative outcomes. For example, Nitzan, Shosan, Lev-Ran, and Fennig (2013) suggest a link between the overuse of Facebook and psychoses. The virtual and interpersonal worlds of college students are not mutually exclusive, but rather overlapping realms. Therefore, emerging adults' norms and practices cannot be ignored (Valkenburg & Peter, 2011), but can be viewed as a way for counselors to learn about current trends and how best to serve and understand this population.

Professional Significance

There is a significant amount of literature examining how the use of social media defines and distinguishes contemporary young adult culture (e.g., Bevan et al., 2012; Dunkels, Franberg, & Hallgren, 2011; Manago et al., 2010). Moreover, several studies examine the impact of social media use on young adult social development and physiological and psychological well- being (e.g., Kalpidou et al., 2011; Reich, Sheldon, 2010; Subrahmanyam, & Espinoza, 2012). Yet, few studies examine the issue of social media use and its impact on college student culture within a therapeutic context. College counselors should be familiar with the new digital environment so they can gain better understanding of the systemic and contextual factors that influence their clients. Pedersen (1997) suggests that "behavior is displayed in cultural context" (p. 23) and is not meaningful unless it is understood within that context. Through understanding cultural norms

related to social media use, counselors can: (a) avoid generalizations and stereotypes, (b) assess normative versus problematic behaviors, (c) anticipate potential concerns, and (d) design interventions that are meaningful for the college student client (Hoffman, 2013). Social and emotional development of emerging adults is occurring in the context of the world of social media and technology (Mesch & Talmud, 2010) and counselors must be familiar with it.

College counselors need awareness of the different contexts in which the current generation is experiencing emerging adulthood because of social media use. Furthermore, examining college students' social development, specifically identity formation, interpersonal relationships, and sexual identity outline some potential impacts of the current digital culture among college campuses and will provide college counselors with necessary knowledge. Lastly, college counselors need to develop culturally relevant skills that include interventions and strategies to alleviate some presenting concerns related to social media use when working with student clients (Hoffman, 2013).

Although specific approaches may differ, college counselors often help their clients: (a) enhance interpersonal skills related to intimacy, including empathy and self-disclosure; (b) develop self-awareness about emotions, where and with whom emotions are expressed, and how they are regulated; and (c) gain a clearer understanding of social identity and self-understanding (Tao, 2013). Despite the technological trends, the interpersonal aspects of counseling remain significant. Therefore, to enact this interpersonal approach, counselors need to take into account the new ways young adults engage in relationships and how technology shapes and co-occurs with their emotions, behaviors, and attitudes towards interpersonal interactions (Tao, 2013).

Research Methodology

The purpose of this research study was to investigate the directional relationship between emerging adults' attachment styles, social media practices, and quality of their intimate relationship development. Emerging adults are those individuals between the ages of 18 and 25. The majority of undergraduate college students are within this age bracket (US Census, 2012). The period of emerging adulthood is a distinct period of life that offers opportunity for love, work, and worldviews, as well as identity formation (Arnett, 2000). The following research hypothesis and exploratory questions were examined:

Primary Research Question

Do emerging adults' attachment styles (as measured by the ECR-S; Wei, Russell, Mallinckrodt, & Vogel, 2007] and social media practices (as measured by the FBI; [Ellison, Stenfield, & Lampe, 2007] and the MGFO; [Fox & Warber, 2013]) contribute to their quality of relationship development (as measured by the PRDS; Parks & Roberts, 1998)?

Research Hypothesis.

The research hypothesis tested in this investigation was: The influence of college students' attachment styles (as measured by the ECR-S; Wei et al., 2007)] on their relationship development (as measured by the PRDS) is partially mediated by their social media practice (as measured by the FBI; [Ellison et al., 2007] and the MGFO; [Fox & Warber, 2013]). Specifically, the investigation tested the hypothesized directional relationship that young adults' scoring in the insecure attachment range (i.e., avoidant or anxious) with *higher* levels of social media practices

will have *lower* levels of relationship development quality (as measured by the PRDS; Parks & Roberts, 1998; see Figure 1).

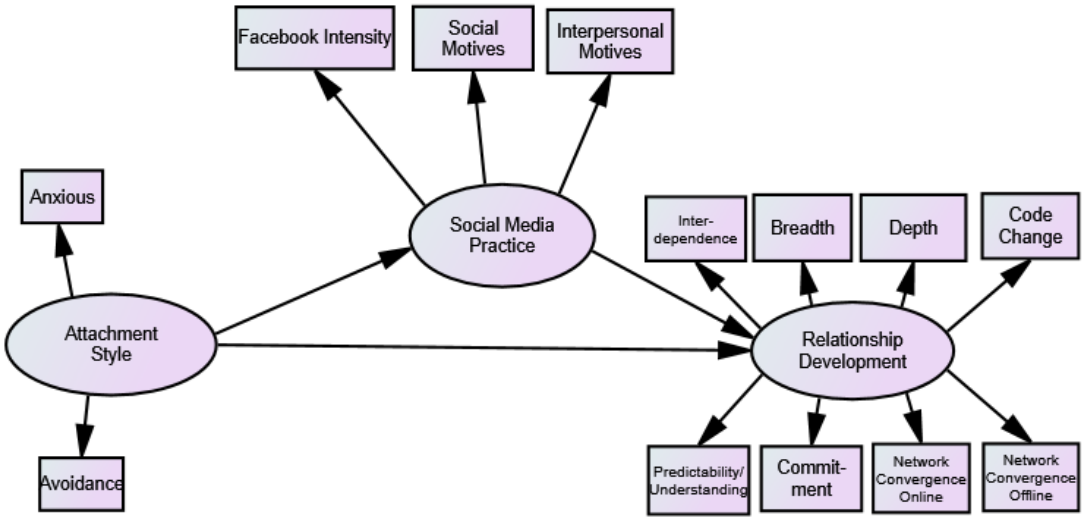

Figure 1: Hypothesized Structural Model with Manifest Variables

The hypothesized measurement models for each latent factor above can be seen in Figures 2, 3, 4, and 5.

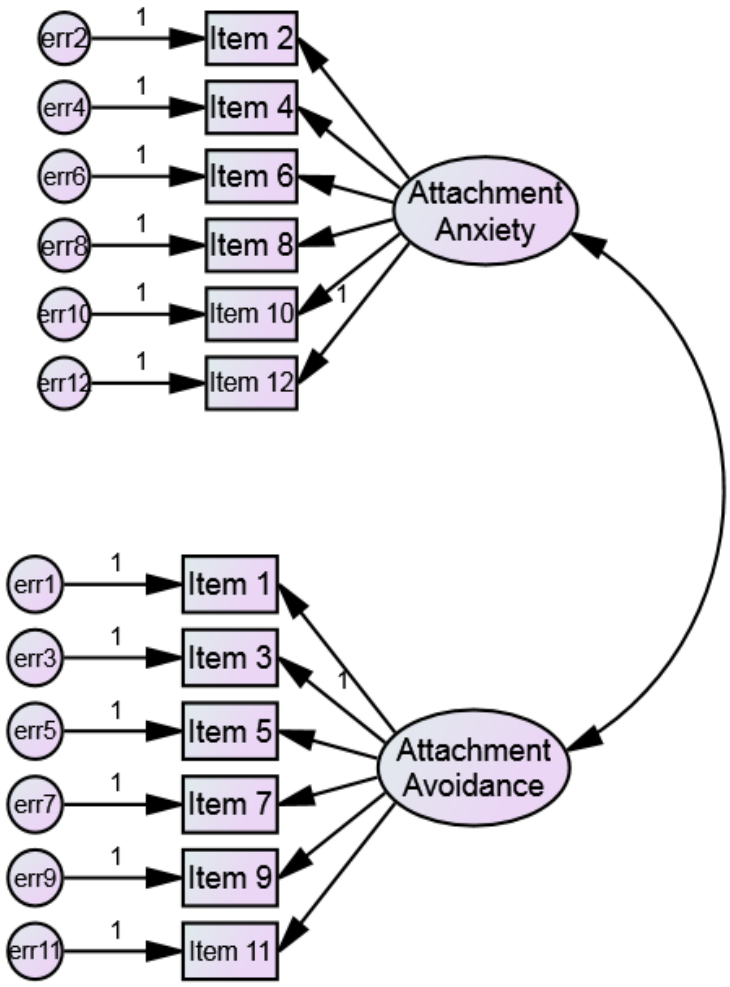

Figure 2 Hypothesized Attachment Style (ECR-S) Measurement Model

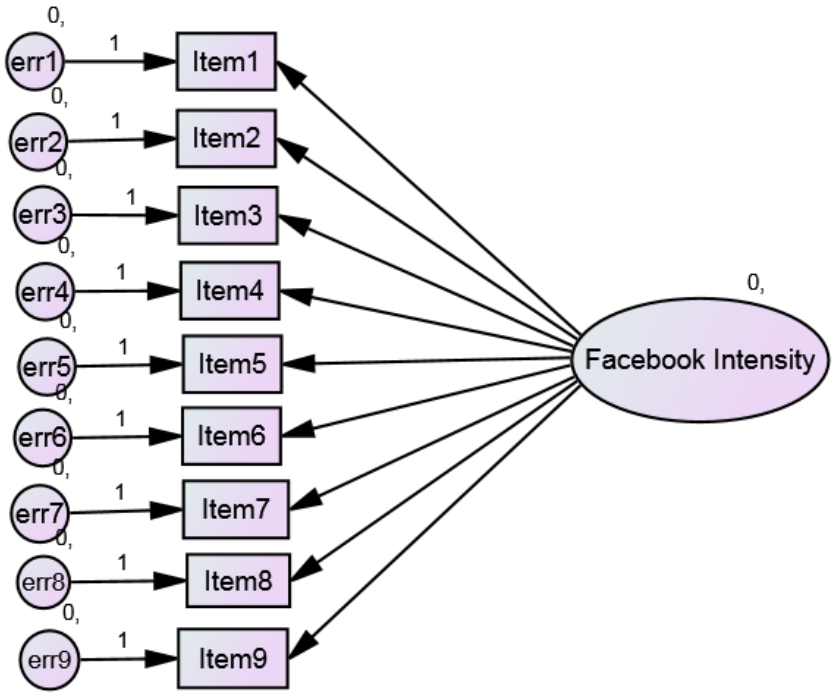

Figure 3: Hypothesized Social Media Usage (FBI) Measurement Model

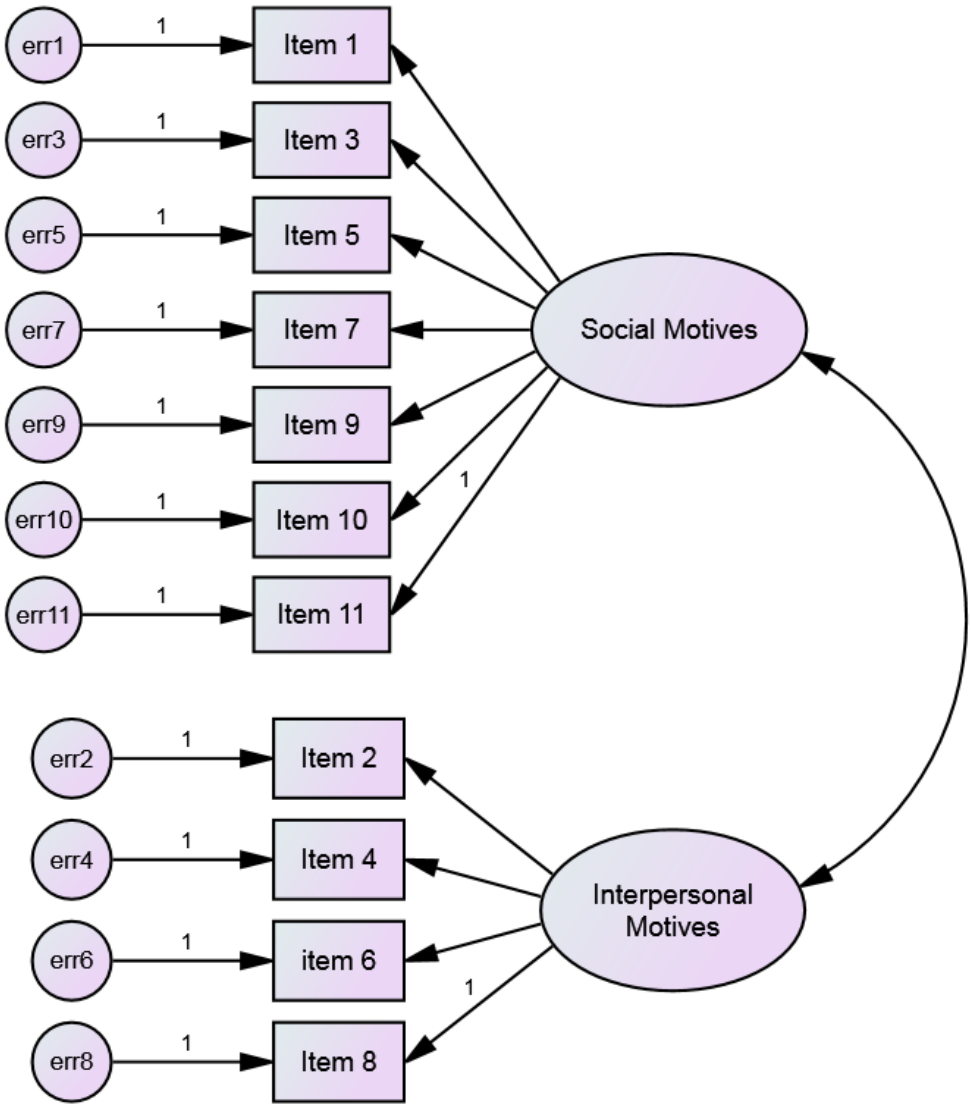

Figure 4: Hypothesized Relationship Development (MGFBO) Measurement Model

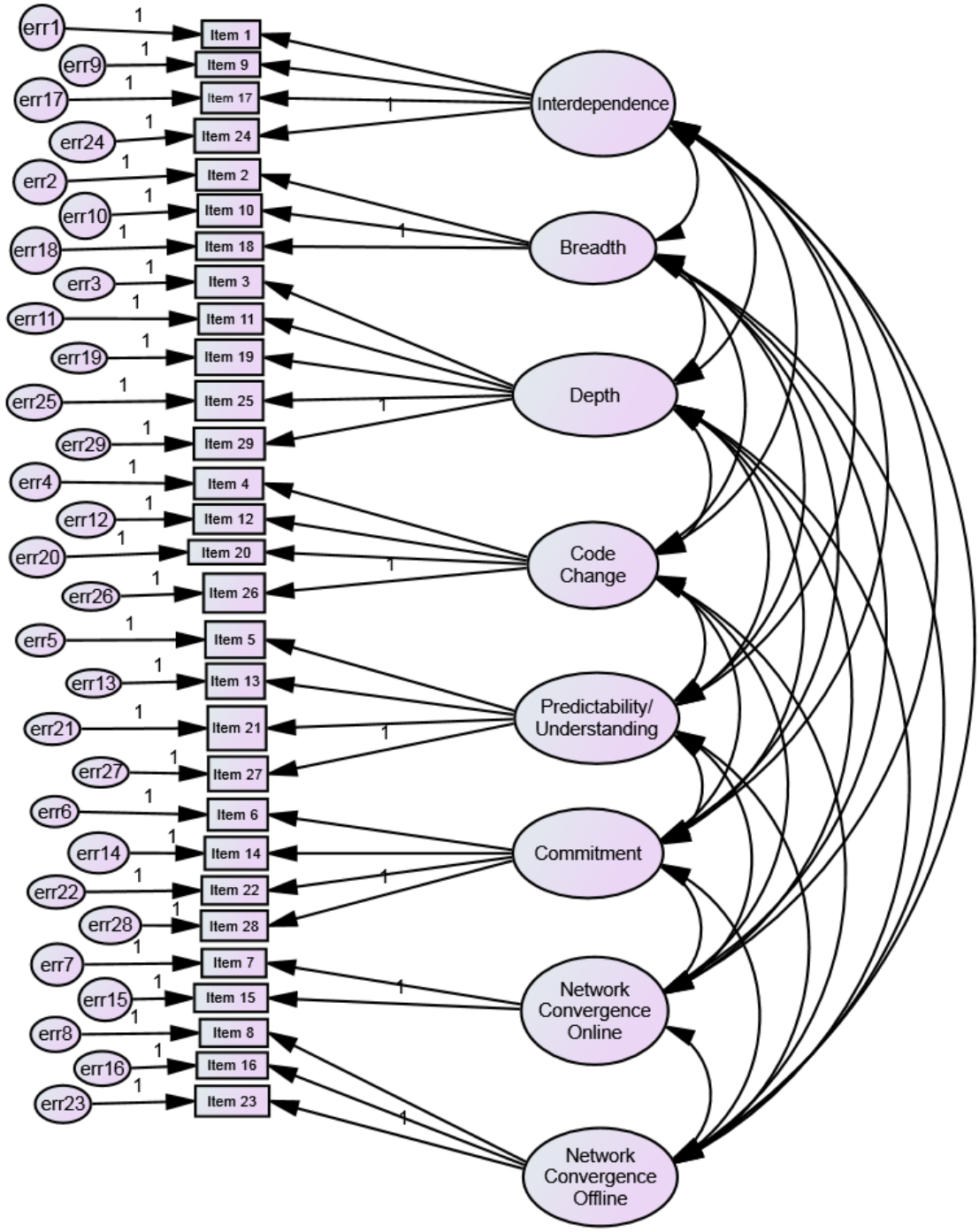

Figure 5: Hypothesized Relationship Development (PRDS) Measurement Model

Exploratory Research Questions

Exploratory research question 1. What is the relationship between emerging adults' attachment styles (as measured by subscales scores of the ECR-S; Wei et al., 2007] and their reported demographic variables (e.g., gender, age, ethnicity, year in college, and geographic location)?

Exploratory research question 2. What is the relationship between emerging adults' social media practices (as measured by the total score of the FBI; [Ellison et al., 2007] and by subscale scores of the MGFO; Fox & Warber, 2013) and their reported demographic variables (e.g., gender, age, ethnicity, year in college, and geographic location)?

Exploratory research question 3. What is the relationship between emerging adults' relationship development quality (as measured by subscales scores of the PRDS; Parks & Roberts, 1998) and their reported demographic variables (e.g., gender, age, ethnicity, year in college, and geographic location)?

Research Design

A descriptive, correlational research design was employed to examine the relationship between attachment styles, social media practices, and the quality of relationship development. Correlational research is conducted is to help explain important human behaviors (Fraenkel, Wallen, & Hyun, 2011). Relationships among the variables were investigated with no manipulation of the variables; therefore, although correlational relationships may indicate an association between the variables, they do *not* establish cause and effect. Yet descriptive

correlational studies allow researchers to investigate potential cause and effect relationships between specific constructs and predictive outcomes (Tabachnick & Fidell, 2012). Correlational research designs are often used in the counseling field and contribute to the literature; however, it is important to use more sophisticated analyses (i.e., SEM) to gain better estimates of the relationship between variables within a causal framework (Raulin & Graziano, 1995; Tabachnick & Fidell, 2012).

Population and Sampling Procedures

The target population for this study was undergraduate college students in the United Stated. Undergraduate college students were used because they are considered emerging adults (Arnett, 2000) and they are the greatest users of social media (Darvell, Walsh, & White, 2011; Pollet et al., 2011). There is limited research on attachment styles, social media practices, and relationship development of undergraduate emerging adults. More studies identifying college students' attributes that influence relationship development in a contemporary society are needed (Fox & Warber, 2013).

There are 20,550,000 individuals enrolled as undergraduate college students in the United States (US Census, 2012). To ensure a 95% confidence level of generalizability for a population of this size, a minimum random sample of 384 participants is needed (Krejcie & Morgan, 1970). In addition, statistical power is important to calculate prior to beginning a quantitative investigation. Specifically, the power is the long term probability of rejecting the null hypothesis (e.g., hypothesis that there is no difference or effect) given the effect size, sample size, and alpha level (Balkin & Sheperis, 2011). Calculations of power analyses is a priori in order make

intentional decisions about sample size and avoid making Type II errors, or when the statistical test fails to reject a false null hypothesis (e.g., Balkin & Sheperis, 2011; Onwuegbuzie & Leech, 2004). In SEM, a specific method to calculating power is provided by MacCallum, Brown, and Cail (2006), in which statistical power of a SEM model "is a function of *N* (sample size), *d* (degrees of freedom), ε_0 (RMSEA under H_0), and ε_1 (RMSEA under H_1), and critical value χ^2_c corresponding to a given α (significance level)" (Lee, Cai, & MacCallum, 2012, p. 191). In addition, Schumacker and Lomax (2010) identified that most SEM published research articles "used from 250 to 500 subjects, although the greater the sample size, the more likely it is one can validate the model using cross-validation" (p. 42). Furthermore, Raykov and Marcoulides (2006) noted that for SEM and calculating a minimal sample size, "a cautious and simplified attempt at a rule of thumb might suggest that sample size would be desirably be more than 10 times the number of free model parameters" (p. 30). Schumaker and Lomax (2010) recommend the use of www.danielsoper.com to calculate a priori sample sizes for SEM. Based on the recommended website, to identify a small effect size (.1), and high power (.8) with three latent variables and 61 observed variables at the probability level of $p < .05$, a minimum sample of 290 was needed. Based on the literature, sample size equations, and sample size calculator, for the purposes of this study, a minimum sample size of 400 was sought. The sample for this study was comprised of student participants recruited from various universities from different areas of the United States. All participants had undergraduate college student status, were enrolled in at least nine undergraduate credits, were at least 18 years old, and had a Facebook account. In addition, sampling from multiple universities provided increased generalizability of the findings and strengthened external validity.

Data Collection Procedures

The researcher gained approval from the University of Central Florida Institutional Review Board (IRB) by completing the IRB application and ensuring *all* ethical research practices were followed. The researcher also secured IRB approval from the other participating universities. In addition, permission was gained from the authors of the data collection instruments in this study: (a) MGFBO (Fox & Warber, 2013; personal communication April 29, 2013); and (b) PRDS (Parks & Roberts, 1998; personal communication June 13, 2013). Permission for the FBI and the ECR-S were *not* required as they are both published online by the authors at https://www.msu.edu/~nellison/TOIL/scales.html and http://wei.public.iastate.edu/manuscript/ECR-S.pdf, respectively. However, permission for the *FBI* and the ECR-S was granted (personal communication with Dr. Ellison, June 11, 2013; personal communication with Dr. Wei; July 1, 2013). Permission from the authors of the data collection instruments also included permission to transfer instruments to Qualtrics. All instruments were combined to create an online survey on Qualtrics, an online data collection platform that offers researchers tools to create secure online surveys.

Dillman, Smyth, and Christian (2009) suggest steps in web survey implementation that is similar to Dillman's (2000) *Tailored Design Method* to increase response rate. The researcher discussed the research purpose and design with various faculties, and when geographically possible, the researcher visited classes face-to-face to explain the research and provide the link to the survey. In the case where a face-to-face visit was *not* feasible, the researcher provided a flyer for the study, as well as the link to the faculty member to disperse to their students. Because

names did *not* need to be collected, and in order to make the data confidential, an informed consent waiver was requested. The researcher sent participants who signed up via the author's email address a personalized invitation email that included: (a) an explanation of the research, and (b) a secure link to the data collection instruments. Participants received an email one week after the initial email was sent as a reminder for those who had *not* completed the survey. Three weeks after the initial email (two weeks after the first reminder email) a final reminder was sent to these participants. As participants completed the survey, a thank you email was sent, and their email address removed from the list to ensure they would *not* receive any other reminder emails. The researcher was sure to explain to participants that they can unsubscribe from the list of participants at any time, and that they could also contact the researcher directly to be removed from the list.

The study was also posted on the University of Central Florida Psychology Research Participation System. Students who completed the survey through this website were linked directly to the survey on Qualtrics, where they received an explanation of the research. These students did *not* receive the initial invitation email, or the follow up emails. For each survey completed, a $1.00 donation was made to the One Love Foundation, a non-profit organization working to end relationship violence through education and technology.

Instrumentation

A general demographic survey was created by the researcher as a self-report of participants' demographic information (e.g., gender, age, ethnicity, year in college, geographic location etc.). These demographics were used as they are the most common demographics in

research similar to this study. Furthermore, examining demographic information from the sample allowed the researcher to explore potential relationships between the constructs and demographic information. The demographic survey was reviewed by the dissertation committee and piloted with doctoral students to support the readability of the demographics questionnaire.

Attachment styles were measured by the ECR-S (Wei et al., 2007). The purpose of the ECR-S is to measure adult attachment styles (i.e., secure, anxious, or avoidant). The ECR-S was developed from the *Experiences in Close Relationship Scale* (Brennan, Clark, & Shaver, 1998). Wei and colleagues examined the reliability and factor structure of the ECR-S, cross-validated the reliability, factor structure, and validity of the short form, as well as examined the test-retest reliability over a one-month period. They further examined the reliability, factor structure, and validity of the short form when administered as a stand- alone instrument. Confirmatory factor analyses indicated that two factors, anxiety and avoidance, provided a good fit to the data after removing the influence of response sets. Although the ECR-S had lower internal consistency values than the original ECR, it appears that the coefficient alphas for the 12-item ECR-S are acceptable for use in college student sample (Wei et al., 2007).

To measure social media practices, the researcher used the *Facebook Intensity* scale (FBI; Ellison et al., 2007) and the *Motives for Going Facebook Official scale* (MGFBO; Fox & Warber, 2013). The researcher focused on Facebook for this study as it has the greatest number of users compared to other social media websites (Pollet et al., 2011). The FBI is a one-factor model used to measure Facebook usage beyond simple measures of frequency and duration, incorporating emotional connectedness to the site and its integration into individuals' daily

activities. The scale has nine items and scoring is completed by adding all answers and finding the mean. The internal consistency (Cronbach's alpha) was acceptable; 0.83, within their sample (*N* = 450) of undergraduate students (Ellison et al., 2007).

The purpose of the two-factor MGFBO is to measure participants' drives for reporting their relationship status on Facebook. The scale consists of (11) 5-point Likert scale (1 = strongly disagree; 5 = strongly agree) items. Mean scores from each subscale (social motives and interpersonal motives) were used in this study. Fox and Warber (2013) developed the MGFBO based on their previous work (in press). The items from the MGFBO were submitted to an exploratory factor analysis using Varimax rotation with Kaiser normalization. A scree test was administered and two factors (interpersonal motives and social motives) were identified. Two of the original items failed to load, and were therefore dropped from the measure. Based on Fox and Warber's (2013) administration to college students (*N* = 403), Cronbach alpha levels for each subscale were .82 and .75, respectively (Fox & Warber, 2013).

The MGFBO scale is based on the perceptions of others' motives for updating their relationship status. In addition to these responses, participants completed the MGFBO scale with the wording of statements modified to indicate their personal reasons for updating their relationship status. For example, a statement on the original MGFBO scale stated, "Because they want attention", and was altered to, "Because you enjoy the attention". This was done to align each of the studies to the individuals' views on social media.

Relationship development was measured using the *Parks' Relational Development Scale* (PRDS, Parks & Roberts, 1998). The PRDS is an eight-factor, 29-item self-report survey that

measures the development of personal relationships while taking computer-mediated conversation into consideration (Parks & Roberts, 1998). Averaged PRDS subscale scores were examined, with subscales including: (a) interdependence ($\alpha = .84$); (b) breadth ($\alpha = .82$); (c) depth ($\alpha = .83$); (d) code change ($\alpha = .80$); (e) predictability/understanding ($\alpha = .79$); (f) commitment ($\alpha = .87$); (g) network convergence online ($\alpha = .65$); and (h) network convergence offline ($\alpha = .78$). The mean of each sub-scale score is calculated, with higher means indicating greater agreement and greater relational development. Parks and Roberts (1998) assessed the absolute level of relational development by comparing the observed means of their sample (N= 235 Internet users in romantic relationships, ages 13-74) for the developmental dimensions with the theoretical midpoints of the scales using single sample *t*-tests. For example, the interdependence scale has a midpoint of 16.00 (i.e. four items scaled 1-7, yielding a scale range of 4-28; 28 – 4 = 24 possible scores; 24 / 2 = 12; 4 + 12 = 16 and 28 – 12 = 16, thus 16 is the midpoint of scores in the interdependence scale); therefore a single sample *t*- test was used to examine if the observed mean of 17.78 was greater than the scale midpoint of 16.00. In their case the test result was significant ($t = 4.29$, $df = 212$, $p < .001$; Parks & Roberts, 1998).

Data Analysis

The data analysis for this research study was SEM. SEM is a confirmatory process that is a combination of multiple regression, path analysis, and confirmatory factor analysis (Tabachnick & Fidell, 2013). SEM was utilized because it allows the researcher to test a theoretical model that is supported by literature and provides directionality of relationships in a

causal framework (Graziano & Raulin, 2004). In addition, SEM provides clear estimates of error variances among the measures (Byrne, 2010).

The hypothesized structural model is presented in Figure 1, where circles represent latent variables, and rectangles represent measured variables. Absence of a line connecting variables implies *no* hypothesized direct effect. The hypothesized model examined attachment style as a predictor of social media practices, as well as relationship development. Furthermore, the hypothesized model examined social media practices as a predictor of relationship development. Attachment style was a latent variable measured by two manifest variables. Social media practices was a latent variable measured by three manifest variables. Last, relationship development was a latent variable measured by eight manifest variables. It was hypothesized that insecure attachment (avoidant or anxious) would predict higher levels of social media practices, while predicting lower levels of relationship development quality.

Exploratory questions one through three were examined using (a) descriptive statistics; (b) bi-variate correlations; (c) multiple regressions; (d) analysis of variance (ANOVA); and (e) *t*-tests (Pallant, 2010). Bi-variate correlations are used when the researcher wants to explore the strength of the relationship between two continuous variables, while multiple regression is a more sophisticated extension of correlation and is used when a researcher wants to explore the predictive ability of a set of independent variables on one continuous dependent measure (Pallant, 2010). ANOVA compares the variability in scores between the different groups with the variability within each of the groups, while independent samples *t*-tests compare the mean scores of two different groups of participants (Pallant, 2010).

Ethical Considerations

Ethical considerations were considered by the IRB committee and dissertation committee. Committee considerations included, but were *not* limited to:

1. All data was collected *anonymously* to protect the identity of participants and to ensure confidentiality.

2. Participation in this study was *voluntary* and participation did *not* influence class grade.

3. All participants were informed of their rights and an explanation of research was approved by the IRB at the University of Central Florida, as well as the other involved universities. Participants had the opportunity to *withdraw* from the study at any time without consequence.

4. Permission to use the instruments was obtained by the developers of each instrument; (a) *Facebook Intensity Scale* (Ellison, Stenfield, & Lampe, 2007); (b) *Motives for Going Facebook Official scale* (Fox & Warber, 2013); (c) *Experiences in Close Relationship-Short form* (Wei et al., 2007); (d) *Parks Relationship Development Scale* (Parks & Roberts, 1998); and (e) the *Relational Uncertainty Scale* (Solomon & Knobloch, 1999).

5. The study was conducted with the permission and approval of the researcher's dissertation chair and committee members, and IRB of the University of Central Florida was obtained.

Discussion

Potential Limitations

Correlational research designs have inherent threats to validity, including threats to construct, internal, and external validity (Fraenkel et al., 2011; Graziano & Raulin, 2004). Validity is reflective of the methodological soundness of a study. Threats to internal consistency are specific to the instruments used in this study, and valid correlations between the variables within a study (Fraenkel et al., 2011). Overall, researchers have more control in preventing internal threats to validity in correlational designs due to their ability to choose valid and reliable measurements of the constructs (Rovai, Baker, & Ponton, 2013). Correlational research designs are susceptible to threats of validity; therefore, the researcher attempted to minimize these threats through intentional research procedures. Additional potential limitations are described below:

1. This study was geared toward young adults enrolled in undergraduate classes. Therefore, a limitation of the study was that Facebook users across adults of all ages were *not* included.

2. Eighty percent of Facebook users are outside of the United States and Canada; therefore, many Facebook users were *not* accounted for within this study (Facebook.com).

3. The *Motives for Going Facebook Official* scale is a new instrument and its psychometric properties are still being investigated. In addition, the *Parks' Relationship Development Scale* is *not* a new instrument; however, it was *not* used in many

studies; therefore, the psychometric properties are still being investigated. Furthermore, PRDS was *not* normed solely on emerging adults, nor on college students.

4. Data collection instruments in this study were self-report; therefore, there may be some bias with participant responses that may have influenced study results.

5. Convenience sampling was suggested for this study; therefore, researcher bias may have occurred.

Potential Contribution of the Study

This study provided potential implications and contributions to the field of counseling and counselor education in that the investigation is exploratory in nature. Identifying relationships between emerging adults' attachment styles, social media practices, and relationship development provides developing counselors with insight into clients' attachment styles as they relate to their social media use. In addition, insight into individuals' attachment styles and relationship development quality was also provided. Furthermore, this study provided awareness of the relationship between clients' social media use and relationship development quality. Counselor educators may benefit from this study by gaining awareness into current societal trends among emerging adults and their intimate relationships. Specifically, counselor educators may be alerted how to help developing counselors identify, prevent, and treat potential areas of conflict and distress among individuals who report relationship distress as a result of their Facebook use, or as a result of feeling unconnected with an intimate partner. Accordingly, counselors should be taught to ask questions regarding use of Facebook consistent with treatment approaches to other excessive behaviors (Elphinston & Noller, 2011). Counselors will be able to

identify attachment mismatches, and help the client enhance or create positive affect. Further implications for college counselors include using client struggles with Facebook, and their attachment styles to tap into how individuals organize their emotions, as well as broader themes of relationships, such as jealousy, commitment, and power (Papp, Danielewicz, & Cayemberg, 2013). Furthermore, this study included testing measurement models; therefore, the investigation supports and challenges the used data collection instruments' psychometric properties with a sample of undergraduate college students.

The results of this study encourage continued examination of technology use and behaviors in the context of intimate relationship development. Future research is needed to explore the relationship between broader social networking usage (such as Twitter, Instagram, etc.), to incorporate a broader age range, and international Facebook users. In addition, future research may include longitudinal studies to explicate processes through which attachment styles and social media use are associated with intimate relationship functioning, including the maintenance of intimate relationships. Lastly, future studies could include examinations of dyadic data in relation to the couples' attachment styles and social media usage.

CHAPTER TWO: REVIEW OF THE LITERATURE

Chapter Two includes the theoretical framework supporting the primary constructs for this investigation: (a) attachment theory; (b) social media practices; and (c) relationship development. The purpose of this literature review is to support the examination of the directional relationship between emerging adults' attachment styles, social media practices, and intimate relationship development; therefore, Chapter Two contains a comprehensive review of the literature with supporting empirical research for each construct, as well as potential relationships between the constructs.

Attachment Theory

Attachment theory is based on the work of John Bowlby (1969) and Mary Ainsworth (1991). Working together as well as independently, Bowlby and Ainsworth (1991) established a theory of human development based on the lasting influence of parent-child emotional bonds. These early attachments between children and their parents/caregivers form internal working models of self and others (Ainsworth & Bowlby, 1991). Studies (e.g., Ainsworth, Blehar, Walters, & Wall, 1978; Waters, 1978; Grossman & Grossman, 1991; Main, Kaplan, & Cassidy, 1985) of infants revealed three basic patterns of attachment; (a) *secure*; (b) *anxious-ambivalent*; and (c) *avoidant*.

Children with *secure* attachment patterns are classified as having received effective and consistent caregiving, while forming internal working models of self as worthy and others as responsive and supportive. Children with *anxious-ambivalent* attachment patterns received caregivers as moderately helpful and formed internal working models of self as uncertain and

others as helpful but inconsistent. Children with *avoidant* attachment patterns experienced caregivers as unresponsive to their needs and developed internal working models of self as unwanted and others as rejecting (Ainsworth et al., 1978).

Early attachment patterns influence individuals' development across the lifespan (Bartholomew & Horowitz, 1991). Attachment refers to the emotional bond and security felt in important romantic relationships (Bowlby, 1988).To regulate security, individuals maintain a comfortable range of proximity to their partner, who can provide a safe haven during stress and a secure base in times of need (Bowlby, 1969). Furthermore, attachment theory posits that early relationship experiences, especially the infant-mother relationship, are important in facilitating functional relationships later in life. These early relationships act as cognitive representations of how relationships operate (Bowlby, 1973) and allow individuals to build skills for use in later intimate relationships (Collins, 2003).

Bowlby (1982) assumed that adult behavior could be explained by early parent-child interactions; therefore, proposing that human motivation is organized by innate behavioral systems that facilitate adjustment and survival, which could be explained by the infant-mother bond in terms of the child's basic needs for protection, affection, and security (Fonagy, 2001). Bowlby (1982) suggested that attachment is pivotal to psychological development and ensures an infant's survival by eliciting care and protection from stronger and wiser figures, which he termed *attachment figures.* Bowlby proposed that interactions with these attachment figures are ruled by an innate attachment behavioral system, which motivates people of all ages, beginning in infancy, to seek proximity to supportive others in times of need. Attachment systems' goals

are to maintain adequate care and protection, which is accompanied by a subjective sense of safety and security. Goals of care and protection are made clear when individuals encounter actual or symbolic threats and notice that an attachment figure is *not* near, interested, or responsive. In such cases, the individual attempts to increase or re-establish proximity to an attachment figure in order to restore a sense of security (Bowlby, 1982).

The attachment behavioral system is crucial during the early years of life, yet no one at any age is free from reliance on other people (Shaver & Fraley, 2008). The attachment system remains active over the entire life span, as indicated by adults' tendency to seek proximity and support when threatened or distressed (Hazan & Zeifman, 1999). Furthermore, adults are capable of becoming emotionally attached to a variety of close relationship partners (e.g., friends, romantic partners, coaches, and leaders), using them as sources of love, encouragement, and support in times of need and suffering distress when separated from them, especially from death (Bowlby, 1980; Shaver & Fraley, 2008).

Research on individuals' attachment orientations (e.g., Ainsworth, Blehar, Waters, & Wall, 1978; Brennan, Clark, & Shaver, 1998; Mikulincer & Shaver, 2003, 2007) indicates that attachment can be measured along two orthogonal dimensions: (a) attachment anxiety; and (b) attachment avoidance. A person's position on the attachment anxiety dimension indicates the degree to which he or she worries that a partner will *not* be available and supportive in times of need, which heightens efforts to maintain closeness to relationship partners. A person's position on the avoidance dimension indicates the extent to which he or she distrusts relationship

partners' goodwill and capacity to help, which heightens efforts to maintain a safe degree of independence and self-reliance (Mikulincer & Shaver, 2012).

Attachment issues are prominent in adult romantic love relationships (Shaver, Hazan, & Bradshaw, 1988). In these relationships, attachment operates along the sexual and caregiving systems (Ainsworth, 1989) and is reciprocal rather than complementary. Hence, adults are primary attachment figures for one another since attachment is the foundation of the love relationship (Wynne, 1984). Secure attachment relationships are more effective, more satisfying, and are characterized by more positive relationship qualities than insecure attachment (Shaver & Hazan, 1993). Furthermore, insecure attachments are distinguished by feared loss of the relationship, a search for security, less adequate integration and recall of previous attachment experience, and a low (preoccupied) or high (avoidant) threshold for activating attachment behavior (Ainsworth, 1989).

Insecurely attached adults often experience lower levels of trust, satisfaction, intimacy, and stability in their romantic relationships compared to securely attached individuals (Kirkpatrick & Davis, 1994). In addition, insecurely attached individuals are more prone to jealousy, and often perceive sexual or emotional threats to their romantic relationships (Buunk, 1997; White & Mullen, 1989). Anxiously attached adults often hold negative self-views, and tend to be higher in suspicion and worry that their partner will abandon them for a superior partner (Guerrero, 1998). When the attachment system is activated, anxious adults tend to use hyper-activating strategies, which include clingy, intrusive, angry, and controlling efforts to obtain closeness, attention, care, and support (Mikulincer & Shaver, 2007). Avoidant adults tend

to use deactivating strategies, including defensive distancing, denial of intimacy needs, and diverting attention away from attachment-related cures, thoughts, and emotions (Mikulincer & Shaver, 2007).

Water, Merrick, Treboux, Crowell and Albersheim (2000) examined the extent of stability and change in attachment patterns from infancy to adulthood. In 1975 and 1976, Ainsworth and Wittig examined 60 one-year old babies through the Strange Situation, a laboratory-based observation of the infant's response to two brief separations from, and reunions with, the parent (Ainsworth, Blehar, Waters, & Wall 1978) at one year of age. Fifty of these participants (21 males and 29 females) were relocated 20 years later and agreed to participate in the *Berkley Adult Attachment Interview* (AAI; George, Kaplan, & Main, 1985).

Bowlby's theory postulates that attachment-related expectations and working models may change based on the availability and responsiveness of secure base figures. In other words, attachment theory predicts stability under usual circumstances, as well as change when negative life events alter caretaker behavior. The results of Waters and colleagues (2000) examination of the stability of attachment into adulthood indicate that early attachment security with a caregiver was related to adult attachment security 20 years later. Using three classifications at each age, 32 out of 50 participants (64%) were assigned to corresponding attachment classifications in infancy and emerging adulthood, $\kappa = .40$, $p < .005$; $\tau = .20$, $p = .002$. Thirty-six percent of the participants changed classification from infancy to early adulthood (Waters et al., 2000). Some of the observed change comes from problems associated with the reliability and validity of the

attachment measures. Nevertheless, the results also identified that experiences beyond infancy play a role in adult security.

Waters and colleagues (2000) present strong evidence for the conceptualization of attachment relationships in infancy and adulthood, supporting Bowlby's expectation that individual differences can be stable across significant portions of the lifespan. In addition, they endorse the notion that throughout childhood, attachment representations are open to revision in consideration of life experiences. Furthermore, the data support the tenet that early and late relationships with caregivers are developmentally-related. The authors report that the processes that may be contributing to stability include: (a) consistency in caregiver behavior across time; (b) a tendency toward persistence in early cognitive structures; (c) the moderate intensity and low frequency of attachment-related stressful events in this middle-class sample; (d) the effects of individuals on their environment; and (e) stabilizing effects of personality trait variables. However, Waters et al. (2000) findings do *not* provide information on how adult attachment styles influence romantic relationship development, nor do they indicate how attachment style may be influencing other areas of emerging adults' lives.

Adult attachment theory as it relates to conflict resolution and relationship satisfaction was examined by Pistole (1989). Undergraduate students (N = 137; 65 males and 82 females) completed Hazan and Shaver's (1987) single-item measure classifying individuals into secure, anxious/ambivalent, and avoidant attachment style. In addition, participants completed the *Rahim Organizational Conflict Inventory* (ROCI; Rahim, 1983). The ROCI is constructed about

the two dimensions of concern for self and concern for the other. Relationship satisfaction was measured using the *Dyadic Adjustment Scale* (Spanier, 1976).

Pistole's (1989) results indicate that classification in attachment style using the question about comfortableness with closeness in relationships resulted in a sample of 23% avoidant, 18% anxious/ambivalent and 58% insecure. Results identified that individuals in the secure (M = 29.17) condition were more likely to use an integrating strategy than those in both the avoidant (M = 26.97; Newman-Keul = 3.80, $p < 0.05$) and the anxious/ambivalent (M = 27.05) condition (Newman-Keul = 3.35, $p < 0.05$). Furthermore, the securely (M = 15.50) attached reported significantly greater use of compromising than the anxious/ambivalent (M = 13.85) attached (Newman-Keul= 4.25, $p < 0.05$). A post hoc finding emerged from the data: anxious/ambivalent individuals (M = 22.64) were more likely to oblige their partner than those in the avoidant (M = 20.79) condition (Newman-Keul = 3.36, $p < 0.05$). Strength of association was calculated for the significant findings, and eta squared indicated a medium effect size, ranging from 0.05 for obliging to 0.07 for integrating.

With regard to relationship satisfaction, significant differences were found for the satisfaction subscale (F =13.88, df = 2,131, $p < 0.05$), and for the cohesion subscale (F = 3.12, df = 2,131, $p < 0.05$). Post hoc comparison tests indicated that secure individuals (M = 38.81) reported a higher level of relationship satisfaction than those in both the anxious/ambivalent (M=33.00; Newman-Keul = 4.55, $p < 0.05$) and the avoidant (M = 34.28) groups (Newman-Keul= 3.89, $p < 0.05$). Furthermore, the securely attached (M = 17.61) exhibited a higher level of

cohesion than the anxious/ambivalent (M =15.66) attached (Newman-Keul = 3.49, $p < 0.05$). Computed effect sizes for satisfaction were 0.17 and 0.05 for cohesion (Pistole, 1989).

Compared with the avoidantly and anxiously/ambivalently attached individuals, the securely attached individuals reported higher relationship satisfaction and were more likely to use a mutually focused conflict strategy, if it was integrating (Pistole, 1989). Yet, cohesion and the use of compromising were reported as greater for the secure group only in relation to the anxious/ambivalent group. In addition, the anxious/ambivalent attached were more likely than those in the avoidant group to oblige their partner's wishes. These findings can be construed as consistent with attachment theory, assuming an important conflict with one's partner is perceived as a threat of separation or rejection. Attachment behaviors would therefore be activated to preserve the bond. The results identified that the attachment construct provides a potential strategy for examining personal relationships, individual differences in behavior, and how relationships work (Pistole, 1989). Therefore, Pistole (1989) provides support that emerging adults' attachment styles influence their relationship satisfaction; however, the manner in which attachment style influences romantic relationship development is *not* provided.

Attachment security as a specific appraisal of a current dating partner's availability as a safe haven and secure base, rather than as a relationship construct or feature of a specific dating relationship was assessed by Duemmler and Kobak (2001). The authors suggest that the rates of relationship disruption are much higher in adult attachments, particularly in dating relationships. The possibility that a partner may leave and terminate the relationship represents a major threat to an individual's attachment security. Consequently, confidence in a partner's availability as a

safe haven or secure base is closely linked to the degree to which partners become committed to maintaining the relationship. Furthermore, adult attachments may be influenced by prior history of expectations that have formed in previous relationships, both in parent-child relationships and peer relationships (Duemmler & Kobak, 2001).

Fifty-one undergraduate dating couples completed the study and results identified that attachment security increased with the length of time in the dating relationship and predicted relationship stability following graduation (Duemmler & Kobak, 2001). Attachment styles also predicted relationship stability with both males' and females' security increasing the relationship stability one year after graduation. Lastly, participants reported that males' security with their mothers and fathers and reports of open communication between their parents contributed to growth in attachment security and commitment between Fall and Spring semesters. The authors report that attachment security should increase with time in dating relationships; moreover, that emerging adult partners need time to examine each other as attachment figures that are able to provide a safe haven and support. In addition, the formation of a secure attachment contributes to relationship stability as partners grow to rely on one another and form increased security from the relationship. Lastly, modifications in attachment security within the early stages of dating show meaningful relationships with relationship stability. Specifically, trends toward increased security should result in more stable relationships, while trends toward decreased security should result in less stable relationships. However, that Duemmler and Kobak (2001) report that each of these criteria can be contrasted with the idea of attachment styles, suggests that security is a component of an individual's personality and remains relatively resistant to change across time and relationships. In conclusion, Duemmler and Kobak (2001) reported that attachment styles

assessed as measures of personality predicted relationship stability with both males' and females' security increasing the relationship stability.

Social Media Practices

Social media is comprised of technological advances that include hundreds of social networking sites. *Social networking sites* (SNS), offer users various technological affordances, supporting a wide range of interests and practices. The central tenets of most SNSs support the maintenance of pre-existing friendships, or social networks, and yet others help unacquainted individuals connect based on shared interests, political views, or activities (Boyd & Ellison, 2008). SNSs also attract diverse users, while others attract individuals based on a common language, or shared racial, sexual, religious, or nationality-based identity. In addition, SNSs vary in their communication tools, such as commenting, messaging, sharing photos, or videos (Boyd & Ellison, 2008). The SNS analyzed in this research project, *Facebook*, enables its users to present themselves in an online profile, accumulate 'friends' who can post comments on each other's pages, and view each other's profiles. Facebook members can join virtual groups based on common interests, and learn others' hobbies, interests, musical tastes, favorite books and movies, and romantic relationship status through the profiles.

Within the helping professions, problematic internet usage is a growing concept (Liu & Potenza, 2007; Wilson & Johnson, 2013). Counselors need to stay current with information influencing their profession, as staying abreast of new information assists in treating clients (Wilson & Johnson, 2013). One area growing in the counseling field is problematic internet use, or in some cases, Internet addiction. The criteria used to define internet addiction closely match

the criteria for substance dependence, including an increased need to obtain positive feelings and social relationships being affected by Internet use (Smahel, Brown, & Blinka, 2012). Although *not* all individuals using Facebook suffer from internet addiction, nor problematic internet use, the effects of what happens on Facebook may spillover into individual's offline life (Elphinston & Noller, 2011). There are concerns regarding the accessibility of training and professional development opportunities regarding problematic internet use (among other process addictions) as many counselor educators who are the primary researchers in the counseling field are *not* aware of the growing issue (Crozier & Agius, 2012). Furthermore, many counseling students are *not* taught about problematic internet use and other process addictions in their counselor training programs, creating a problem for the counseling profession in that there is continued need for training and research in this area (Wilson & Johnson, 2013). Therefore, research involving problems stemming from internet use, including Facebook, is important for counselor educators to conduct for the benefit of developing counselors and their future clients (Wilson & Johnson, 2013).

The Theories of Social Media

Ellison, Stenfield, and Lampe (2007) examined the relationship between the use of Facebook and the formation of social capital. They were interested in studying the ability of SNSs to articulate existing social connections and enable the connection of new relationships. A sample of undergraduate students (N = 286; 188 females and 98 males) completed questionnaires, including the developed *Facebook Intensity Scale* (FBI). Regression analyses indicate a strong association between the use of Facebook and the three types of social capital,

with the strongest relationship being to bridging social capital. Furthermore, Facebook usage was found to interact with measures of psychological well-being, suggesting that Facebook may provide greater benefits for users experiencing low self-esteem and low life satisfaction.

Elphinston and Noller (2011) researched the links between Facebook intrusion, jealousy in romantic relationships, and relationship outcomes in a sample of undergraduate students (*N* = 305; 195 females and 110 males) who were in a romantic relationship at the time of the study. They developed the *Facebook Intrusion Questionnaire* (FIQ) based on key features of behavioral addictions and their results identified that Facebook intrusion was linked to relationship dissatisfaction, due to jealous cognitions and surveillance behaviors. These results identified the possibility of high levels of Facebook intrusion spilling over into romantic relationship, resulting in issues related to jealousy and dissatisfaction.

Empirical Research on Social Media and College Students

Moreno and colleagues (2011) examined college students' Facebook disclosures to explore connections between depression and wall posts among college students. They used public Facebook profiles from sophomore and junior undergraduate students and evaluated the personally written status updates. They then applied *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; DSM-IV-TR; American Psychiatric Association, 2000) criteria to 1-year status updates from each profile to determine the prevalence of displayed depression symptoms and major depressive episode criteria. Negative binomial regression analysis was used to model the relationship between depression disclosures and demographics or Facebook use characteristics. Furthermore, analyses were conducted using forward stepwise regression and

confirmed using backward stepwise regression. The authors evaluated 342 profiles in order to reach the goal of 200 profiles, and report that college juniors were more likely to display depression symptoms (36%) compared to their sophomore counterparts (14%; $p < .001$). In addition, participants who displayed depression symptoms were more likely to have updated their Facebook profile more recently; those who displayed depression symptoms on average had updated their Facebook profile 3.2 days (*SD* 3.7) before the profile was evaluated, and those who did *not* display depression had last updated their profile 6.9 days before (*SD* 7.6). Overall, the authors reported that 25% of the profiles displayed depressive symptoms and 2.5% met criteria for major depressive episode. In addition, profile owners were more likely to reference depression if they averaged at least one online response from their friends to a status update disclosing depressive symptoms ($exp\ (B) = 2.1$, $p < .001$), or if they use Facebook more often ($p < .001$).

Moreno and colleagues (2011) indicate that by creating a Facebook profile, college students may give clinicians insight into aspects of their behavior that are *not* always apparent in offline life. Emerging adults report that they often disclose more about themselves on SNSs than they do in person (Moreno et al). Considering that 90% of college students maintain a Facebook profile, and Facebook is a socially shared and socially developed document, it may appear clear that profile constructors cannot stray too far from reality in constructing their online identity. Aside from the potential stigma surrounding mental health symptoms or diagnoses, 25% of profiles in this study publicly displayed depression references. This study does *not* provide evidence of face validity of displayed references that meet criteria for depression symptoms, but it does provide prevalence estimates of how these updates are displayed.

In essence, Moreno and colleagues (2011) offer several important findings. First, students who displayed more recent Facebook activity were more likely to display a reference to depression. This finding may be attributed to students who experience depressive symptoms placing greater investment in SNSs as a communication outlet, as it could be viewed as a safe and indirect outlet for emotions. In addition, references to depression were more commonly displayed on Facebook profiles in which a response by another Facebook user was generated. This finding may indicate that those who receive reinforcement to a depression disclosure from their online friends may be more apt to discuss their depressive symptoms publicly on Facebook. Moreover, another perspective of this finding indicates that depression disclosures on Facebook often foster responses from peers who view these references. Lastly, the total number of friends was *not* associated with increased depressive disclosures; therefore, it was *not* the size of one's online social network, but their involvement which promotes peers to display depressive symptoms.

Moreno and colleagues (2011) provide support for studying social media usage among emerging adults, as their findings identified that Facebook plays an integral role in emerging adults' lives, while also acting as an outlet of expression. Further research into social media's influence on individuals' relationship development is warranted.

Relationship Broadcasting

Social networking sites, and in particular Facebook, are becoming prevalent forms of communication in the development of romantic relationships (Fox & Warber, 2013). Facebook allows users to identify and link to their romantic partner on their profile. For example, users

have the option to list their relationship status as “In a relationship” or “In a relationship with ……” (Facebook.com). When users choose the latter, on their profile will be an active link to the listed partner’s profile, which, in turn, would read “In a relationship with [user]” and provide a link to the user’s profile. Broadcasting this relationship status is known among users as being *Facebook official* (FBO; Fox & Warber, 2013). For the purposes of this study, *relationship broadcasting* refers to the act of going FBO, or subsequently being FBO with an individual. FBO status necessitates both parties consent to the status posting; therefore, individuals must acknowledge the relationship within their social networks.

Men and women perceive romantic relationships differently and maintain different goals for pursuing romantic relationships (Fox & Warber, 2013). Although both men and women pursue short and long-term relationships, emerging adult women place a higher emphasis on invested romantic relationships than men (Hammersla & Frease- McMahan, 1990), and college women prioritize faithfulness and emotional closeness in their dating partners more so than men (Fuhrman, Flannagan, & Matamoros, 2009). Therefore, emerging adult women want to secure commitment from their partner, protect their resources, minimize third party threats, and advertise to others that their partner is taken (Rusbult & Buunk, 1993). Going Facebook Official (FBO) allows women to broadcast their committed relationship to others in their social network as a way to secure their resources.

In contrast, emerging men may resist commitment while dating due to a greater interest in pursuing multiple partners (Buss & Schmitt, 1993). Men report wanting a larger number of sexual partners than women do (Schmitt, 2003), and emerging adult men are more likely than

women to prefer casual sex over dating (Bradshaw, Kahn, & Saville, 2010). If men were to broadcast their relationship commitment on Facebook, it may limit their potential to date multiple partners at the same time; however, men may also wish to deter their partners' other potential mates, and advertise exclusivity to their romantic partners, therefore opting to go FBO to ward off competition (Fox & Warber, 2013).

Fox and Warber (2013) examined college students' perceptions and motives for relationship broadcasting. They recruited 403 undergraduate students from a large Midwestern university. Of this sample, 129 were male and 274 were female; all were Facebook users. The age ranges for the participants was 18 to 25 years old (M = 20.79, SD = 1.41) and they identified as White (n = 306; 75.9%), Black/African/African American (n = 12; 3%), and Latino/a/Hispanic (n = 9, 2.2%). Participants identified as heterosexual (n = 386; 95.8%), bisexual (n = 9; 2.2%), or gay/lesbian (n = 6; 1.5%). Participants reported spending an average of over two hours (M = 122.12 minutes; SD = 99.55) each day using Facebook actively (*not* just logged in).

Participants identified romantic relationship initiation behaviors by ranking six behaviors used to escalate romantic relationships identified from previous research in chronological order starting with the first thing one would do when pursuing a romantic interest (Fox & Warber, 2013). They also indicated on a five-point Likert scale their agreements with statements on their perceptions of FBO statuses and their experiences of going FBO. Examples of these statements include: "A Facebook official relationship means both partners are exclusively dating each other" and "When a couple goes Facebook official, other people talk about it offline".

Participants indicated on another five-point Likert scale their agreement with reasons for going FBO, such as “To express their commitment to their romantic partner” and “Because they want attention”.

To examine how this sample of undergraduate college students ranked the behavior used to escalate romantic relationships, Fox and Warber (2013) used a Friedman’s test. The results identified that there were statistically significant differences in the perceived order of these behaviors, indicating distinct steps in the romantic initiation process (χ^2 [9, n = 386] = 1501.76. $p < 0.001$). A post hoc analysis was conducted using Wilcoxon signed-ranked tests with a Bonferroni correction and six ordered steps were identified. Participants indicated that the following sequence represented the typical romantic escalation: (a) they met the target face-to-face; (b) they went to Facebook to inspect the target’s profile and send them a friend request; (c) they requested the target’s phone number; (d) they began texting the target and inviting the target to hang out in group settings; (e) they began to post on the target’s Facebook wall and engage in Facebook messaging; and (f) they would call the person to go out on a date with them (Fox & Warner, 2013).

To address the sample’s meaning of FBO, Fox and Warber (2013) conducted an exploratory factor analysis (EFA). A principal components analysis was conducted using Varimax rotation with Kaiser normalization. A scree test was administered and three factors were identified: *commitment, intensity,* and *social response.* Two items failed to load and were dropped.

Fox and Warber (2013) thought there would be differences between reported gender and perceptions of FBO. They compared men and women on the three factors and found that women (M = 4.49, SD = 0.64) were more likely than men (M = 4.24, SD = 0.64) to endorse the idea that going FBO means a relationship is exclusive and that partners are *not* dating other people (t [400] = 3.68, $p < 0.005$, Cohen's d = 0.37). Women (M = 3.57, SD = 0.68) were also more likely than men (M = 3.42, SD = .70) to believe that FBO represented a serious step in the relationship that indicated long-term stability (t [401] = 1.96, p = 0.05, Cohen's d = 0.20). In addition, women (M = 4.11, SD = 0.51) were more likely than men (M = 3.98, SD = 0.52) to feel that going FBO was a social act that would foster attention both online and offline (t [401] = 2.46, $p < 0.05$, Cohen's d = 0.25).

Motives for going FBO were examined through EFA. A principal components analysis was conducted using a Varimax rotation with Kaiser normalization. A scree test was administered and two factors were identified; *interpersonal motives* and *social motives*. Two items failed to load; therefore, these two were dropped. Fox and Warber (2013) examined gender differences between interpersonal (t [401] = 0.87, $p > 0.05$) and social motives (t [401] = 1.03, $p > 0.05$) for going FBO, but found *no* differences between men and women.

This exploratory study offers insight into the role of Facebook in the relationship development of young adults. Interpersonal and social beliefs regarding Facebook relationship statuses were explored. Despite the limitations of this study, which include using one age group, as well as one university, this study identified how placing a label on a relationship means different things to each partner, and can be a cause for relationship dissatisfaction (Fox &

Warber, 2013). Therefore, Fox and Warber's results support further examination into the relationship broadcasting of emerging adults; specifically, investigating how relationship broadcasting, as a subset of social media practices, contributes to relationship development. Furthermore, Fox and Warber examine the perceptions and motives for relationship broadcasting, supporting the merit of a future study examining the personal attributes (i.e., attachment styles) of emerging adults that may contribute to their romantic relationship development.

Sprecher (2010) examined relationship broadcasting as it relates to the influences of social network participants. Specifically, Sprecher examined how individuals attempt to influence, either positively or negatively, the development of a relationship in their social network. There were several purposes of the study, including: (a) to describe the types of and stages of relationships that are targeted for social influence; (b) to examine the degree to which network members' feelings and beliefs about the relationship correspond with their behaviors directed toward the targeted relationship; (c) to examine sex differences in behaviors engaged in to influence a targeted relationship; and (d) to examine social network members' perceptions of the outcome of their social influence attempts.

Participants were 529 undergraduate college students from a Midwestern U.S. university. Participants had to be able to recall a relationship which they had tried to influence (either positively or negatively), and the experience had to have happened within five years. Sprecher (2010) wanted to ensure that both approved and disapproved relationships were represented in the sample; therefore, two versions of the sample were randomly distributed in the recruitment

setting. One version instructed participants to respond to the questions for an approved relationship, while the other instructed them to respond to the questions for a disapproved relationship. The number of participants in each group was 278 (52.6%) in the disapproval condition and 251 (47.4%) in the approval condition. In the final sample, 184 (34.8%) were men and 345 (65.2%) were women. The mean age was 20.82 (*SD* = 3.11). The majority (82.2%) were White, 9% were Black, and the remaining classifications are *not* clarified, with the author indicating that "the remaining classified themselves as one of the other races listed or as 'other'" (Sprecher, 2010, p. 634).

Participants were asked questions assessing their general reactions to the relationship (ranging from *extreme disappointment* to *extreme approval*). A composite score of *Social Reactions* was created from six items. An example of the items includes: How would you best describe your initial reactions to the relationship? Answer options ranged from 1= *extremely negative; I definitely did not want the relationship to develop* to 7= *extremely positive; I definitely wanted to relationship to develop;* the midpoint was 4 = *ambivalent; could see both positives and negatives of the relationship*. A second question asked participants how their attitudes toward the relationship had changed over time (1 = *became much more negative*, 4 = *did not change*, 7 = *became extremely more positive*). A third question asked how much they liked the other (the person with whom their friend or relative was developing a relationship; 1= *not at all;* 7 = *a great deal*). Participants were also asked what type of effect the relationship was having on their friend/relative's well-being and happiness (1 = *very negative effect;* 4 = *no effect*; 7 = *very positive effect*), to what degree the two were well-matched and compatible (1 = *very mismatched and incompatible*; 7 = *very well-matched and compatible*), and to what degree they

believed the relationship would be long-lasting and satisfying to both members (1 = *not at all* to 7 = *a great deal*). Sprecher (2010) designed these measures to have high face validity as affective and cognitive assessments of network reactions to a targeted relationship. The items were identical on both versions of the survey. For this researcher developed assessment, the higher the composite score, the more positive the network reaction toward the relationship. For this sample of undergraduate college students, Cronbach's alpha for the six-item composite score was .90, indicating high internal consistency.

The author relied on previous research (e.g., Bryan, Fitzpatrick, Crawford, & Fischer, 2001; Knobloch & Donovan-Kickan, 2006) in the development of 23 items of positive and negative behaviors that people may engage in to influence a relationship. A factor analysis with varimax rotation was conducted on the responses to the 23 items that measured network social influence behaviors. Three factors arose with eigenvalues greater than 1 (9.37, 3.62, and 1.44). Factor scores were created from the items that loaded .50 or greater on each of the factors that did *not* also load greater than .40 on a secondary factor. Factor one was a positive influence dimension and contained nine of the 10 items that were originally written to assess positive behaviors. A 10th item loaded on this dimension, but also loaded on another factor, and was therefore eliminated. Factor 2 consisted of nine behaviors that were originally designed to assess negative behaviors and Factor 3 consisted of three additional items that measured negative behaviors. The distinction between Factor 2 and Factor 3 was that the items that loaded on Factor 2 focused on persuasive communication directed toward one's friend or relative, whereas the items that loaded on Factor 3 focused more on interfering behaviors. The coefficient alpha was high for all three factor indices: (a) *Positive influence* = .92; (b) *Negative Influence-Persuasive*

Communication = .90; and (c) *Negative Influence- Interference* = .82. One additional item was written to assess a negative behavior loaded on more than one factor, and was deleted.

The outcomes of the relationship and perceived effect on the relationship was assessed by asking participants to indicate the degree to which they had engaged in each behavior during the time they were experiencing their strong approval or disapproval for the relationship (Sprecher, 2010). Each item had a 1 (*never*) to 7 (*extremely often*) response scale. The outcome of the relationship and perceived effect on the relationship was assessed by asking participants "To what degree do you believe that your reactions to the relationship had an effect on what happened to the relationship?" The options provided ranged from 1 (*no effect*) to 4 (*strong effect*). The second question was "People's reactions to a relationship may sometimes backfire and have the opposite effect. What type of effect did your reaction to the relationship have on the relationship?" Answer options ranged from 1 (*contributed strongly to the relationship becoming stronger and more intense)*, to 4 (*had no effect positive or* negative), to 7 (*contributed strongly to the relationship becoming weaker and moving toward ending*).

The results identified that the majority of participants chose a romantic relationship (58.1% in the approval condition and 55.8% in the disapproval condition) as compared to a friendship (4% to 5% in both approval and disapproval conditions; Sprecher, 2010). Those in the disapproval condition were more likely than those in the approval condition to define the relationship as a "casual sexual relationship" (16.5% compared to 4.7%), whereas the descriptor "casual dating relationship" was more frequently selected in the approval condition (32.5%) than in the disapproval condition (22.1%), χ^2 (2, N = 458) = 20.41, p < .001.

Participants were asked to identify the stage of the relationship during which they has experienced their strongest reaction (Sprecher, 2010). Seven percent reported that the pair was becoming acquainted, 15.7% reported they were developing romantic interest, 30.8% reported they were beginning to date, and 37.2% reported that they were becoming seriously committed (the remaining 9.4% marked "other" or "becoming friends"). The results identified a significant difference between the approval and disapproval condition with regard to the proportion who selected one of the initial stages of relationship development versus the proportion who selected the "becoming seriously committed" stage; χ^2 (1, N = 475) = 14.66, p < .001, with a greater proportion of those in the disapproval condition than in the approval condition choosing the serious stage of the relationship (49.8% versus 32.5%, respectively).

Sprecher (2010) compared the approval condition to the disapproval condition and results suggest that those in the approval condition scored significantly higher on the Positive Influence index, t (477) = 29.05, p <.001, and lower on the Negative Influence-Persuasive Communication index, t (478) = 18.82, p < .001, and the Negative Influence-Interference index, t (478) = 10.76, p < .001. Sprecher correlated scores on the Social Reaction composite with scores on the three behavioral factor indices. Positive social network reactions toward the relationship were associated with greater positive influence behaviors, a lesser degree of negative communicative behaviors, and fewer interfering (negative) behaviors (all p's < .001; Sprecher). In other words, the more negative the social network reactions, the more negative the influence behaviors.

In examining sex differences in the degree of reported influence, women scored significantly higher than men in the Positive Influence index: women (M = 3.44, SD = 1.60)

versus men (M = 3.09, SD = 1.50), t (519) = 2.41, p = .016 (Sprecher, 2010). No sex difference was found in scores on the *Negative Influence-Persuasive Communication index*: women (M = 3.39, SD = 1.61) versus men (M = 3.34, SD = 1.63), t (520) = .38, p = .703. A sex difference was found for the *Negative Influence-Interference index*, but it was opposite of what was originally predicted; men scored higher: women (M = 1.89, SD = 1.20) versus men (M = 2.14, SD = 1.35), t (520) = 2.15, p = .032. Sex comparisons assessed within each condition suggested that the only sex difference found was for the Positive Influence index in the approval condition, which was significantly higher for woman than for men (p = 0.005); therefore, Sprecher (2010) reported this was a reliable sex difference.

Lastly, one of the purposes of Sprecher's (2010) study was to examine participants' beliefs about the outcome of their social influence attempts. The most frequently selected response to the question that asked about consequences for the targeted relationship was "a slight effect" (40.3%). The next most frequently selected response was "no effect" (34.7%). There was no significant difference between the two conditions in the perceived degree of effect, as indicated by both a chi square test of differences in the frequency of responses, χ^2 (3, N = 476) = 3.90, p = .273, and an independent t test of difference in mean responses, t (474) = 0.03, p = .97.

Sprecher (2010) examined whether participants' reports of their social influence behaviors were associated with their beliefs that they had an effect on the relationship. In the total sample, scores on each network influence index were correlated positively with the perception of having an effect on the relationship, r = .12 to .21. That is, those who engaged in more behaviors to try to influence the targeted relationship also believed that their actions had a

greater effect on the relationship. The associations were also examined within each condition. In the disapproval condition, perceptions of having a greater effect on the relationship were associated with scores on the *Negative Influence-Persuasive Communication index*, r (242) = .33, $p < .001$, and with scores on the *Negative Influence-Interference index*, r (242) = .32, $p < .001$, but were unrelated to scores on the *Positive Influence index*, r (242) = -.06, $p = .325$. In the approval condition, perceptions of having an effect were associated positively with scores on the *Positive Influence index*, r (231) = .39, $p < .001$, and also with scores on the *Negative Influence-Persuasive Communication index*, r (231) = .16, $p = .015$, but unrelated to scores on the *Negative Influence-Interference index*, r (231) = .08, $p = .205$.

Another item in Sprecher's (2010) social influence survey asked more pointedly about the direction (in combination with the degree) of the effect. In the approval condition, most (77.1%) of the participants who indicated that their reactions had an effect on the relationship said that it was a positive effect. The modal category, after "no effect" (40.2%) was "contributed slightly to the relationship becoming stronger and more intense" (34.1%). In the disapproval condition, the second modal category, after "no effect" (44.4%) was "contributed slightly to the relationship becoming weaker and moving toward ending" (22.4%). Sprecher reports that an unintended consequence of social reactions occurred in some cases. Of the respondents in the disapproval condition, 14.1% believed that their reaction contributed to the relationship becoming stronger and more intense. Only 6.0% of respondents in the approval condition believed that their reaction contributed to the relationship becoming weaker and moving toward ending (presumably also an unintended consequence).

To explore the possible effects of social influence behaviors by those in the disapproval condition who perceived that their influence on a disapproved relationship resulted in it becoming stronger (rather than weaker), Sprecher (2010) compared this small group (n = 34) with the larger group (n = 206) of participants who reported either no effect or a negative effect. There were *no* significant differences between the groups on the scores on the three factor indices.

Sprecher's (2010) study is *not* without limitations. The participants were reflecting on a time where they had a strong emotional reaction to a relationship. Because memories may make situations better or worse than they actually were, this should be considered when interpreting the results of this study. In addition, this study only looked at friends' perceptions of relationships on social networks; whereas other social network members were *not* included (e.g., family members, co-workers, or parents). Moreover, perspectives from several network members on the same relationship would add support for the results, as opposed to only one network member's support. Nonetheless, Sprecher (2010) offers support that it is *not* just in the mind of individuals that their social networks can be approving or disapproving of a relationship. Support or opposition for relationships is experienced by network members, from their perspective, and can lead to enacting several behaviors to try to influence the relationship. Therefore, the results of Sprecher's study support this study; emerging adults experience online support and opposition, therefore, relationship broadcasting, as a subset of social media practices, may contribute to emerging adults' romantic relationship development.

Relationship Development

One of the developmental milestones during young adulthood is solidifying social roles while developing significant friendships and intimate partner relationships (Erikson, 1963). *Relationship development* is defined as the sequence of romantic escalation between two individuals (Parks & Roberts, 1998). Researchers have developed a number of theories to explain how and why individuals choose a particular partner. The theories of homogamy and complementarity (Kerckhoff & Davis, 1962; Winch, 1958), stimulus-value-role theory (Murstein, 1970) and the wheel theory of love (Martin & Luke, 1991; Reiss & Lee, 1988) provide insight into how individuals may choose a partner; however, no single theory appears to explain all aspects of mate selection or dating behaviors.

Dating is defined as a form of courtship, in that it encompasses social activities between two people assessing the possibility of deepening the relationship over time (Jackson, Kleiner, Geist, & Cebulko, 2011). Moreover, a date implies romantic or sexual interest (Bradshaw, Kahn, & Saville, 2010). Although dating can take many forms, research findings identify that when asked what happens on a typical date, college students report a predictable pattern that is consistent with traditional gender roles; the man being active and the woman being reactive (Laner & Ventrone, 2000; Morr-Serewicz & Gale, 2008; Rose & Frieze, 1993).

Theories of Romantic Relationship Development

Under the lens of attachment, individuals possess basic needs that can be met through social relationships (i.e., the needs for emotional support, care, sexual gratification; Hazan & Shaver, 1994). Considering that the most basic need (security) is regulated by the attachment

system, and given that this system is presumed to function similarly across the lifespan, one of the most important characteristics of a potential partner should be the same characteristics shown to be important in the selection of an attachment figure during infancy or childhood, namely, familiarity and responsiveness (Hazan & Shaver, 1994).

Strauss, Morry, and Kito (2010) noted that individuals bring their own attachment style into their dating relationships. Similarity often leads to attraction (Byrne, 1971); however, in the attachment literature, there are three main hypotheses of attachment-related partner preference and selection; (a) hypotheses of similarity (Frazier, Byer, Fischer, Wright, & DeBord, 1996); (b) complementarity (Collins & Read, 1996); and (c) attachment security (Chappell & Davis, 1998). *Similarity* refers to a dating partner choosing a partner who has the same attachment style as the self. Frazier and colleagues (1996) investigated attachment orientations of partners in dating relationships (N = 83 couples) based on the three-category model of attachment, and found a prevalence of secure/secure and anxious/anxious matching. Furthermore, they suggest that individuals with anxious attachment styles prefer relationships with partners with anxious, rather than avoidant, attachment styles. Subsequently, avoidant males were more satisfied with partners who were avoidant than anxious. Frazier and colleagues (1996) recruited a follow up sample (N = 105 males and 121 females) and asked them to rank the desirability of nine potential (yet hypothetical) dating partners. Again, support for similarity of attachment styles was indicated, as insecure participants (either anxious or avoidant) preferred insecure partners over their secure counterparts.

Complementarity refers to the hypothesis that an individual prefers a partner who falls in the opposite dimension of attachment then the self. Strauss and colleagues (2010) offer an example of complementarity: a preoccupied individual prefers a dismissive partner, as she or he may be validating their existing view of relationships. Studies have supported complementarity (e.g., Brennan & Shaver, 1995; Collins & Read, 1990; Kirkpatrick & Davis, 1994; Pietromonaco & Carnelley, 1994), yet *not* without limitations. Kirkpatrick and Davis (1994) had a lack of avoidant and anxious individuals in dating relationships, making generalizability of attachment style preference to those insecure individuals difficult. Furthermore, Pietromonaco and Carnelley (1994) offered descriptions of fictional partners rather than inquiring about actual partners as well.

Collins and Read (1990) identified complementarity in their findings of anxious individuals being more likely to be partnered with individuals who were uncomfortable with closeness, a characteristic of avoidant attachment style. Lastly, Brennan and Shaver (1995) found support for complementarity as evidenced by preoccupied individuals who were *not* paired with a secure partner usually had an avoidant partner, and secure individuals partnered with an insecure partner usually had an anxious partner. However, these results were based on participants who were both in a dating relationship, as well as through answers to questions regarding their partner preferences overall.

Security refers to the hypothesis that security is preferred over the insecure attachment types and preoccupied is preferred over fearful and dismissing attachment types. Studies that incorporate the four types of attachment offer support for the security hypothesis. Latty-Mann

and Davis (1996) noted that partners who are in dating relationships are more likely to perceive their partners as having secure over insecure attachments. Furthermore, Chapman and Davis (1998) reported that regarding hypothetical secure versus insecure partners, more positive emotions are expressed towards hypothetical secure partners. In addition, preoccupied partners express more positive emotions than fearful or dismissive ones (Chapman & Davis, 1998). To clarify, Chapman and Davis report that preoccupied partners present greater prospects for the relationship security than the two avoidant types because they view significant others more positively and actively seek relationships rather than avoiding them. Nonetheless, Latty-Mann and Davis (1996) concluded that many of their preoccupied participants viewed their actual partners as being more avoidant or ambivalent than secure or preoccupied; therefore, supporting the hypothesis of complementarity rather than the hypothesis of security.

The role of romantic relationships in emerging adults' development has implications for clinicians. Specifically, romantic relationships are significant in young adults' lives (Furman & Shaffer, 2003). The significance of these relationships for various aspects of development means that counselors may want to take them into account in understanding and treating client issues. Problems in academic work or problems in family relationships can be linked to romantic experiences. Specifically, Monroe and colleagues (1999) report that romantic break-ups are the most common trigger of the first episode of major depressive disorder, which would likely influence functioning in most other areas of emerging adults' lives.

Empirical Research on Relationship Development and College Students

Friends with benefits (FWB) are relationships signified by friendship and sexual encounters, but with no implied or explicit relational exclusivity or commitment between partners (Afifi & Faulkner, 2000; Bisson & Levine, 2009). Owen and Fincham (2012) examined how college students' relationship satisfaction, communication quality, ambiguity in commitment level, and relationship separation differs as a function of a relationship started as one with *friends with benefits* (FWB) or not. The sample (N = 764) included undergraduate students who were in an exclusive dating relationship. Within the sample, 601 were female, 163 were male, with an average age of 19.37 years (SD = 1.41; ranging from 17 to 25 years old). The majority of the sample was White (70.9%), while 11.3% identified as African American, 11.9% identified as Latino(a). 1.8% identified as Asian American, 0.3% identified as Native American, and 4.0% identified as Other. Of the sample, 37.6% identified as freshman, 25.8% identified as sophomores, 25.7% identified as juniors, 10.5% identified as seniors, and 0.5% did *not* indicate their year in college (Owen & Fincham, 2012).

To measure FWB prior to a committed relationship, Owen and Fincham (2012) provided a definition of FWB and then asked participants to indicate if they were in a FWB relationship with their current partner before there was a mutual understanding that they and they partner were dating. One hundred fifty individuals (19.6%) indicated that they were in a FWB relationship with their partner prior to their current exclusive relationship (FWB-prior), and 614 participants (80.4%) were *not* (FWB-no prior). Of the FWB-prior group, 24 (16%) were men, and 126 (84%) were women and of the FWB-no prior, 139 (22.6%) were men and 475 (77.4%)

were women. The differences for men and women in FWB-prior versus FWB-no prior were *not* statistically significant, χ^2 (1, N = 764) = 3.17, p >.05.

Owen and Fincham (2012) developed a four-item measure to assess participants' opinions about the level of commitment ambiguity in their relationship, *Ambiguity of Relationship Status*. The four items were rated on a 7-point Likert scale, ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). The items were based, in part, on commitment theory and research exploring how individuals approach relationship decisions (Fincham, Stanley, & Rhoades, 2011). For this sample of 764 undergraduate college students, Cronbach alpha was .71, indicating an acceptable level of internal consistency.

Relationship satisfaction was measured by using Funk and Rogge's (2007) four-item measure, *Couples Satisfaction Index* (CSI). The measure includes Likert-style questions, measured on a six-point scale ranging from *not at all* to *extremely*. Owen and Fincham (2012) report that the CSI correlates (r = .87) with the *Dyadic Adjustment Scale* (Spanier, 1976) and r = -.79 with the *Ineffective Arguing Inventory* (Kurdek, 1994). For this study's sample, internal consistency reliability was high, .93.

Owen and Fincham (2012) assessed communication quality using the *Communication Pattern Questionnaire-constructive communication subscale* (Heavy, Larson, Zumtobel, & Christensen, 1996). This seven-item subscale assesses how individuals behave when faced with relational problems. The Likert items are rated on a 9-point scale ranging from 1 (*very unlikely)* to 9 (*very likely*). Scores are derived by subtracting the constructive communication items (3 items) from the destructive communication items (4 items). Higher scores indicate better

communication quality. For this study's sample, internal consistency was good, with a Cronbach alpha of .82 (Owen & Fincham, 2012).

Owen and Fincham (2012) assessed alcohol use of the college student sample with three items, asking participants (a) how many days within the last 30 they consumed a drink that contained alcohol (median number of days drinking was three to five days), (b) how many drinks containing alcohol they consumed on a typical day when they were drinking (median number of drinks was three drinks), and (c) how often in the last 30 days they consumed five or more drinks on one occasion (median number of occasions was one). The items were chosen based on being common in the prediction of casual sex behaviors (Owen et al., 2010). These items were highly correlated (*r's* = .67-.73; Owen & Fincham, 2012). For this study, internal consistency was good, with a Cronbach alpha of .84.

Owen and Fincham (2012) assessed adult attachment through the use of the *Experiences in Close Relationships – short form* (ECR-S; Wei, Russell, Mallinckrodt, & Vogel, 2007). The ECR-S has two subscales; *Avoidance* and *Anxiety*; with six items per subscale. ECR-S items are rated on a seven-point scale ranging from 1 (*Definitely not like me*) to 7 (*Definitely like me)*. Cronbach alphas for the Avoidance and Anxiety subscales were .85 and .74, respectively for this sample, indicating that the internal consistency was good and acceptable, respectively. In addition, the authors assessed separation status with a one-item measure inquiring if the participant's relationship had ended since completing the last survey. Of the sample, 746 students responded, while 18 did *not*, thus the authors posit that the item assessed whether these students separated over the four-months of the study.

Owen and Fincham (2012) analyzed their data using three hierarchical linear regressions with Ambiguous Commitment, Relationship Satisfaction, and Communication Quality as the dependent variables, respectively. They controlled for the variables gender and length of the relationship in the first step. In the second step, they included FWB status. The second step addressed whether young adults who started an exclusive relationship via FWB or *not* differed in their relationship functioning. Owen and Fincham (2012) tested whether the differences in relationship functioning and ambiguity in commitment, would still be evident after controlling for alcohol use and attachment. The relationship between FWB status and the relationship functioning variables in this final step addressed whether differences between FWB-prior and FWB-no prior on relationship functioning variables were present after controlling for the variance in the other variables (Owen & Fincham, 2012).

The results for the first model with relationship satisfaction as the dependent variable were statistically significant, $F_{full\ model}(6,757) = 28.23$, $p < .001$, adjusted $R^2 = .18$. The adjusted ΔR^2 at steps one through three were .00, .03, and .16, respectively ($p < .05$ for step 1, $p's < .001$ for steps two and three). When Owen and Fincham (2012) reversed the order for steps two and three, the ΔR^2 for FWB status was .02, $p < .001$. Therefore, FWB status was a predictor of relationship satisfaction, even after controlling for attachment styles and alcohol use. Furthermore, young adults who began their relationships as FWB reported lower relationship satisfaction when compared to those who did not. The effect size was small, accounting for 2% of the variance in relationship satisfaction.

The model with communication quality as the dependent variable was also statistically significant, $F_{full\ model}(6,756) = 19.74$, $p < .001$, adjusted $R^2 = .13$. The adjusted R^2 at steps one through three were .04, .02, and .16, respectively (all steps were statistically significant, *p's* < .001). FWB status was a significant predictor in the second step, prior to accounting for attachment style and alcohol use. However, after controlling for attachment style and alcohol use, the association between FWB status and ambiguous commitment was no longer statistically significant. Specifically, when Owen and Fincham (2012) reversed the order for steps two and three, the ΔR^2 for FWB status was .01 ($p > .001$), suggesting that FWB status accounted for 1% of the variance in ambiguous commitment. Therefore, while FWB status was related to ambiguous commitment, this association was no longer significant after accounting for attachment style and alcohol use.

Lastly, Owen and Fincham (2012) examined whether FWB status was related to separation status over the four-month period of the study. Originally the authors conducted a two-way chi-square analysis with all participants. The results were *not* statistically significant, χ^2 (1, $N = 746$) = 0.43., p =.51. Yet, since FWB status may be more salient in the early months of a relationship, Owen and Fincham (2012) ran the chi-square analysis again, yet only with college students who were in a relationship for twelve months or less at the start of the study. Consistent with their previous analysis, the results were *not* statistically significant, χ^2 (1, $N = 349$) = 2.51., p =.11. For those individuals in an exclusive relationship for less than one year at the start of the relationship, 20.7% separated over the next four months when they started that relationship via FWB. In comparison, 29.2% separated over the next four months when they did *not* start their relationship via FWB. Therefore, these results identified that FWB has a weak association with

college students' relationship functioning and separation status. Furthermore, there were *not* significant interaction effects for FWB status and length of relationship in any of the models.

Owen and Fincham's (2012) findings identified that FWB relationships may be an attractive or formidable pathway for young adults to enter into a romantic relationship; however, no evidence indicating that starting an exclusive relationship via a FWB relationship increases relationship functioning. The limitations of this study include only using students enrolled in one class at one university, as well as having mostly females. The proportion of students who entered their exclusive relationship via FWB was relatively small, and the tracking for the relationships was only over four months, Nonetheless, Own and Fincham (2012) shed light on a societal trend among college students, FWB relationships, and indicate that students who were in FWB relationships prior to becoming exclusive report lower relationship satisfaction compared to those who did *not*. Owen and Fincham concluded that college students succumb to societal trends as they relate to relationship development, thereby supporting the proposed model that a current societal trend (e.g., social media practices) may be contributing to the romantic relationship development of college students.

Bradshaw, Kahn, and Saville (2010) examined preferences for dating and hooking up across a number of situations, and indicated the perceived benefits and risks associated with each. Seventy-one male and one hundred fifty female undergraduate college students (N = 221) volunteered for the study. The sample majority identified as White (89.1%) and heterosexual (96.4%), and the average age of the students was 18.72 years (SD = .47). One hundred fifteen

students reported they were single, twenty-nine were in a relationship of six months or less, seventy-six were in a relationship of seven months or more, and one student was engaged.

Traditional dating was defined as "one person asks another person to do something together on a date and this may or may not turn into a committed relationship" (Bradshaw et al., 2010, p. 664) and hooking up was defined as "a sexual encounter, usually lasting one night, between two people who are strangers or brief acquaintances. Some physical interaction is typical and may or may not include sexual intercourse" (Bradshaw et al., 2010, p. 664). After reading these definitions, student participants answered 11 questions concerning the extent to which they prefer traditional dates or hooking up across various situations. Participants indicated on 7-point Likert scales their relative preference; with 1= *greatly prefer traditional dating to hooking up* and 7 = *greatly prefer hooking up to traditional dating.*

Next, participants were given a checklist where they were instructed to indicate their top three benefits and top three risks to traditional dating and hooking up (Bradshaw et al., 2010). The researchers generated the lists from qualitative interviews conducted prior to this study. The check lists were gender specific because the benefits and risks of dating and hooking up differed for women and men. There were 36 possible benefits of traditional dating for men, and 34 possible benefits to traditional dating for women. Twenty-seven of these benefits were identical for both genders. For the risks of traditional dating, there were 27 listed risks for men and 29 listed risks for women. Seventeen of these risks were identical for both genders. The researchers listed 32 possible benefits to hooking up for both women and men, and 28 possible risks of hooking up for both men and women. Lastly, student participants reported (a) how many times in

the last two years they had been on a first date; (b) how many times in the last two years they had initiated a first date; and (c) the number of people with whom they had hooked up with in the last two years.

An independent-samples *t*-test identified that men (M = 2.79, SD = 3.09) initiated significantly more first dates in the past two years than women (M = .45, SD = .90), t (218) = -8.56, p < .001; Bradshaw et al., 2010)). There was *not*, however, a gender difference in the number of first dates, t (216) = -2.06, p = .15, or the number of hook ups, t (215) = -1.21, p = .28, in the past two years. For both men and women, the number of hook ups was nearly double the number of first dates. Women reported an average of 2.31 (SD = 2.04) first dates and 4.34 (SD = 7.77) hook ups; men reported an average of 3.11 (SD = 7.63) hook ups in the past two years (Bradshaw et al., 2010).

Although both genders showed a preference for traditional dating, there was a significant difference between men and women χ^2 (5, N = 221) = 28.48, p < .001. Significantly more women (41.3%) than men (19.7%) greatly preferred traditional dating, whereas fewer women (2.0%) than men (16.9%) showed even a slight preference for hooking up. Overall, 95.33% of women and 77.47% of men expressed at least some preference for dating over hooking up (Bradshaw et al., 2010).

In summary, Bradshaw and colleagues (2010) found both differences and similarities in gender preferences for hooking up and traditional dating. Gender similarities were found in situations involving an interest in long-term relationships, while gender differences appeared more frequently when a long-term relationship was *not* mentioned. In general, women and men

agreed on the benefits of traditional dating and the benefits of hooking up, as well as the risks of hooking up. Bradshaw and associates provide support that college students' romantic relationships are developed in numerous ways, including that male participants and female participants indicate that various societal trends contribute to their relationship development. Therefore the findings supported the model that societal trends such as social media practices contribute to relationship development of college students.

Integration of Attachment Styles, Social Media Usage, and Relationship Development

Studies involving the constructs of interest were identified. The following sections outline the available, salient studies in relation to the combination of the constructs of attachment, social media, relationship broadcasting, and relationship development.

Attachment and Relationship Development

Strauss, Morry, and Kito (2012) studied attachment matching in dating relationships, and how matching relates to relationship quality. The authors relied on three hypotheses of attachment matching pertaining to partner selection: (a) similarity; (b) complementarity; and (c) security. The similarity hypothesis posits that individuals' ideal partner attachment style would be positively correlated with ratings of self, where the within the complementarity hypothesis, participants' anxiety scores would be positively correlated with the ideal partner's avoidance scores, and participants' avoidance scores would be positively correlated with the ideal partner's anxiety scores. The security hypothesis suggests that individuals would prefer partners who are lower in anxiety and avoidance than themselves (Strauss et al., 2012).

Participants were given the *Experiences in Close Relationships Scale* (ECR; Brennan et al., 1998), the *Relationships Assessment Scale* (RAS; Hendrick, 1988), a measure of trust (Rempel, Holmes, & Zanna, 1985), the *Perceived Partner Supportiveness* measure (PPS; Cross et al., 2000), and the *Feeling Understood and Validated Scale* (FUV; Morry, Reich, & Kito, 2010). The article does *not* indicate how many participants took part in the study. Using regressions, paired *t* tests, and correlations, the authors reported that they found the most support for the similarity and security hypotheses. Therefore, individuals prefer partners with a similar but more secure (lower anxiety and lower avoidance) attachment style as themselves. In addition, participants not only preferred similar others, but they also perceived their current partner as being similar to the self. Regarding the complementarity hypothesis, individuals high in avoidance hold an ideal and perceive their partner as being high in anxiety, whereas individuals high in anxiety perceive, but do not want, a partner high in avoidance (Strauss et al., 2012). Furthermore, these findings support both the security and similarity hypotheses of ideal attachment style matching. Greater similarity between the perception of the partner's avoidance and the ideal partner's avoidance predicted two variables related to the well-being of the relationship even after controlling for actor and partner self-rated attachment and actual self-partner similarity. Strauss et al. (2012) provide support for attachment style matching within established romantic relationships, yet they do *not* provide support for the influence of attachment style in relationship development.

Schindler, Fagundes, and Murdock (2010) extended the work of Pistole (1989) by examining the early formation of romantic relationships within a theoretical attachment framework. They investigated whether general attachment to romantic partners was predictive of

single individuals' progressing from *not* dating to dating, and from *not* dating or casual dating to a committed, exclusive relationship while simultaneously considering desire for starting a committed relationship, prior dating involvement, and self-perceived physical attractiveness.

Participants included 90 undergraduate students (Schindler et al., 2010). At the start of the study, student participants were *not* in committed relationships, were between 18 and 27 years old (M = 21.5 years), and 51.1% were women. Participants completed an intake assessment, which included all assessments for the study. Participants received a monetary compensation of $10 per 60-90 minutes of testing. The following year, Schindler et al. followed up on participant progress of finding a romantic partner through online assessments. If participants started dating during the study, they filled out weekly and monthly assessments on how they decided on whether to commit to this partner or *not* and, if a committed relationship resulted, on the development of this relationship. Based on these measures, participants were assigned to one of three *dating-success* groups; (a) Group 1: (n= 42), no report of dating past a first date during the study; (b) Group 2: (n = 13), dated one or more partners casually but did *not* start a committed relationship; and (c) Group 3: (n = 35), committed to a romantic partner during the study.

Schindler and colleagues (2010) measured duration of study participation (time between the intake and final assessment or dropout), dating goals (four items rated on 6-point scales; α = .68), prior dating involvement (measure asking about the start and end dates of all prior romantic relationships; a 5-point scale representing when the most recent relationship ended; α = .67), self-perceived physical attractiveness (one 7-point item), and attachment avoidance and anxiety

(36-item *Revised Experiences in Close Relationships Questionnaire* [ECR-R; Fraley, Waller, & Brennan, 2000]; measure includes two 18-item scales assessing avoidance, α = .94, and anxiety, α = .93).

The primary goal of the research study was to identify predictors of starting to date and starting a committed relationship (Schindler et al., 2010). Accordingly, the researchers identified three groups based on relationship status throughout the study, and then used logistic regression to predict group membership from participants' dating goals, prior dating involvement, self-perceived physical attractiveness, and attachment avoidance and anxiety. They also included duration of study participation, age, and gender as control variables. Schindler and colleagues 2010) identified that attachment avoidance was negatively correlated with rival predictors dating goals, prior involvement in dating, and physical attractiveness, while anxiety was negatively related only to physical attractiveness.

To address the possibility of over-fitting the data when running logistic regression, Schindler et al. (2010) ran two binary logistic regressions. They initially predicted who dated casually or committed to a partner (n = 48) when compared with *not* dating at all (n = 42). Then they predicted who committed to a partner (n = 35) when compared with *not* dating and casual dating (n = 55), leading to participant/predictor ratios of 5.3 and 4.4 in the smaller groups. Therefore, additional bootstrapping analyses were conducted to check the robustness of the findings. The bootstrap analyses confirmed the findings, but the estimated odds ratios tended to be smaller. Schindler and colleagues found one significant predictor of starting to date versus *not* dating. More prior dating involvement was predictive of starting to date; an increase in prior

dating involvement by 1 *SD* increased the odds of dating by 1.97 (using the more conservative bootstrap analysis). Neither attachment anxiety nor avoidance was predicative of starting to date when rival predictors were included.

Upon identifying predictors of relationship commitment, dating goals, prior dating involvement, and self-perceived physical attractiveness as well as attachment anxiety were *not* significantly related to starting a committed relationship (Schindler et al., 2010). Attachment avoidance emerged as a robust predictor of exclusively committing to one's dating partner when compared with *not* dating or dating only casually. An increase in avoidance by one unit on the seven-point scale reduced the odds of relationship commitment by 0.63. The group means indicate that those who did *not* commit to a partner during the study had an average avoidance score of 3.77 compared with 3.23 among those who started a committed relationship.

Overall, Schindler and colleagues (2010) reported that attachment avoidance was associated with a decreased likelihood of starting a committed relationship, aligning with previous research that indicated that avoidant individuals are perceived as less desirable dating partners than anxious and secure individuals (Klohnen & Luo, 2003). Therefore, dating partners may choose to end relationships with individuals high on avoidance as they get to know them better. In this study however, individuals high on avoidance were *not* associated with a decreased likelihood to date. Although avoidance seems to matter most when it comes to relationship commitment, prior dating success was most predictive of starting to date. Therefore, the findings identified that attachment avoidance is associated with relationship commitment even when considering rival predictors (Schindler et al., 2010). Therefore, Schindler and colleagues'

findings support the model that attachment styles contribute to college students' romantic relationship development.

Attachment Styles and Social Media

Lee (2013) examined the attachment styles of individuals relative to the development of interpersonal relationships in the context of *social networking systems* (SNS) based on Bartholomew and Horowitz's (1991) four-category model of attachment styles. Specifically, Lee examined the relationship between attachment style and the building of social capital through bonding and bridging types. Social capital can be thought of as relationships that have productive benefits (Lee, 2013). Three hundred sixty-eight Facebook users completed an online survey to validate the model that bonding social capital (i.e., strong relationships bonds) is reflected in the use of SNS for forming attachment bonds, while bridging social capital (i.e., weak connections) is reflected in the use of SNS for causal affiliations among more socially distant people. Participants also completed two construct measures of bonding and bridging social capital developed by Ellison, Stenfield, and Lampe (2007), as well as the *Adult Attachment Questionnaire* (AAQ; Simpson, 1996).

Scale refinements, including calculations for internal consistency and EFA were performed to eliminate extraneous item measures (Lee, 2013). Four research hypotheses were tested through two hierarchical multiple regression analyses, identifying that both bonding and bridging social capital among participants appear to be greatest under conditions of low anxiety attachment matched with low avoidance attachment. No support was found for predicted

interaction effects between anxiety attachment and avoidance attachment in the measures of bonding and bridging social capital.

Overall, Lee's (2013) findings identified that avoidance attachment is the most salient factor leading to the development of trust-based strong ties and causal affiliation from more socially distant people. Secure individuals appear to display greater relational competence than anxious/ambivalent, dismissing/avoidant, or fearful/avoidant individuals, and the development of bridging social capital increases as the level of SNS use increases. Therefore, Lee's results support the model that attachment styles contributes to social media usage and romantic relationship development.

Social Media and Relationship Development

Sherrell and Lambie (in press) examined college students' (n = 16) use of Facebook as it relates romantic relationships. A sample of college students was recruited from a large, Southeastern university. Sherrell and Lambie conducted one focus groups and nine individual interviews while the following two research questions guided their investigation: (a) What are undergraduate college students' lived experiences with Facebook? (b) How do undergraduate college students make meaning of their lived experiences with Facebook during the development of their romantic relationships while in college?

Sherrell and Lambie's (in press) individual interview participants included nine undergraduate college students; including seven females (77.8%) and two males (22.2%). Four of the student participants self-identified as White or Caucasian (44.4%), two participants identified as Hispanic (22.2%), one participant identified as African American (11.1%), one

participant identified as Middle Eastern (11.1%), and one participant identified as Bi-racial (11.1%). The students' ages ranged from 19-21 (*M* = 20.33), including three 19 year olds, one 20 year old, four 21 year olds, and one 22 year old. At the time of the interviews, all participants were enrolled in college courses, and held undergraduate student status. In addition, all participants reported that they were in a romantic relationship. Furthermore, seven female undergraduate college students participated in a focus group. Five participants self- identified as White or Caucasian (71.4%), 1 participant identified as Black (14.3%), and 1 participant identified as Jamaican (14.3%). The students' ages ranged from 18-32 (*M* = 22.57), including two 18 year olds, two 21 year olds, one 22 year old, one 26 year old, and one 32 year old. Six of the seven participants reported that they were in a romantic relationship.

An analysis of the data revealed sub-themes and codes that fell within six overarching themes: (a) support; (b) communication (c) intimacy; (d) relationship status; (e) steps in dating; and (f) the public nature of Facebook. Themes were developed following methods suggested by Creswell (2013) and Moustakas (1994). In an effort to provide a thick and rich description of the data, Sherrell and Lambie included statements from at least one student per emergent theme. Moreover, the authors included participant voices to support the credibility of the results (Creswell, 2013; Patton, 2002).

The results of Sherrell and Lambie's study provide insight into how undergraduate college students experience Facebook during their college years, as well as how they make meaning from their lived experiences with Facebook during the development of their romantic relationships. Participants indicated that Facebook is a part of their everyday lives, *not* only for

social connection, but also for social support. Facebook was also used by these students as a way to get to know potential partners, and to communicate with them until they felt prepared to meet face-to-face. Facebook remains a part of their romantic relationships, both positively and negatively, playing a role in the maintenance and the dissolution of these relationships. Therefore, the meaning that emerged from their data was that Facebook is a societal trend experienced daily by college students. Furthermore, Facebook provides students a platform to display their romantic relationships, highlighting the commitment and relationship status of each relationship. College students were aware of the public nature of Facebook, and tend to consider it when accepting friend requests from acquaintances and family members. Facebook also secured a spot in the contemporary stages of dating. The results from Sherrell and Lambie indicate further support for the model that college students' social media usage influences their romantic relationship development.

Papp, Danielewicz, and Cayemberg (2012) examined male and female dating partners' (*n* = 58 couples) Facebook use and portrayals of their intimate relationship on their Facebook profile. A sample of dating couples was recruited from a mid-west town. Couples were required to be dating exclusively for a minimum of one month, be at least 18 years old, *not* be currently married, or have been previously married, and *not* have children. Couples attended two laboratory-based sessions, where they completed informed consent, demographic information, and questionnaires consisting of questions on their relationship status on Facebook, their Facebook profile photo, and any disagreements they may have had over their relationship status on Facebook. Participants also self-reported their relationship satisfaction using the *Couples*

Satisfaction Index (Funk & Rogge, 2007) and the verbal conflict subscale of the *Conflict Tactics Scale* (Strauss, 1979).

Papp and colleague's (2012) findings identified that male and female dating partners reported similar levels of Facebook intensity; r (n = 58) = 0.30, p = 0.024; and male and female partners were highly likely to report being partnered on Facebook if their partner also did, χ^2 (1, N = 58) = 35.38, p < 0.001. Specifically, 45 of the 58 couples had both partners report being in a relationship on Facebook. On the same lines, men and women were significantly likely to show their dating partner in their profile picture if their partner also did, χ^2 (1, N = 58) = 8.91, p = 0.003. Specifically, 31 of the 58 couples had both males and females showing their partner in their profile picture.

Papp and colleagues (2012) used actor-partner interdependence model (APIM) associations to determine if partners' relationship presentations on Facebook would be associated with relationship satisfaction. The models provide estimates of male and female relationship presentations in relation to their own satisfaction and their partner's satisfaction, respectively. APIMs included correlated predictor variables and correlated residual parameters. Results indicate that male partners' indications of a partnered status on their Facebook profile were linked with higher levels of their own and their partners' relationship satisfaction. Yet females' indications of being partnered on their Facebook profile were *not* related to their partners' satisfaction. Furthermore, females' displays of their partner in their profile picture were associated with higher levels of their own and their partners' relationship satisfaction, whereas

males' displays of their partner in their profile picture were *not* related to relationship satisfaction.

Lastly, Papp and colleagues (2012) used APIM to test the hypothesis that relational disagreements over Facebook relationship status will be uniquely linked to male and female partners' relationship satisfaction. The APIM provided estimates of male and female reports of any Facebook disagreement in relation to their own satisfaction and their partner's satisfaction. Male and female verbal conflict scores were included as correlated covariates of their own relationship satisfaction scores. Results identify that males' and females' Facebook disagreements were linked with lower levels of females' relationship satisfaction (b = -13.62, t = -2.20, p = 0.028, b = -15.03, t = -2.94, p = 0.003, respectively), but *not* with males' (p-values > 0.05) satisfaction. Overall, the results identified that Facebook plays an important role in dating partners' intimate relationships. How dating partners portrayed their relationships held importance for relationship functioning, with displays of partners in profile photos influencing relationship satisfaction. Gender differences in the associations suggest that males and females may place different levels of importance on certain public portrayals of the relationship. Lastly, the results identified that disagreements over Facebook relationship status uniquely account for significant variance in females' relationship satisfaction imply that Facebook disagreements are problematic for relational well-being. Papp and colleagues provide support for the model that college students' social media practices contribute to their romantic relationship development.

Chapter Summary

Chapter Two is an overview of the constructs of interest that provide the theoretical framework for this study on attachment, social media, and relationship development among undergraduate college students. Operational definitions of attachment, social media usage, relationship broadcasting, and relationship development were offered to clarify the link between these constructs. Empirical studies of each construct were reviewed to foster support for this study, and studies involving the interactions between constructs were detailed.

CHAPTER THREE: METHODOLOGY

Chapter three presents the research design, method, and procedures for this investigation. The purpose of this research study was to investigate the directional relationship between college students' attachment styles and social media practices to their relationship development quality. This investigation tested the theoretical model that college students' attachment styles (as measured by the *Experiences in Close Relationships Scale- short form*[ECR-S; Wei et al., 2007]) and social media practices (as measured by the *Facebook Intensity Scale* [FBI; Ellison, Stenfield, & Lampe, 2007] and the *Motives for Going Facebook Official* scale [MGFO; Fox &Warber, 2013]), contribute to their relationship development (as measured by the *Parks Relational Development Scale*, [PRDS; Parks & Roberts, 1998]. Specifically, the investigation tested the hypothesized directional relationship that young adults' scoring in the insecure attachment range (i.e., avoidant or anxious) with *greater* levels of social media practices had *lower* levels of relationship development quality. In addition, this investigation examined the relationship between college students' attachment styles, social media practices, relationship development quality and their reported demographic information (e.g., age, current school level, and ethnicity).

A descriptive, correlational research design (Frankel, Wallen, & Hyun, 2012) was employed to investigate the research hypothesis and exploratory questions. A correlational design was selected because the purpose of this study was to determine if there is a directional relationship between college students' attachment styles, social media practices, and relationship development quality in their natural state (i.e., without manipulation; Frankel et al., 2012). The

potential threats to internal and external validity that align with correlational research are reviewed. In addition, the research procedures (e.g., institutional review board (IRB) approval, data collection methods, instrumentation, and data analysis) that were employed in order to execute this study are presented. Furthermore, potential limitations and ethical obligations are discussed. The following components of the research methods are reviewed in this chapter: (a) population and sampling procedures; (b) data collection methods; (c) instrumentation; (d) research design; (e) research hypothesis and questions; (f) methods of data analysis; (g) ethical considerations; and (h) limitations to the study.

Population and Sampling Procedures

The target population for this study was college students. College students were selected because there is limited research examining attachment styles, social media usage, and quality of relationship development in college students. In addition, individuals of traditional college age (18 to 25 years old), known as *emerging adults*, typically experience a period of frequent change and exploration, which is distinguished by relative independence from social roles and normative expectations (Arnett, 2000). Furthermore, college students are the largest users of Facebook (Pollet et al., 2011), and college is a time of transition and stress; therefore, examining relationships during such a time provided an opportunity to examine how attachment security operates within individuals' relationships (Duemmler & Kobak, 2001).

There are 20,550,000 individuals enrolled as undergraduate students in the United States (US Census, 2012). To ensure a 95% confidence level of generalizability for a population of this size, a minimum random sample of 384 college student participants was needed (Krejcie &

Morgan, 1970). In addition, statistical power is crucial to calculate prior to starting a quantitative investigation. The power is the long term probability of rejecting the null hypothesis given the effect size, sample size, and alpha level (Balkin & Sheperis, 2011). Power analyses should be calculated a priori to ensure appropriate decisions regarding sample size and to avoid making Type II errors (Balkin & Sheperis, 2011). Specifically, to examine the theoretical model that college students with anxious or avoidant attachment styles with *higher* levels of social media practices would have *lower* levels of relationship development quality, Structural Equation Modeling (SEM) was employed (Tabachnick & Fidell, 2013). SEM is a large sample technique; therefore, a minimum sample of 200 is recommended (MacCallum, Browne, & Sugawara, 1996; Ullman, 2007). In addition, Schumacker and Lomax (2010) report that most SEM published research articles "used between 250 and 500 subjects, although the greater the sample size, the more likely it is one can validate the model using cross-validation" (p. 42). Furthermore, Raykov and Marcoulides (2006) noted that for SEM and calculating minimum sample size, "a cautious and simplified attempt at a rule of thumb might suggest that sample size would be desirably more than 10 times the number of free model parameters" (p. 30). Schumacker and Lomax (2010) recommend the use of www.danielsoper.com to calculate a priori sample sizes for SEM. Based on this recommended website, to identify a small effect size (.1) and a high power (.8) with four latent variables and 61 observed or manifest variables at the probability of $p < .05$, a minimum sample of 387 is needed. Based on the literature, sample size equations, and sample size calculator, a minimum sample of 400 participants was sought; furthermore, a sample size of 400 undergraduate college students would be appropriate for SEM (MacCallum et al., 1996; Tabachnick & Fidell, 2013).

The sample for this study was comprised of male and female college students of any race or ethnicity, above the age of 18. To support the external validity of the investigation, a convenience sample of college students was contacted to participate in this study through personal and professional contacts of the primary researcher. There were three groups that were a part of this study: (a) students enrolled at Old Dominion University, (b) students enrolled at Mississippi College, and (c) students at the University of Central Florida. An average response rate for research investigating college students' through web-based surveys is between 8% and 40% (Pike, 2008). Specifically, investigations with college students employing web-paged data collection methods include reported response rates of: (a) 8.2% (Valenzuela, Park, & Lee, 2009), (b) 19% (Lampe, Wohn, Vitak, Ellison, & Wash, 2011), (c) 35% (Ellison, Stenfield, & Lampe, 2007), and (d) 44% (Junco, 2012). In addition, Cook, Heath, and Thompson (2000), conducted a meta-analysis of 49 Educational Psychology studies that used electronic surveys as their primary collection source and identified that the average response rates for online survey data collection was 35%. Therefore, the anticipated response rate for this investigation was approximately 10%. Hence, to achieve the necessary minimum sample size of 400; a minimum of 4,000 college student participants was invited to participate in the investigation; 4,000 x .10 = 400.

Data Collection Procedures

This study sought approval from the University of Central Florida's IRB Board prior to any data collection. The researcher completed the IRB application and ensured all ethical research practices were followed. In addition, permission was sought from the authors of the data

collection instruments used in the study: (a) ECR-S (personal communication with Dr. Wei; July 1, 2013) (b) FBI (personal communication with Dr. Ellison, June 11, 2013); (c) MGFBO (Fox & Warber, 2013; personal communication with Dr. Fox, April 29, 2013); and (d) PRDS (personal communication with Dr. Parks, June 13, 2013). Permission from the authors of the data collection instruments also included permission to transfer instruments to Qualtrics. All instruments were combined to create an online survey on Qualtrics, an online data collection platform that offers researchers tools to create secure online surveys. Qualtrics provides organizational services to researchers, including: (a) documentation of when participants receive the email; (b) assurance that emails are *not* sent to spam; and (c) organization of data into SPSS and storage.

To decrease measurement error, the survey link, which included the four instruments and the demographic form, was reviewed by the dissertation committee to ensure that the directions for completing the surveys were clear and the instruments were legible (Dillman, Smyth, & Christian, 2009). The researcher asked 10 of her colleagues to complete the electronic survey to estimate the amount of time it would take participants to complete it, and to solicit feedback about the clarity of information. Feedback from the dissertation committee and colleagues was integrated to refine the directions and demographic questionnaire to make it user-friendly for the participants in the study.

Data collection started on September 30, 2013 and concluded on November 15, 2013. The data collection period was selected because the beginning of the school year can be busy for students, but after the first month of classes, it may be less hectic. Furthermore, a six week

window was selected to account for differences in academic calendars and holidays. A survey, which included all the data collection instruments and the demographic form, was distributed electronically through Qualtrics to all participants. To support sound data collection methods and response rates, Dillman's (2009) *Tailored Design Method* was applied to the data collection methods as appropriate.

Tailored design is a survey development method to increase participant motivation to respond by synonymously establishing trust and increasing perceived benefits of participation, while decreasing the expected cost (Dillman et al., 2009). The researcher worked to establish the trust of respondents by obtaining sponsorship by the involved Universities and faculty members. In addition, the researcher emphasized the importance and implications of the study. Participants' confidentiality was ensured. To increase the benefit to participants, the researcher: (a) provided participants with information about the survey, (b) showed positive regard, (c) said thank you, (d) supported group values, (e) made the questionnaire interesting, and (f) provided social validation (Dillman et al, 2009). To decrease the cost to participants, the researcher: (a) made the survey convenient, (b) avoided difficult language, (c) made the questionnaire short and easy to complete, and (d) minimized requests to obtain personal or sensitive information (Dillman et al., 2009).

The application of tailored design method (Dillman et al., 2009) to web surveys suggests that *all* participants be sent a personalized invitation email that will include: (a) individualized personal access codes, (b) the informed consent, (c) a secure link to the data collection instruments, and (d) an explanation of the incentive to participate in the study. Some participants

in the sample received an email one week after the initial email was sent as a reminder for those who had *not* completed the survey. In line with Dillman and colleagues (2009), the URL was included within the second email. Two weeks later (three weeks after the initial email), a final reminder was sent to these participants. Dillman and colleagues indicate that the third email should have a friendly tone, yet focus on the short amount of time left to complete the survey, and the importance of responding. A thank you email was sent immediately after the participants completed the survey, and their email was removed from the list to ensure they would *not* receive the reminder emails. Participants were able to unsubscribe from the list of participants, as well as contact the researcher directly to be removed from the list. The incentive for this study was that for each survey returned completed, a $1.00 donation would be made to the One Love Foundation, a non-profit organization working to end relationship violence through education and technology. The One Love Foundation charity was chosen as the organization was started for (but *not* limited to) college students in violent or aggressive relationships; therefore, aligning with the relationship construct for this study.

Data collection also took place by utilizing the University of Central Florida's Psychology Research Participation System (SONA). Students within the Psychology Department who are looking to serve as participants in a study can create an account and complete a study in exchange for course credit. UCF's Psychology Department estimates that there are approximately 5,000 active SONA users. The link to the Qualtrics survey was made public to SONA users on September 30 with a six week timeframe ending on November 15. Participants received half a credit for completing the survey completely. The researcher chose half a credit as the appropriate amount as the survey took participants on average 12-15 minutes to complete.

The researcher followed the steps in tailored design method by ensuring that all SONA participants received: (a) individualized personal access codes, (b) the informed consent, (c) a secure link to the data collection instruments, and (d) an explanation of the incentive to participate in the study. Furthermore, the researcher emphasized the importance and implications of the study, while also ensuring participants'' confidentiality. To increase the benefit to participants, the researcher: (a) provided participants with information about the survey, (b) showed positive regard, (c) said thank you, (d) supported group values, (e) made the questionnaire interesting, and (f) provided social validation (Dillman et al, 2009). To decrease the cost to participants, the researcher: (a) made the survey convenient, (b) avoided difficult language, (c) made the questionnaire short and easy to complete, and (d) minimized requests to obtain personal or sensitive information (Dillman et al., 2009).

Instrumentation

The following constructs and data collection instruments were investigated and used in this study: (a) attachment styles (ECR-S; Wei et al., 2007); (b) social media practices (FBI; Ellison et al, 2007; MGFBO; Fox & Warber, 2013); and (c) relationship development (PRDS; Parks & Roberts, 1998). In addition, a *General Demographic Questionnaire* was used, which included questions to examine the participants' self-reported gender, ethnicity, year in college, and geographic location. The researcher combined the five data collection instruments into one electronic document. The data collection packet was administered once to each participant electronically. The following section provides information regarding the data collection instruments.

General Demographic Questionnaire

The *General Demographic Questionnaire* was created by the researcher. The questionnaire was a self-report of participants' demographic information (e.g., gender, age, ethnicity, year in college, and geographic location). These demographics were chosen because they are the most common demographics explored in research similar to this study (Fox & Warber, 2013; Lee, 2013; Oldmeadow, Quinn, & Kowert, 2012). The General Demographics Questionnaire was reviewed by a panel of experts (committee members and counselor education faculty) and was administered to the researcher's colleagues for review of readability and clarity.

Experiences in Close Relationships- Short Form

The ECR-S (Wei et al., 2007) was chosen to identify attachment styles. The ECR-S is a 12-item self-report questionnaire that utilizes a 7-point Likert-scale format ranging from "Strongly disagree" to "Strongly agree". Each ECR-S item also contains a "neutral" category. The ECR-S is designed to assess a general pattern of adult attachment as independently as possible from influences of respondents' current circumstance. The instructions for the ECR-S are the same as for the *Experiences in Close Relationships* (ECR) and state "We are interested in how you generally experience relationships, *not* just in what is happening in a current relationship" (Brennan, Clark, & Shaver, 1998, p.65). These instructions allow respondents who are *not* currently in a close romantic relationship to provide valid responses.

The ECR-S originated from the *Experiences in Close Relationships* (ECR) scale developed by Brennan et al. (1998). The original ECR has 36 items. Brennan and colleagues (1998) reported that the ECR has a high level of internal consistency in a sample of

undergraduates, with coefficient alphas of .91 and .94 for Anxiety and Avoidance subscales, respectively. Results from studies of undergraduate college students (e.g., Lopez & Gormley, 2003; Lopez, Mauricio, Gormley, Simko, & Berger, 2001; Lopez, Mitchell, & Gormley, 2002; Vogel & Wei, 2005; Wei, Mallinckrodt, Russell, & Abraham, 2004) indicated a high level of internal consistency for the Anxiety subscale (α ranges from .89 to .92) and the Avoidance subscale (α ranges from .91-.95). Regarding validity, the ECR subscales correlated with touch aversion (Brennan et al., 1998). Other studies support the concurrent validity of the ECR with college samples include attachment anxiety and avoidance being positively associated with: (a) self-concealment and personal problems (Lopez et al., 2002), (b) ineffective coping (Wei, Heppner, Mallinckrodt, 2003; Wei, Heppner, Russell, & Young, 2006), (c) maladaptive perfectionism (Wei, Mallinckrodt, et al., 2004; Wei et al., 2006), (d) negative mood (Wei, Russell, Mallinckrodt, & Zakalik, 2004), and (e) depression (Zakalik & Wei, 2006).

Although the reliability and validity of the ECR were supported with diverse samples, the length of the ECR can be problematic in some research applications. The large numbers of items may decrease the research compliance rate and participants' motivation in responding to the questionnaire (Wei et al., 2007); therefore, Wei and colleagues (2007) developed a short version of the ECR. Through six different studies with college student samples, the authors examined the reliability and factor structure of the measure. They cross-validated the reliability, factor structure, and validity of the short form measure, and examined test-retest reliability over a one-month period. They then further assessed the reliability, factor structure, and validity of the short version of the ECR when administered as a stand- alone instrument. Confirmatory factor analyses indicated that two factors, *Anxiety* and *Avoidance*, provided a good fit to the data after

removing the influence of response sets. They found validity to be equivalent for the short and the original version of the ECR across studies.

Psychometric properties of the ECR-S.

Wei and colleagues (2007) conducted a preliminary study with 851 undergraduate students consisting of 442 women (52%) and 407 men (48%), two participants did *not* indicate their sex. Furthermore, 58% of the sample was first-year students, followed by 24% sophomores, 11% juniors, and 7% seniors. Ages ranged from 18-45 years old (M = 20.36 years; SD = 2.04). Participants' self-identified ethnicity was predominantly White (90.6%), followed by African American (2.1%), Asian American (2.4%), Native American (0.1%), and Multiracial American (0.7%). Regarding relationship status, 94% of the sample reported being single. The students completed the original ECR and then the authors conducted exploratory factor analyses (EFA) separately for each of the 18 subscale items (anxiety and avoidance constructs). They conducted principle axis factor extraction with a promax (oblique) rotation on the *Avoidance* items. All six items retained for the ECR-S had corrected item total correlations of .62 or higher with the original version of the Avoidance subscale. The six items retained illustrated three domains that the theoretical literature suggests are critical components of attachment avoidance, (a) fear of interpersonal intimacy or closeness, (b) reluctance to depend on others or excessive need for self-reliance, and (c) reluctance to self-disclose.

Wei and colleagues (2007) conducted principal factor analysis with oblique rotation on the 18-item Anxiety subscale. The six items retained for the ECR-S Anxiety subscale all had corrected, item total correlations > .52 with the total scores on the original version of the Anxiety

subscale. Using the theoretical literature, as well as personal communication with Shaver (2004), the items offer a substantial representation of the three domains that adult attachment theorists have suggested are integral components of the attachment anxiety construct, including: (a) fear of interpersonal rejection or abandonment, (b) an excessive need for approval from others, and (c) distress when one's partner is unavailable or unresponsive.

The internal consistencies for the ECR-S subscales for this sample of college students (Wei et al, 2007) were .78 (Anxiety) and .84 (Avoidance), compared to .92 (Anxiety) and .93 (Avoidance) for the original ECR. Although lower than the original version for the measure, the coefficient alphas of the 12-item ECR-S are acceptable for use in college samples. Correlations between the Anxiety and Avoidance subscales were r = .19 (ECR-S) and r = .17 (ECR), indicating that these two measures reflect distinct dimensions of attachment. Wei and colleagues conducted SEM to examine whether the correlation between the two subscales for the ECR-S was equivalent to the correlation between the two subscales of the ECR. The results identified that the correlations between the Anxiety and Avoidance subscales were *not* significantly different for either version of the ECR. The authors examined the correlations between both versions of the Anxiety measures, and both versions of the Avoidance measures. Both pairs of measures were found to correlate .95 with one another. The high correlations between scores on the short and original versions of the Anxiety and Avoidance subscales from the ECR provide further evidence that both versions of the subscales assess the same underlying construct with diverse samples.

Facebook Intensity Scale

The FBI (Ellison, Stenfield, & Lampe, 2007) is a self-report instrument that has nine items, focusing on the time individuals spend on the cite, individuals' emotional connectedness to the site, the number of Facebook friends participants have, and the number of actual friends participants have on their profiles. The FBI items contain a five-point Likert-style format, ranging from Strongly Disagree to Strongly Agree, with a Not Applicable option available. The researcher received permission from the original author of this instrument to use in the current study and to put the instrument on Qualtrics (personal communication, 2013). In addition, the researcher inquired about the scoring of the FBI. Ellison reported that the score is computed by calculating the mean of all items in the scale (personal communication, June 2013). Therefore, the author suggests that scoring of the FBI scale is determined by a total score; however, a factor analysis of the instrument has *not* been conducted.

Psychometrics of the FBI.

The FBI was developed by Ellison and associates (2007). The FBI was created to obtain a measure of Facebook usage other than just frequency or duration. The measure observes the extent to which participants are actively engaged on Facebook; the number of Facebook friends and the amount of time spent on the site in a typical day. Also included in the FBI are a series of Likert-style attitudinal questions that are designed to measure the emotional connectedness with the site. Overall, the internal consistency for the FBI examined in five different populations was above .80 (see Table 1); however, the FBI has *not* been associated with other assessments; therefore, the convergent validity is *not* supported. After conducting a detailed search of EBSCO

host and PsychInfo, the FBI was identified as the most used assessment for measuring social media usage. Therefore, despite the limited research examining the validity of the FBI, the researcher chose to use the FBI in this study.

Table 1 Sample size and reliabilities for five samples of FBI-scale respondents

	Sample 1 Ellison, , Steinfield, & Lampe, (2007)	Sample 2 Lampe, Wohn, Vitak, Ellison, Wash (2011)	Sample 3 Valenzuela, Park, & Kee, (2009)	Sample 4 Lou, Yan, Nickerson, & McMorris, (2012)	Sample 5 Orr et al., (2009)
Sample Size	286 undergraduate college students	373 undergraduate college students	2603 undergraduate college students	222 undergraduate college students	103 undergraduate college students
Coefficient Alpha	0.83	0.86	.89	.85	.84
# of males	98	127	877	73	16
# of females	188	246	1726	149	87

Motives for Going Facebook Official Scale

Developed from a qualitative study (Fox, Warber, & Makstaller, 2012), the MGFBO is an 11-item scale measuring the motives for going Facebook Official (FBO). FBO refers to individuals' decisions to change their relationship status on their Facebook profile to "in a relationship with _____". The MGFBO survey consists of 5-point Likert-style items ranging from "Strongly disagree" to "Strongly agree," and indicates participants' agreement with reasons for going FBO.

Fox and Warber (2013) conducted an EFA on the MGFBO, employing principal components analysis using Varimax rotation with Kaiser normalization. A scree test indicated

two factors: (a) interpersonal motives, and (b) social motives. Two of the original items failed to load; therefore, the two items were dropped from the measure. For the sample used by Fox and Warner (2013; N = 370 undergraduate college students), internal consistency for Social Motives for going FBO was 0.82, while internal consistency for Interpersonal Motives for going FBO was 0.75.

Although other studies have examined FBO (e.g., Papp, Danielewicz, & Cayemberg, 2012), there has *not* yet been another study that utilizes the MGFBO survey. Therefore, the researcher selected to use the MGFBO, despite a lack of convergent validity and supporting reliability, as the MGFBO is the only measure that examines college students' motives for changing their relationship status; thus, contributing to relationship development through social media.

The MGFBO was administered with the original directions, as well as with a change in the directions indicating participants to rate their own motives for going FBO, as opposed to their perceptions of others' motives. Permission to change the directions was received from Dr. Fox (personal communication, September 6, 2013). In addition, the individual items were modified as necessary.

Parks Relational Development Scale

The PRDS was developed by Parks and Roberts (1998) and is used to measure relational development determined by eight subscales: (a) interdependence; (b) breadth; (c) depth; (d) code change; (e) predictability/understanding; (f) commitment; (g) network convergence online; and (h) network convergence offline. Participants are asked to answer 29 Likert-style items, ranging

from “Strongly disagree” to “Strongly agree”. Each PRDS item also contains a “neutral” category.

Each PRDS subscale has items that consist of statements that align with the relationship development dimensions developed by Altman and Taylor (1973). *Interdependence* is measured by four items, such as “The two of us depend on each other”. *Breadth* is measured by three items, such as “Our communication ranges over a wide variety of topics”. *Depth* is measured by five items, such as “I feel I can confide in this person about almost anything”. *Code change* is measured by four items, such as “We have special nicknames that we just use with each other”. *Predictability/understanding* is measured by four items, such as “I can accurately predict what this person’s attitudes are”. *Commitment* is measured by four items, such as “I am very committed to maintaining this relationship”. *Network convergence online* is measured by two items, such as “We contact a lot of the same people on the Internet”. Lastly, *Network convergence offline* is measured by three items, such as “We have introduced (face-to-face or otherwise) each other to members of each other’s circle of friends and family” (Parks & Roberts, 1998).

The absolute level of relational development is assessed by comparing the observed means for the dimensions with the theoretical midpoints of the scales using single sample *t* – tests. For example, the *interdependence* subscale has a theoretical midpoint of 16.00 (i.e., four items, scaled one to seven, yielding a scale range of four to 28.00). A single sample *t*-test can be used to determine if the observed mean is significantly greater than the theoretical mean of 16.00 (one-tailed test; Parks & Roberts, 1998).

Psychometrics of the PRDS.

The PRDS was first published by Parks and Floyd (1996) in an effort to examine the relational world being created through Internet discussion groups. The original survey had seven subscales and thirty-three items. These PRDS items were based on previous theoretical discussions and measures of the relationship development process (e.g., Altman & Taylor, 1973; Huston & Burgess, 1979; Kelly et al., 1983; Parks & Adelman, 1983). Parks and Floyd (1996) used the theoretic midpoint of each scale as a reference point since there was no comparison sample against which to evaluate levels of development. The responses allowed the authors to determine if the majority of responses fell below the midpoint; therefore, indicating a low level of relationship development, or above it, thus indicating a high level of relationship development. The sample for the PRDS original survey was comprised of 176 individuals ranging from 15 to 57 years old. The authors report that the majority of respondents were single males; however, the actual numbers are *not* provided.

Parks and Roberts (1998) utilized the PRDS; however, they shortened the form to 29 items. The PRDS items assess: (a) interdependence; (b) breadth; (c) depth; (d) code change; (e) predictability/understanding; (f) commitment; (g) network convergence of online relationships; and (h) network convergence of offline relationships. Parks and Roberts' aim was to examine "relational topography in real-time text-based virtual environments known as MOOs (Multi-user Dimensions, Object Oriented)" (Parks & Roberts, 1996, p. 517). The sample for this study consisted of 235 current users of MOO's, ranging in age from 13 to 74 representing 14 different countries. The authors do *not* provide demographic information on the total number of males and

females. Of the 235 participants who completed the initial survey regarding online relationships, 155 MOO users also completed the second survey regarding offline relationships. The authors do *not* provide any demographic information for this smaller sample. The authors had hoped to compare MOO users who had started relationships online with those who had *not*; however, the group who had *not* formed relationships online was so small (6.7%), comparisons were *not* possible, and this group was *not* involved in any further analyses.

Parks and Roberts (1998) assessed the level of development of personal relationships initiated in MOOS in terms of the seven dimensions noted. Furthermore, the absolute level of relational development was assessed by comparing the observed means for the developmental dimensions with the theoretical midpoints of the scales using single sample *t*-tests. The observed means for the developmental dimensions were all higher than the observed means.

Although further research involving the PRDS (Parks & Roberts, 1998) was *not* identified, the researcher selected the PRDS for the current study for the following reasons: (a) no other romantic relationship development scales focused on the early stages of relationship forming were found through ERIC, EBSCOhost, H. W. Wilson, nor PsychInfo; (b) the PRDS was developed with consideration to online and offline relationships, which aligns with the focus of the present study to look at the contribution of social media sites on relationship development.

Research Design

A descriptive, correlational research design was employed to examine the research hypothesis and questions. Correlational research examines the relationship between variables without researcher manipulation (Heppner, Wampold, & Kivilighan, 2008). Furthermore,

correlational research determines the strength and direction of the relationship between variables, but does *not* provide researchers the ability to determine causal relationships (Graziano & Raulin, 2004). Nevertheless, descriptive correlational studies allow researchers to investigate the potential cause and effect relationship between specific constructs and predictive outcomes (Tabachnick & Fidell, 2013). Correlational research designs are often used in the counseling field and contribute to the literature; however, it is important to use more sophisticated analyses (e.g., SEM) to gain better estimates of the relationship between variables within a causal framework (Graziano & Raulin, 2004; Hair et al., 2010; Tabachnick & Fidell, 2013).

Correlational research designs are susceptible to threats to validity, such as: (a) construct validity; (b) internal validity; and (c) external validity. Validity is reflective of the soundness of a study's methodology (Graziano & Raulin, 2004). Construct validity is the "extent to which a set of measured variables actually represent the theoretical latent construct they are designed to measure" (Hair et al., 2010, p. 613). To support the construct validity of this investigation, the researcher provided clear operational definitions of the constructs and included theoretical and empirical support of the research hypothesis (Tabachnick & Fidell, 2013). In addition, the data analysis conducted in this research investigation included a confirmatory factor analysis (CFA) of each data collection instrument, supporting the construct validity with this sample of undergraduate college students.

Threats to internal validity are specific to the instruments used in an investigation and valid correlations between the variables within a study (Fraenkel et al., 2012). Overall, researchers may take steps to reduce threats to internal validity in correlational designs by careful

selection of valid and reliable measurements of the constructs (Graziano & Raulin, 2004). A specific threat to internal validity for this study was *characteristic correlations* (Fraenkel et al., 2012), which is the possibility that a correlation between variables is *not* explained by the specific constructs being studied, but because of other characteristics of a participant. Characteristic correlations are difficult to control for; however, participant demographic information was collected and used in analysis to account for differences and similarities of participant characteristics (covariates). A second threat to internal validity was *testing* (Graziano & Raulin, 2004), which refers to the way participants respond to items on one instrument may influence how they answer on the other instruments. A third threat to internal validity was *instrumentation* (Graziano & Raulin, 2004), which describes the danger that the psychometrics of the data collection instruments are *not* sound and measuring the construct being investigated. Threats to instrumentation were minimized by increasing construct validity and attempting to use instruments that were used in previous studies with similar populations. In addition, measurement error of the instruments (e.g., difference between measured value and true value, Graziano & Raulin, 2004) was accounted for in the data analysis. The environment's influence on the how the participants answered the survey was another threat to internal validity (Fraenkel et al., 2012). Furthermore, *mortality,* specific to correlational design, is the individuals who chose *not* to participate in the study may have had characteristics that were different and significant from those who chose to participate, and therefore it could *not* be generalized (Fraenkel et al., 2012). Mortality is a threat to validity for the study because of the specific constructs being studied. Specifically, college students with attachment avoidance may have chosen *not* to participate and those who have secure attachment may have been more likely to

participate; therefore, there is potential for there to be limited variance within the collected data. Lastly, the self-report formatting of the data collection instruments was a threat to internal validity (Fraenkel et al., 2012); therefore, there is *not* control or manipulation from the researcher. The environment's influence on the participants and the self-report nature of the instruments were *not* controlled for in this study.

External validity is the ability to generalize the results to a population (Fraenkel et al., 2012). A potential threat to external validity within this study was the knowledge of being included in a study. This participant knowledge may have influenced how participants answered assessments; specifically, in assessments measuring personal attributes (Heppner et al, 2008), influencing the generalizability of the findings. Correlational research designs are vulnerable to threats to internal and external validity; therefore, the researcher attempted to minimize these threats to validity through sound research procedures.

Research Hypothesis and Exploratory Questions

The purpose of this research study was to investigate the directional relationship between college students' attachment styles and social media practices to their relationship development quality. The following section presents the research hypothesis and exploratory research questions.

Primary Research Question

Do emerging adults' attachment styles (as measured by the ECR-S; Wei et al., 2007), and social media practices (as measured by the FBI; Ellison et al., 2007 and the MGFO; Fox &

Warber, 2013) contribute to their quality of relationship development (as measured by the PRDS; Parks & Roberts, 1998)?

Research Hypothesis

The research hypothesis tested in this investigation was: The influence of college students' attachment styles (as measured by the ECR-S; Wei et al., 2007) on their relationship development (as measured by the PRDS; Parks & Roberts, 1998) is partially mediated by their social media practices (as measured by the FBI; Ellison, Stenfield, & Lampe, 2007 and the MGFO; Fox & Warber, 2013). Specifically, the investigation tested the hypothesized directional relationship that young adults' scoring in the insecure attachment range (i.e., avoidant or anxious) with *greater* levels of social media practices had *lower* levels of relationship development quality. (See Figure 6).

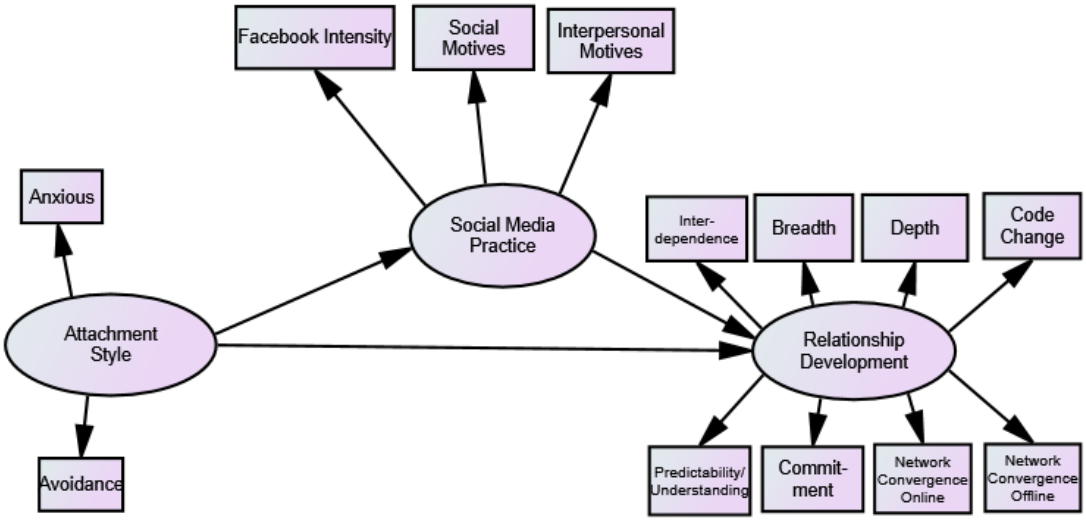

Figure 6 Hypothesized Path Model

The hypothesized measurement model path diagrams for each latent factor above can be seen in Figures 7, 8, 9, and 10. The hypothesized theoretical model (structural model) is presented in Figure 11.

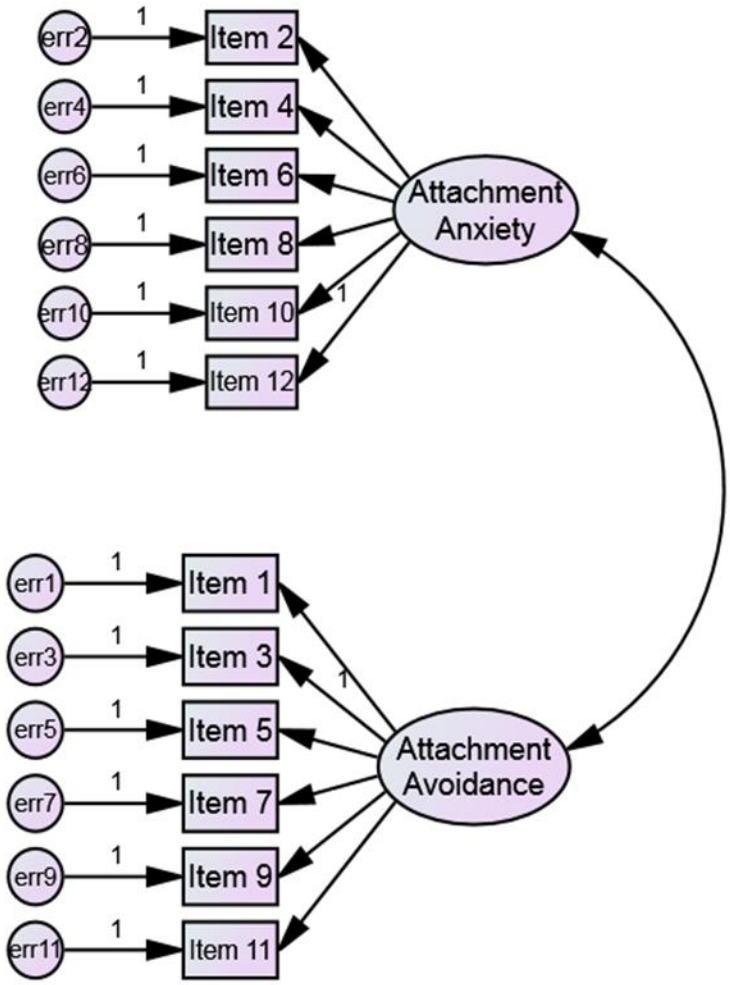

Figure 7 Hypothesized Attachment Style (ECR-S) Measurement Model Path Diagram

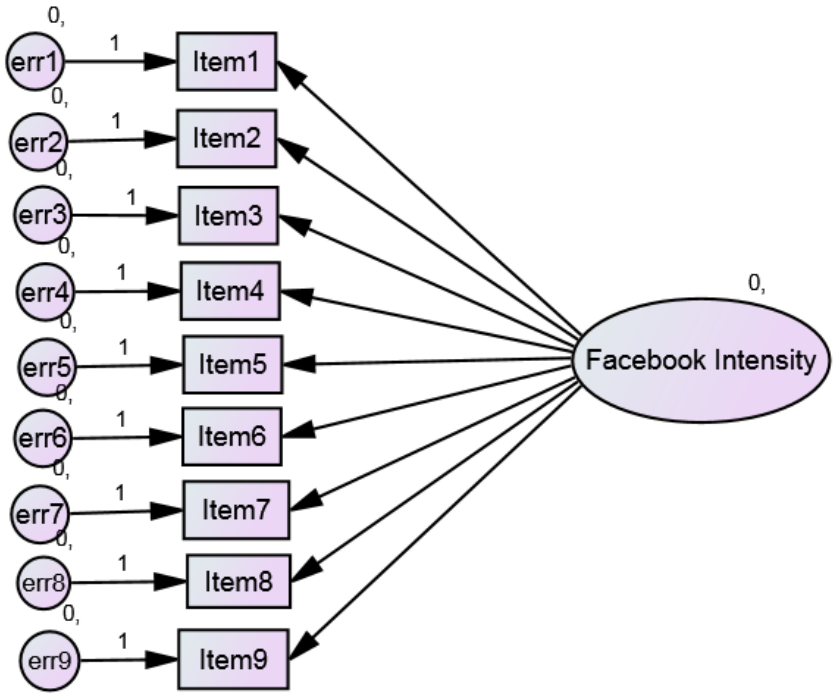

Figure 8 Hypothesized Social Media (FBI) Measurement Model Path Diagram

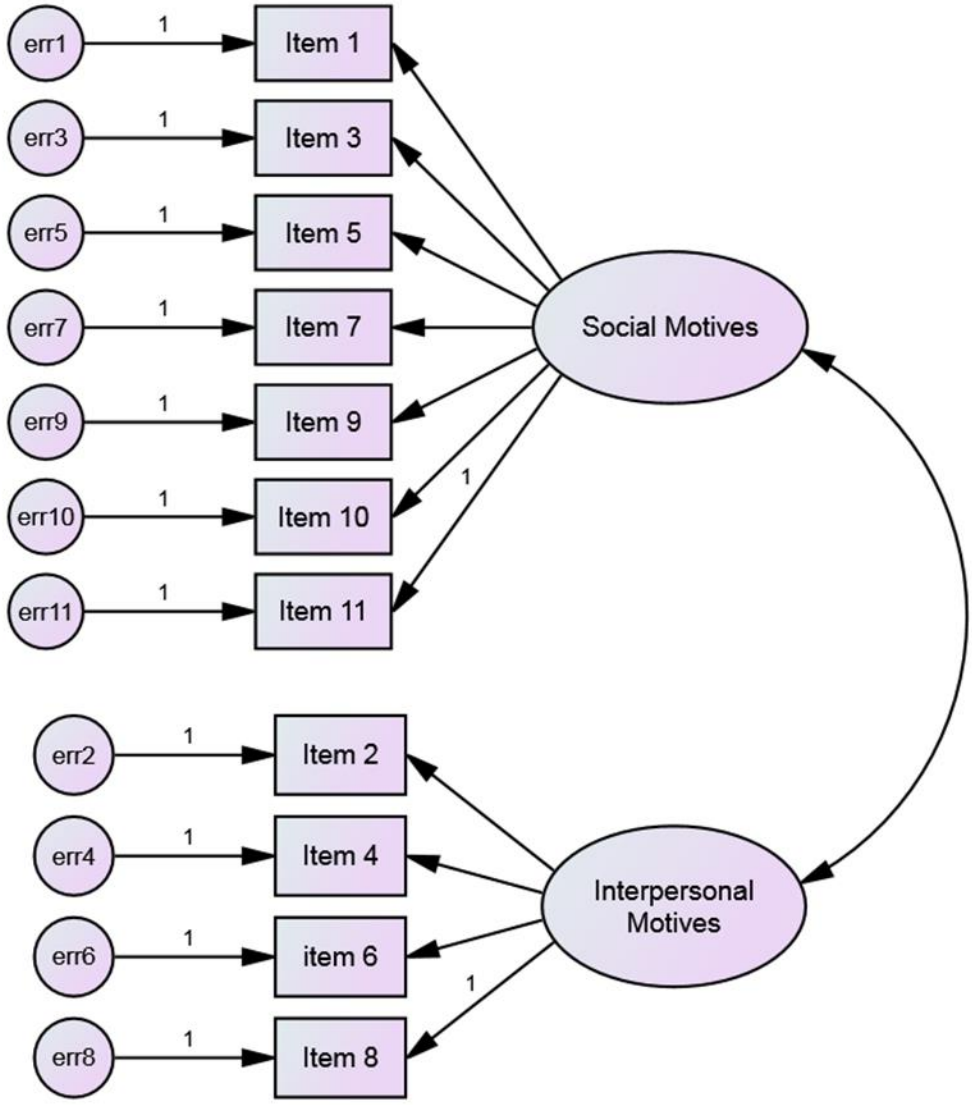

Figure 9 Hypothesized Relationship Broadcasting (MGFBO) Measurement Model Path Diagram

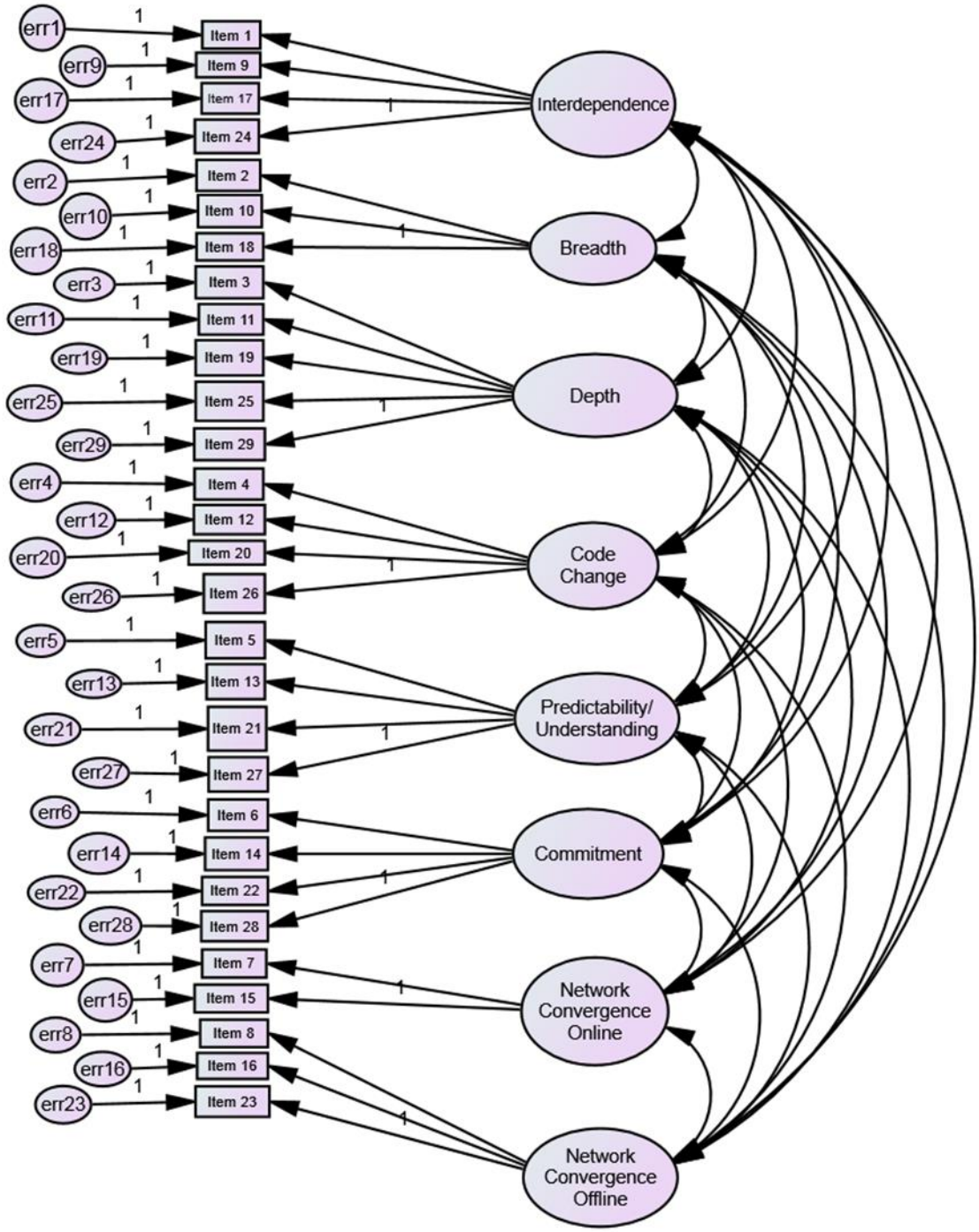

Figure 10 Hypothesized Relationship Development (PRDS) Measurement Model Path Diagram

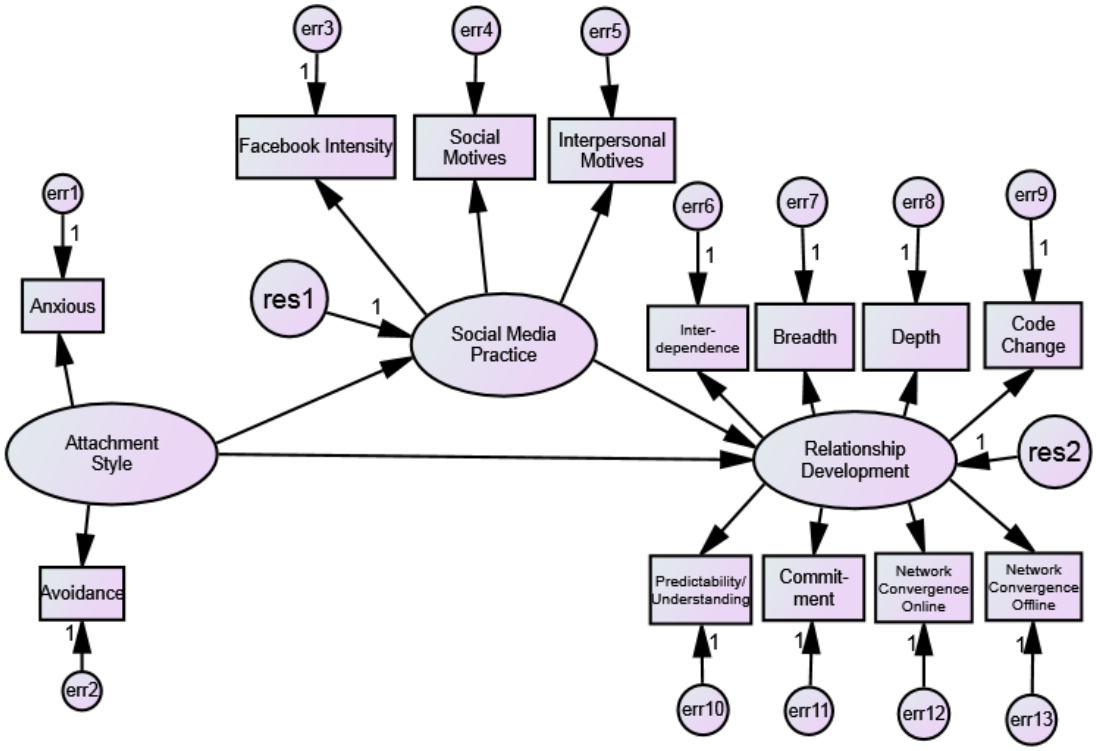

Figure 11 Hypothesized theoretical model (Structural model)

Exploratory Research Questions

Exploratory research question one.

Is there a statistically significant relationship between emerging adults' attachment styles (as measured by the factor scores of the ECR-S; Wei et al., 2007)] and their reported demographic variables (e.g., gender, age, ethnicity, year in college, and geographic location)?

Exploratory research question two.

Is there a statistically significant relationship between emerging adults' social media practices (as measured by the total score on the FBI; Ellison et al., 2007 and the factor scores on the MGFO;

Fox & Warber, 2013) and their reported demographic variables (e.g., gender, age, ethnicity, year in college, and geographic location)?

Exploratory research question three.

Is there a statistically significant relationship between emerging adults' relationship development quality (as measured by the factor scores on the PRDS; Parks & Roberts, 1998) and their reported demographic variables (e.g., gender, age, ethnicity, year in college, and geographic location)?

Data Analysis

The data analysis was conducted based on the data collected from the electronic survey which included the *General Demographics Questionnaire* and the four instruments (a) ECR-S (Wei et al., 2007); (b) FBI (Ellison et al., 2007); (c) MGFBO (Fox & Warber, 2013); and (d) PRDS (Parks & Roberts, 1998). The data was downloaded to *Statistical Program Systems Software 20th edition* (SPSS, 2011). The data was analyzed with SPSS and the *Analysis of Moment Structure 21st edition* (AMOS, 2012). AMOS is SEM statistical software that provides researchers a platform to create and translate path diagrams, as well as analyze theoretical models (Byrne, 2010). Furthermore, AMOS can address missing data, outliers, and variable transformations within a data set (Crockett, 2012). SEM statistical assumptions were tested to ensure that the data collected for the study was appropriate for SEM analysis. These statistical assumptions include: (a) normality; (b) homogeneity; and (c) multicollinearity. The following sections provide a detailed description of the data analysis procedures that were used to test the research hypothesis and the exploratory research questions.

Research Hypothesis

The data analysis that was used to test the theoretical model for this study (research hypothesis) was be SEM. SEM is a confirmatory procedure that is a combination of multiple regression, path analysis, and confirmatory factor analysis (Schumacker & Lomax, 2010). The results generated from SEM can only be applied to the sample used to test the model; in addition, SEM can be used in experimental and non-experimental designs, but is most commonly used in correlational studies (Ullman, 2007). SEM is becoming more common in counseling research due to its ability to evaluate complex theoretical counseling models (Crockett. 2012).

The theoretical model tested contained latent and manifest variables. The latent variables are (a) attachment styles; (b) social media practices; and (c) relationship development, which are represented by circles. Directionality of relationships between variables is signified with the use of one way arrows, and two way arrows signify a correlation. The measured variables (observed or manifest variables) are the factors of each of these constructs and are represented by squares. There are two types of models within SEM: (a) the measurement model that connects the manifest variables to the latent variables; and (b) the structural model which identifies the hypothesized relationships amongst the constructs within a study (Byrne, 2010). Relationships in SEM do *not* have measurement error because the error is estimated and removed, and reliability of measurement can be accounted for within the analysis by estimating and removing the measurement error (Schumacker & Lomax, 2010).

The hypothesized theoretical model (structural model) is presented in Figure 11, where circles represent latent variables, and rectangles represent measured variables. Absence of a line

connecting variables implies no hypothesized direct effect. The hypothesized model examined attachment style as a predictor for social media practices, and relationship development, as well as social media practices as a predictor for relationship development. A three factor model of Attachment style, Social Media Practices, and Relationship Development was hypothesized. Attachment style is a latent variable with two direct measured indicators (i.e., *Attachment Avoidance* and *Attachment Anxiety*), or 12 direct measured items. Social media practices is a latent variable with 20 direct measured items, while relationship development is a latent variable with seven direct measured indicators: (a) interdependence, (b) breadth, (c) depth, (d) predictability/understanding, (e) commitment, (f) network convergence online, and (g) network convergence offline, or 29 direct measured items. It was hypothesized that insecure attachment would predict *higher* levels of social media practices and *lower* relationship development quality. In addition, it was hypothesized that secure attachment would predict *lower* levels of social media practices, and *higher* relationship development quality.

To execute SEM, the following statistical assumptions needed to be met: (a) multivariate normality should exist and the researcher should screen the measured variables for outliers (both univariate and multivariate), an estimation method can be used to address non-normality; (b) linearity among variables should exist; in order to assess linear relationships among pairs of measured variables the researcher should examine the scatterplot; (c) multicollinearity and singularity; and (d) residuals should be close to 0, the frequency distribution of the residual covariances should by symmetrical (Ullman, 2007). Furthermore, the data should be screened (e.g., address outliers and missing data to ensure a usable data set; Crockett, 2012).

There are five steps of SEM (Crockett, 2012; Schumacker & Lomax, 2010; Ullman, 2007): (a) model specification; (b) model identification; (c) model estimation (d) model evaluation; and (e) model modification. Crockett (2012) clarifies the steps for conducting SEM in counseling research:

1. *Model specification,* completed before data collection, is the creation of the theoretical model based on empirical and theoretical support (Byrne, 2010). A visual path diagram of the model is developed using SEM software (e.g., AMOS).

2. *Model identification* allows the researcher to know if the model can yield usable results with SEM analysis. Two types of models need to be identified: (a) a measurement model (i.e., the relationship between the latent variables and their observed measures), and (b) a structural model (i.e., the relationship between the latent variables; Byrne, 2010). The measurement model(s) in SEM is evaluated through CFA. Within CFA, the factor structures are hypothesized a priori and verified empirically. The numbers of factors in CFA is assumed to be known, and in SEM, these factors correspond to the latent constructs represented in the model. CFA allows an indicator to load on multiple factors (if it is believed to measure multiple latent constructs). CFA also allows errors to correlate. Once the measurement model is specified, structural relations of the latent factors are then modeled essentially the same way as they are in the path models. The combination of CFA models with structural path models on the latent constructs represents the general SEM framework in analyzing covariance structures (Lei & Wu, 2007). Crockett (2012) suggests using ‘Brien’s (1994) criteria to examine the measurement model and Bollen’s (1998) recursive rule and the t rule.

3. *Model estimation* involves "determining the value of the unknown parameters and the error associated with the estimated value" (Weston & Gore, 2006, p. 737).

4. *Model testing* allows the researcher to know if the data fit the estimated model based on guidelines for determining model fit (Schumacker & Lomax, 2010).

5. *Model Modification* is adjusting the model to fit the data by estimating (i.e., freeing) or estimating (setting) parameters (Weston & Gore, 2006).

A summary of the SEM steps can be delineated further:

1. Develop the theoretical model based on theoretical and empirical support.

2. Test and modify measurement models by running CFA and examining factor loadings.

3. Review the model parameter estimates by examining: (a) the signage (+ / -) and size; (b) excessively large or small standard errors (these reflect the precision with which a parameter has been estimated); and (c) critical ratio (CR; needs to be > ± 1.96 based on a probability level of .05, before the hypothesis can be rejected.

4. Observe goodness-of-fit statistics (i.e., CFI, RMR, GFI, and RMSEA)

5. Adjust the model by freeing or setting parameters.

The following checklist to conduct SEM was completed (Ullman, 2007, p. 234):

1. Issues

a. Sample size and missing data

b. Normality of sampling distributions

c. Outliers

d. Linearity

e. Adequacy of covariances

f. Identification

g. Path diagram-hypothesized model

h. Estimation method

2. Major analyses

a. Assessment of fit

(1) Residuals

(2) Model chi square

(3) Fit indices

b. Significance of specific parameters

c. Variance in a variable accounted for by a factor

3. Additional analyses

a. Lagrange Multiplier test

(1) Tests of specific parameters

(2) Addition of parameters to improve fit

b. Wald test for dropping parameters

c. Correlation between hypothesized and final model or cross-validated model

d. Diagram-final model

Exploratory Research Questions One, Two, and Three

The exploratory research questions were examined using (a) descriptive statistics; (b) bi-variate correlations; (c) multiple linear regressions (MLR); (d) analysis of variance (ANOVA); and (e) t-tests (Pallant, 2010). Bi-variate correlations are used when the researcher wants to explore the strength of the relationship between two continuous variables, while MLR is a more sophisticated extension of correlation and is used when a researcher wants to explore the predictive ability of a set of independent variables on one continuous dependent measure (Pallant, 2010). ANOVA compares the variability in scores between the different groups with the variability within each of the groups, while independent samples *t*-tests compare the mean scores of two different groups of participants (Pallant, 2010).

The purpose of the exploratory research questions was to examine if there was a relationship between the reported demographic information of undergraduate college students and their attachment style, social media practices, and relationship development (as measured by the ECR-S [Wei et al., 2007]; FBI [Ellison et al., 2007]; MGFBO [Fox & Warber, 2013]; and PRDS [Parks & Roberts, 1998]).

Dependent and Independent Variables

Dependent/Endogenous Variables

Social media practice and relationship development were the latent dependent variables for this study. Social media practice was a latent dependent variable that was represented by three measured manifest variables: (a) Facebook intensity; (b) social motives; and (c) interpersonal motives. Social media practice was chosen as a dependent variable as it represented the criteria that theoretically may be most affected by the independent variable (attachment styles) as it was manipulated (Frankel et al., 2012). Relationship development was a latent dependent variable that was represented by seven manifest factors: (a) interdependence; (b) breadth; (c) depth; (d) predictability/understanding; (e) commitment; (f) network convergence online; and (g) network convergence offline. Relationship development was chosen as the dependent variable as it represented the criterion that theoretically may be most affected by the independent variables (attachment style and social media practices) as they were manipulated (Frankel et al., 2012).

Independent / Exogenous Variables

The independent variables designated in this study were based on a review of the literature that indicated an effect on relationship development. The independent variables were:

1. Attachment Style: Secure attachment, Avoidance attachment, and Anxiety attachment was investigated (as measured by the ECR-S, Wei et al., 2007). Attachment style was chosen as an

independent variable as it theoretically may influence undergraduate college students' relationship development, as noted in Chapter 2.

2. Social Media Practices: Emotional connectedness, frequency, duration, Facebook friends, and actual friends were investigated (as measured by the FBI, Ellison et al., 2007). Social and interpersonal motives for updating one's Facebook profile, or going FBO, were investigated (as measured by the MGFBO, Fox & Warber, 2013). Social media practice was chosen as an independent variable as it theoretically may influence undergraduate college students' relationship development, as noted in Chapter 2.

4. Demographic variables were entered as independent variables. The reported demographic variables include: (a) age; (b) ethnic classification; (c) gender; (d) year in college; (e) geographic location; (f) sexual preference; and (g) relationship status. The demographic variables were chosen to represent a wide variety of differences that may pertain to undergraduate college students.

Ethical Considerations

Ethical considerations that were considered by the IRB and the researcher's dissertation committee were:

1. All data was collected *confidentially* to protect the identity of participants.

2. Participation in the study was voluntary and participation did *not* impact students' grades.

3. All participants were informed of their rights and an explanation of research was approved by the IRB at the University of Central Florida. Participants had the opportunity to withdraw from the study at any time without consequence.

4. Permission to use the instruments was obtained by the developers of each data collection instrument; (a) ECR-S (Wei et al., 2007); (b) FBI (Ellison et al, 2007); (c) MGFBO (Fox & Warber, 2013); and (d) PRDS (Parks & Roberts, 1998).

5. The study was conducted with the approval of the dissertation chair and committee members.

Potential Limitations of the Study

Although efforts were made to limit threats to construct, internal, and external validity within this descriptive correlational research study, limitations exist.

The data collection instruments for this study were self-report; therefore, there may be some bias with participant responses that may have influenced study results.

There may be limited variance within the data due to the characteristics of the individuals who chose to participate in this study.

All data collection instruments have some measurement errors even with sound psychometric properties (Tabachnick & Fidell, 2013).

Finally, when convenience sampling is used, potential researcher bias could occur.

Chapter Summary

Chapter three presented the research methods used for the study examining the theoretical model that undergraduate college students with insecure attachment (i.e., Anxious attachment or Avoidant attachment; as measured by the ECR-S [Wei et al., 2007]), greater social media practice (as measured by the FBI [Ellison et al., 2007] and the MGFBO [Fox & Warber, 2013]) will have lower relationship development quality (as measured by the PRDS [Parks & Roberts, 1998]). Chapter three outlined methodology regarding the following topics: (a) population and sample; (b) data collection; (c) instrumentation; (d) research design; (e) research hypothesis and exploratory questions; and (f) data analysis. In addition, the dependent and independent variables were presented, as well as a review of the ethical considerations and limitations for the study.

CHAPTER FOUR: RESULTS

Chapter four presents the results of the investigated research hypothesis and exploratory questions. The purpose of this research study was to investigate the directional relationship between college students' attachment styles and social media practices to their relationship development quality. This investigation tested the theoretical model that college students' attachment styles (as measured by the *Experiences in Close Relationships Scale- short form*[ECR-S; Wei et al., 2007]) and social media practices (as measured by the *Facebook Intensity Scale* [FBI; Ellison, Stenfield, & Lampe, 2007] and the *Motives for Going Facebook Official* scale [MGFO; Fox &Warber, 2013]) contribute to their relationship development (as measured by the *Parks Relational Development Scale* [PRDS; Parks & Roberts, 1998]). Specifically, the investigation tested the hypothesized directional relationship that young adults' scoring in the insecure attachment range (i.e., avoidant or anxious) with *greater* levels of social media practices had *lower* levels of relationship development quality. In addition, this investigation examined the relationship between college students' attachment styles, social media practices, relationship development quality and their reported demographic information (e.g., age, current school level, and ethnicity).

The research hypothesis was analyzed using structural equation modeling (SEM), which integrates multiple regression analysis, path analysis, and confirmatory analysis (Ullman, 2007). The exploratory research questions were examined using: (a) descriptive statistics; (b) Pearson's correlations; (c) multiple regressions; and (d) independent sample *t* tests (Pallant, 2010). The results are presented in this chapter in the following order: (a) sampling and data collection

procedures, (b) descriptive statistics, and (c) data analyses per the primary research question and exploratory research questions.

Sampling Procedures and Data Collection Procedures

The target population for the study was enrolled undergraduate college students. Undergraduate students were selected because they are the largest users of social media (Pollet, Roberts, & Dunbar, 2011) and further investigation is warranted to identify emerging adult attributes that contribute to relationship development (Fox & Warber, 2013). Undergraduate college students, specifically those within the ages of 18-25, demonstrate identity exploration during this time period, especially in the area of love (Arnett, 2000). Therefore, enrolled college students were recruited to participate in the study. Additionally, to mitigate threats to external validity, and to acquire the most widely acceptable results by ensuring that the sample of college students was *not* narrowly defined, students of all ages were included in the sample (Fraenkel et al., 2012).

There are 21,550,000 enrolled undergraduate college students in the United States (United States Census, 2012). To ensure a 95% confidence level of generalizability for a population of 21,550,000, a minimum random sample of 290 participants was needed (Krjecie & Morgan, 1970). A convenience sample of enrolled college students was contacted to participate in this study through personal and professional contacts of the researcher. Students from three different universities were used as part of the convenience sample; (a) 5,117 students from the University of Central Florida (UCF); (b) 1,000 students from Old Dominion University (ODU);

and (c) 1,000 students from Mississippi College (MC). Therefore, the total participants invited to participate as part of the sample was 7,117.

A survey, which included all the data collection instruments and the demographic form, was distributed electronically through Qualtrics to all participants. To support sound data collection methods and response rates, Dillman, Smyth, and Christian's (2009) steps to web survey implementation, which are similar to Dillman's (2000) *Tailored Design Method*, were implemented. However, in order to maintain confidentiality for the student-participants, the *Tailored Design Method* could *not* be followed with all participants due to the following reasons: (a) the majority of students in the UCF sample were undergraduate Psychology students accessing the study through the Psychology Department's online research platform; therefore, individual, personalized emails could *not* be sent to each student; and (b) the students from ODU and MC were forwarded an invitation email and a flyer that included the informed consent, a secure link to the data collection instruments, and an explanation of the incentive; therefore, individual, personalized emails could *not* be sent to each student. The researcher visited four classes at UCF and was able to follow the *Tailored Design Method* for these participants. In addition, to decrease measurement error, the survey link was reviewed by the dissertation committee and 11 of the researcher's colleagues to ensure clarity and readability of the directions for completing the surveys (Dillman et al., 2000). Feedback from the dissertation committee and colleagues was integrated to refine the directions and demographic questionnaire to make it more user-friendly for the study participants.

Participants from visited UCF classes were sent an invitation email that included (a) the informed consent, (b) a secure link to the data collection instruments, and (c) an explanation of the incentive to participate in the study. Participants from visited classes received an email one week after the initial email was sent as a reminder for those who had *not* completed the survey. Two weeks later (three weeks after the original email) a final reminder was sent to these participants. A thank you email was sent immediately after the participants completed the survey, and their email address was removed from the list to ensure they would *not* receive the reminder emails. Participants could unsubscribe from the list of participants and contact the researcher to be removed from the list. UCF students who accessed the study through the Psychology Departments research website received (a) an explanation of research, (b) a secure link to the data collection instruments, (c) and an explanation of incentive to participate in the study. These students also received 0.5 credits for completing the study. A thank you message was sent to these students upon their completion. Incentive for this study was that for each survey returned completed, a $1.00 donation was made to the One Love Foundation, a non-profit organization working to end relationship violence through education and technology.

Descriptive Data Results

Response Rate

The total number of students from the classes visited at UCF was 117. Of the 117 emails sent to UCF students, no emails were sent back; therefore, all 117 students were invited to participate. Seventy-two of these students completed the data collection instruments, yielding a response rate of 61.5%. However, the total number of students, including those from all three

universities who completed the data collection survey was 751, yielding a 10.6% response rate. Upon removing cases that either: (a) had over 50% missing information; or (b) did *not* indicate having a Facebook account, the total number of participants who completed *all* of the data collection instruments was 717, yielding a 10.1% usable response rate. Therefore, the overall sample for this study was 717 enrolled undergraduate college students from three different universities in the Southeastern United States. An average response rate for research investigating undergraduate students through web-based surveys was 8 – 40% (Pike, 2008); therefore, the response rate for this research study fell within expected values.

Undergraduates' Demographics

Descriptive data and measures of central tendency are presented for all participants in the study (N = 717). The following descriptive analyses are reported on the total sample (N = 717; see Table 2). The majority of participants were female (n = 491, 68.5%), compared to those who identified as male (n = 218, 30.4%), self-identified as something other than female, male, or transgender (n = 5, .7%), or transgender (n = 3, .4%). The majority of participants were between the ages of 18 – 25 (n = 630, 87.9%), followed by those between the ages of 26 – 33 (n = 40, 5.6%), those between the ages of 34 – 41 (n = 21, 2.9%), those between the ages of 42 – 49 (n = 13, 1.8%), those between the ages of 50 -57 (n = 10, 1.4%), and those between the ages of 58 – 65 (n = 3, .4%). Ethnicity and race of participants (N = 717) was 436 (60.8%) White, 104 (14.5%) Hispanic, 64 (8.9%) African/African American, 36 (5.0%) Asian/Asian American, 31 (4.3%) Black, 25 (3.5%) Multiracial, 2 (.3%) Native American, 2 (.3%) Pacific Islander, and 17 (2.4%) Other. The reported relationship status for the participants (N = 717) was 293 (40.9%)

single, 262 (36.5%) in a committed (exclusive) relationship, 77 (10.7%) seeing someone/more than one person, 45 (6.3%) married or partnered, 15 (2.1%) engaged, 11 (1.5%) divorced, 10 (1.4%), and 4 (.6%) separated. Sexual orientation of participants (*N* = 717) was 656 (91.5%) straight or heterosexual; 33 (4.6%) bisexual; 19 (2.6%) lesbian, gay, or homosexual; 5 (.7%) something else; and 4 (.6%) uncertain. These values closely align with the 2012 census data, as the numbers of females enrolled in college is greater than that of males, and the majority (79%) of college students are within the 18-25 age range. Differences exist in that Asian Americans have the highest enrollment rate in US schools (9.4%), followed by Black/African/African American students (8%), followed by non-Hispanic whites (6.2%).

In regards to participants' (*N* = 717) year in schooling, 284 (39.6%) reported being first years, 177 (24.7%) reported being juniors, 144 (20.1%) reported being seniors, 104 (14.5%) reported being sophomores, and 8 (1.1%) reported being Other. The majority of participants reported that their college location was in the south (*n* = 712, 99.3%), followed by 2 (.3%) in the West and 2 (.3%) in the Southwest, followed by 1 (.1%) in the Midwest. The environmental setting of the participants' schools was 407 (56.8%) urban, 279 (38.9%) suburban, and 31 (4.3%) rural.

In regards to Facebook, all (100%) participants (*N* = 717) had active Facebook accounts. Furthermore, 287 (40.0%) had their account for 3 – 4.9 years, 271 (37.8%) had an account for 5 – 6.9 years, 74 (10.3%) had an account for 7 – 8.9 years, 57 (7.9%) had an account for 1 - 2.9 years, 21 (2.9%) had an account for less than one year, and 7 (1.0%) had an account for 9 years.

Table 2 Demographic Variables

Demographic	Total (*n*)	Percentage
Gender		
Female	491	68.5%
Male	218	30.4%
Transgender	3	.4%
Self-Identify	5	.7%
Age		
18 – 25	630	87.9%
26 – 33	40	5.6%
34 – 41	21	2.9%
42 – 49	13	1.8%
50 – 57	10	1.4%
58 - 65	3	.4%
Ethnicity		
White	436	60.8%
Hispanic	104	14.5%
African/African American	64	8.9%
Asian/Asian American	36	5.0%
Black	31	4.3%
Multiracial	25	3.5%
Other	17	2.4%
Native American	2	.3%
Pacific Islander	2	.3%
Relationship Status		
Single	293	40.9%
In a committed (exclusive) Relationship	262	36.5%
Seeing someone / more than one person	77	10.7%
Married/Partnered	45	6.3%
Engaged	15	2.1%
Divorced	11	1.5%
Other	10	1.4%
Separated	4	.6%
Sexual Orientation		
Straight or heterosexual	656	91.5%
Bisexual	33	4.6%
Lesbian, gay, or Homosexual	19	2.6%
Something else	5	.7%

Demographic	Total (*n*)	Percentage
Uncertain	4	.6%
Active Facebook Account		
Yes	717	100%
No	0	0%
Duration of Facebook Account		
3 – 4.9 years	287	40.0%
5 – 6.9 years	271	37.8%
7 – 8.9 years	74	10.3%
1 – 2.9 years	57	7.9%
Less than 1 year	21	2.9%
9 years	7	1.0%

Self-Reported Intimate Relationships and Social Media

To assess students' intimate relationships and their Facebook usage, four five-point Likert scaled statements were incorporated on the demographic questionnaire (Sherrell, 2013). The four Likert scale statements examined participants' self-report of: (a) importance of becoming Facebook friends with someone they are romantically involved, (b) importance of getting to know a significant other through social media, (c) importance of updating their relationship status to "In a relationship", and (d) importance of their internet reputation. Statements were reported over a Likert scale ranging from one to five: 1 = not at all important, 2 = low importance, 3 = slightly important, 4 = important, and 5 = very important. The following section presents the Likert scale questions and the descriptive statistics of the participants' responses per item.

Facebook Friends and Significant Others.

Participants were asked to rate their social media usage and significant others by rating, "*Importance of becoming Facebook friends with someone who you are romantically involved*" from a scale regarding ranging from one (not at all important) to five (very important). The measures of central tendency for the participants' responses to this item were: *M* = 3.16, *SD* = 1.37; range 1 – 5). In addition, the frequency results are presented in Table 3.

Table 3 Self- Reported Facebook Friends and Significant Others

Scale	Total (*n*)	Percentage
Not at all important	123	17.2%
Low importance	110	15.3%
Slightly important	155	21.6%
Important	189	26.4%
Very important	140	19.5%
Total	717	100.0%

Relationship Building and Facebook.

The Likert scale that participants were asked to rate regarding getting to know partners through Facebook was, "*Importance of getting to know a significant other through the use of social media, like Facebook"* from a scale ranging from one (not at all important) to five (very important). The measures of central tendency for the participants' responses to this item were: *M* = 2.28, *SD* = 1.14; range 1 – 5). In addition, the frequency results are presented in Table 4.

Table 4 Self-Reported Relationship Building and Facebook

Scale	Total (*n*)	Percentage
Not at all important	226	31.5%
Low importance	209	29.1%
Slightly important	169	23.6%
Important	84	11.7%
Very important	29	4.0%
Total	717	100.0%

Updating Relationship Status.

The Likert scale statement that participants were asked to rate regarding updating their relationship status through Facebook was, "*Importance of updating your relationship status on Facebook to 'In a relationship'*" from a scale ranging from one (not at all important) to five (very important). The measures of central tendency for the participants' responses to this item were: $M = 2.44$, $SD = 1.21$; range 1 – 5). In addition, the frequency results are presented in Table 5.

Table 5 Self-Reported Importance of Updating Relationship Status

Scale	Total (*n*)	Percentage
Not at all important	201	28.0%
Low importance	190	26.5%
Slightly important	182	25.4%
Important	100	13.9%
Very important	44	6.1%
Total	717	100.0%

Internet Reputation.

The Likert scale statement that participants were asked to rate regarding their internet reputation was, "*Importance of your internet reputation or reputation on Facebook*" from a scale ranging from one (not at all important) to five (very important). The measures of central tendency for the participants' responses to this item were: $M = 2.56$, $SD = 1.39$; range 1 – 5. In addition, the frequency results are presented in Table 6. Furthermore, Cronbach's α assessing the internal consistency of the four intimate relationships and social media Likert scale items was acceptable at .734 (Pallant, 2010).

Table 6 Internet Reputation

Scale	Total (*n*)	Percentage
Not at all important	222	31.0%
Low importance	169	23.6%
Slightly important	115	16.0%
Important	125	17.4%
Very important	86	12.0%
Total	717	100.0%

Attachment

The *Experiences in Close Relationships Short Form* (ECR-S; Wei et al., 2007) was used to identify college student attachment styles. The ECR-S is a self-reporting questionnaire that has 12 items that are divided into two subscales. The two subscales are anxious attachment and avoidant attachment. The items contain a 7-point Likert scale format that ranges from "strongly disagree" to "strongly agree". Each ECR-S subscale has six items. Cronbach's α assessing the

internal consistency of the ECR-S was .723, indicating an acceptable internal consistency of the scale measuring attachment styles of this sample of college students (Pallant, 2010). In addition, Cronbach's α assessing the internal consistency for Avoidant Attachment was .746, indicating an acceptable internal consistency of the avoidance scale of the ECR-S, while Cronbach's α assessing the internal consistency for Anxious Attachment was .715, also indicating an acceptable internal consistency of the anxious subscale of the ECR-S with this sample of undergraduate students. The measures of central tendency for the college students per the ECR-S subscales are presented in Table 7.

Table 7 Experiences in Close Relationships- Short Form Measures of Central Tendencies

Instrument	*M*	*SD*	Range	*Mdn*	Mode
Avoidant Attachment	3.02	1.44	1.00 – 7.00	2.67	2.00
Anxious Attachment	3.25	1.38	1.00 – 7.00	3.33	3.33

Social Media Practices

The *Facebook Intensity Scale* (FBI; Ellison et al., 2007) was used to measure participants' social media usage determined by one subscale: *Facebook Intensity.* Ellison and colleagues (2007) describe the use of four hypothesized subscales: *emotional connectedness* (EC), *minutes per day* (MPD), *actual friends* (AF), and *total Facebook friends* (TFBF); however, the FBI remains a total score instrument, indicating that all items should load on one factor. The FBI is a self-report measure with nine questions. Participants were asked to rate how they

experience the nine items on three Likert scales: (a) 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly agree; (b) 1 = 0 – 14 minutes, 2 = 15 – 29 minutes, 3 = 30 – 44 minutes, 4 = 45 – 59 minutes, 5 = 1 hour or more; and (c) 1 = less than 100, 2 = 101 – 200, 3 = 201-300, 4 = 301 – 400, 5 = 401 – 500, and 6 = more than 500. Cronbach's α assessing the internal consistency of the total *FBI* was .830, indicating an acceptable internal consistency of the scale measuring social media usage (Pallant, 2010). The measures of central tendency for enrolled undergraduate students' dimensions of social media usage as measured by the *FBI* are presented in Table 8.

Table 8 Facebook Intensity Scale Measures of Central Tendencies

Instrument	*M*	*SD*	Range	*Mdn*	Mode
Facebook Intensity	3.09	.87	1.00 – 5.22	3.11	3.78

The *Motives for Going Facebook Official* scale (MGFBO; Fox & Warber, 2013) was also used to identify college student social media practices. The MGFBO is an 11- item self-reporting questionnaire that has two subscales that measure individuals' motives for posting their relationship status; interpersonal motives and social motives. The 11 items contain a 5- point Likert scale format ranging from "strongly disagree" to "strongly agree". There are seven items associated with *Social Motives,* and four items associated with *Interpersonal Motives.* Cronbach's α assessing the internal reliability consistency of the *MGFBO* was .882 with these data, indicating an acceptable internal consistency of the scale measuring two factors of relationship broadcasting (Pallant, 2010). The internal consistencies for the two MGFBO

subscales were Cronbach's α of .845 for Social Motives and .837 for Interpersonal Motives, indicating an acceptable internal reliability consistency (Pallant, 2010). The measures of central tendency for the enrolled undergraduate students per the MGFBO subscales are presented in Table 9.

Table 9 Motives for Going Facebook Official scale Central Tendencies

Instrument	*M*	*SD*	Range	*Mdn*	Mode
Social Motives	3.19	1.02	1.00 – 5.00	3.33	4.00
Interpersonal Motives	3.18	.966	1.00 – 5.00	3.25	4.00

Relationship Development

The *Parks Relational Development Scale* (PRDS; Parks & Roberts, 1998) was used to measure participants' quality of relationship development determined by eight subscales: *interdependence* (I), *breadth* (B), *depth* (D), *code change* (CC), *predictability/understanding* (PU), *commitment* (C), *network convergence online* (NCOn), and *network convergence offline* (NCOf). The PRDS is a self-report instrument with 29 items. Participants were asked to rate their agreement on a Likert scale: 1 = Strongly disagree, 2 = Disagree, 3 = Slightly disagree, 4 = Neutral, 5 = Slightly agree, 6 = Agree, and 7 = Strongly agree. Cronbach's α assessing internal consistency of the total PRDS was .895 with these data, indicating an acceptable internal consistency (Pallant, 2010). In addition, the Cronbach's α for each of the eight PRDS subscales was calculated with these data: *interdependence* (.623), *breadth* (.733), *depth* (.777), *code*

change (.621), *predictability/understanding* (.727), *commitment* (.860), *network convergence online* (.504), and *network convergence offline* (.677). The internal consistencies of the individual subscales of the PRDS ranged from poor (*network convergence online*, .504) to good (*Commitment*, .860; Pallant, 2010). As noted in Gliem and Gliem (2003), increasing the number of items in the scale may increase the internal consistency. Therefore, if items from the *Network Convergence Online* and *Network Convergence Offline* subscales were combined, Cronbach's α for the potential subscale *Network Convergence* was .668 with these data, slightly decreasing for the NCOf subscale, but increasing the internal consistency for the NCOn subscale. Although .668 is below.7, the researcher chose to continue as Cronbach alpha values of $0.6 \leq \alpha \leq .7$ is still considered to be acceptable (George & Mallory, 2003; Kline, 2000). The measures of central tendencies for the enrolled undergraduate students per the PRDS subscales, as well as the additional subscale, *Network Convergence*, are presented in Table 10.

Table 10 Parks Relational Development Scale Central Tendencies

Factor	*M*	*SD*	Range	*Mdn*	Mode
Interdependence	21.06	3.89	4.00 – 28.00	21.00	22.00
Breadth	17.59	3.07	3.00 – 21.00	18.00	18.00
Depth	29.07	4.97	5.00 – 35.00	30.00	35.00
Code Change	19.84	4.45	4.00 – 28.00	20.00	21.00
Predictability/ Understanding	22.82	3.91	4.00 – 28.00	24.00	24.00
Commitment	19.69	2.80	4.00 – 28.00	20.00	22.00

Factor	*M*	*SD*	Range	*Mdn*	Mode
Network Convergence Online	8.99	2.77	2.00 – 14.00	9.00	8.00
Network Convergence Offline	16.84	3.27	3.00 – 21.00	18.00	18.00
Network Convergence	25.84	5.07	5.00 – 35.00	26.00	29.00

Data Analyses for the Research Hypothesis and Exploratory Research Questions

The following section reviews the results of the analyses for the primary research question and hypothesis, and the three exploratory research questions. All of the data was analyzed using the *Statistical Package for Social Sciences* (SPSS, Version 22) and the *Analysis of Moment Structures* (AMOS, version 21) for SEM. To confirm that 95% of the variance of the relationship between the variables was due to the actual relationship and *not* sampling error, an alpha level of .05 was set (Frankel & Wallen, 2009).

Statistical Assumptions and Data Screening

Preliminary analyses of the data were conducted to ensure the sample size was appropriate for SEM. Byrne (2010) suggests that the following assumptions are met: (a) appropriate sample size, (b) address missing data, (c) limited multicollinearity and singularity, (d) account for outliers, (e) multivariate normality, and (f) linearity between the variables. The suggested minimum sample size for SEM is 200 (Byrne, 2010). The dataset did *not* have any missing data that was missing not at random (MNAR) or missing completely at random (MCAR); however, there was data missing at random (MAR).

Hair, Black, Babin, and Anderson (2010) provide a four-step process for identifying missing data and applying remedies. The first step involves determining the type of missing data. The researcher was concerned whether the missing data were part of the research design and under the control of the researcher, or whether the causes and impacts of the missing data was unknown; therefore, if the data were ignorable or if the missing data processes were *not* ignorable. The next step involves determining the extent of missing data, followed by step three, diagnosing the randomness of the missing data processes. The final step is selecting the imputation method (Hair et al., 2010).

The suggested four-step process (Hair et al., 2010) was applied to the research study as follows. The missing data in this research study were *not* ignorable because they resulted from participant failure to complete the entire assessment packet. Therefore, descriptive statistics were examined to observe any nonrandom patterns among the missing data, the extent of missing data for individual variables, individual cases, and overall. Through Little's MCAR test (χ^2 = 2627.323, df = 2537, p = .103), the data that were missing were identified as completely random; however, data is rarely missing completely at random in the social sciences (Osborne, 2013). Therefore, the researcher opted to delete cases that had greater than 50% missing values, resulting in 20 cases and 14 cases deleted because participants did *not* have a Facebook account. With the exclusion of these cases, the extent of missing data was substantially reduced, and the reduction of sample size was less than 5%. The original sample size was 751, and after deleting the cases with missing data, a total sample size of 717 remained. Furthermore, the researcher did *not* have to complete step four as the number of cases with missing data was a small percentage of the overall sample (Hair et al., 2010; Osborne, 2013, Tabachnick & Fidell, 2013).

Standard multiple regression using the two factors of the ECR-S (independent variables), the FBI mean scores (independent and dependent variables), the two factors of the MGFBO (independent and dependent variables), and the seven factors of the PRDS (dependent variables) was conducted to assess assumptions (Pallant, 2010). Multicollinearity refers to the relationship between the independent variables, and exists when they are highly correlated (r = .9 and above) (Tabachnick & Fidell, 2013). The correlation matrix and the Tolerance and VIF (variance inflation factor) values were examined to determine multicollinearity. Correlations between the independent variables should be below .7 to retain all variables. A tolerance value below .10 and VIF values above 10 suggest the possibility of multicollinearity (Pallant, 2010). All correlations between the independent variables were below .7 and none of the tolerance or VIF values suggested multicollinearity. Therefore, the data met the assumption of multicollinearity.

Outliers, normality, and linearity were evaluated by reviewing the Normal Probability Plot (P – P) of the Regression Standardized Residual and the scatterplot. Casewise diagnostics, Mahalonobis, and Cooks Distances were evaluated and identified *no* need to address unusual cases. Kurtosis affects tests of variances and covariances, and given that SEM is based on the analysis of covariance structures, evidence of kurtosis is known to be exceptionally detrimental in SEM analyses (DeCarlo, 1997). Therefore, Byrne (2011) recommends observing kurtosis values and their critical ratios to assess for normality. The standardized kurtosis index ($ß_2$) in a normal distribution has a value of 3, with larger values representing positive kurtosis and lesser values representing negative kurtosis. However, AMOS rescales this value by subtracting 3 from the $ß_2$ value, thereby making zero the indicator of normal distribution and its sign the indicator of positive or negative kurtosis (DeCarlo, 1997; Kline, 2005). Rescaled $ß_2$ values equal to or greater

than 7 are indicative of non-normality (Byrne, 2011). Using this value of 7 as a guide, a review of the kurtosis values revealed *no* item to be substantially kurtotic. Therefore, the assumption of normality was considered to be met with these data.

Research Hypothesis and Exploratory Questions

The purpose of this study was to investigate the directional relationship between enrolled undergraduate students' attachment styles and social media practices to their relationship development. The following section presents the results for the research hypothesis and exploratory questions. The research hypothesis was analyzed using SEM and Pearson's correlation. There are five steps to SEM (Crockett, 2012; Ullman, 2007; Weston & Gore, 2006): (a) model specification, (b) model identification; (c) model estimation, (d) model testing, and (e) model modification. All five steps were used and repeated to analyze the primary hypothesis. To determine overall goodness of fit, the following fit indices were used: (a) Chi Square (χ^2), (b) Tucker-Lewis index (TLI), (c) Comparative fit index (CFI), (d) Root mean square error of approximation, (e) Goodness of fit index (GFI), and (f) Hoelter's Critical N (Hair et al., 2010; Hooper, Coughlan, & Mullen, 2008; Hu & Bentler, 1998; Schrieber, et al., 2006). Fit indices descriptions and their value recommendations are summarized in Table 11.

Table 11 Fit Indices

Fit Index	Summary	Value Recommendation
Chi Square (χ^2)	The extent to which the overall model predicts the observed covariance	The ratio of χ^2 to *df* should be ≤ 2 or 3
Comparative Fit Index (CFI)	Compares the covariance matrix to the χ^2 of the hypothesized model to the χ^2 of the null model. The null	≥ .95 for good fit; >.90 is acceptable

Fit Index	Summary	Value Recommendation
	model is calculated by assuming latent variables and indicators are uncorrelated. CFI is similar to TFI, but accounts for sample sizes, and is thus, widely used.	
Goodness of Fit Index (GFI)	The proportion of variance that is determined by the estimated population covariance.	≥ .95 for good fit; >.90 is acceptable
Hoelter's Critical N	Addresses the adequacy of the sample size to provide a good model fit for χ^2	> 200 for acceptance/good fit
Root-Mean-Square Error of Approximation (RMSEA)	Compares the fit of the independent model (a model which asserts no relationships between variables) to the fit of the estimated model; Measures the amount of variance within the hypothesized model. Sensitive to the degrees of freedom in the model and does well with fewer parameters.	≤.05 good fit; cutoff value of .05 - .08 is acceptable
Tucker – Lewis Index (TLI)	Compares the χ^2 of the hypothesized model to the χ^2 of the null model. TLI describes the extent which the specified model performs better than a baseline model and is more sensitive to complex models.	≥ .95 for acceptance/ good fit; although .90 can be acceptable

Pearson's correlation analysis was used to further support the results of the SEM for the hypothesis. Correlational research does *not* provide a researcher the ability to determine causal relationships; however, the correlation coefficient determines the strength, direction, and significance of the relationship. A correlation coefficient is between -1.00 and + 1.00. The closer

the coefficient is to -1.00 or +1.00, the stronger the relationship. The negative or positive sign indicate the direction of the relationship. Correlations ranging from .10 to .29 indicate a small relationship, correlations ranging from .30 to .49 are considered to be medium or moderate, and correlations ranging from .50 to 1.00 signify a strong correlation (Cohen, 1988).

Primary Research Question

Do enrolled undergraduate college students' attachment styles (as measured by the *Experiences in Close Relationships –Short form* [ECR-S; Wei et. al., 2007]) and social media practices (as measured by the *Facebook Intensity Scale* [FBI; Ellison et al., 2007] and the *Motives for Going Facebook Official scale* [MGFBO; Fox & Warber, 2013]) contribute to the quality of their relationship development (as measured by the *Parks' Relational Development Scale* [PRDS; Parks & Roberts, 1998])?

Research Hypothesis

The research hypothesis tested in this investigation was: The influence of college students' attachment styles (as measured by the ECR-S; Wei et al., 2007)] on their relationship development (as measured by the PRDS) is partially mediated by their social media practices (as measured by the FBI; Ellison et al., 2007 and the MGFO; Fox & Warber, 2013). Specifically, the investigation tested the hypothesized directional relationship that young adults' scoring in the insecure attachment range (i.e., avoidant or anxious) with *greater* levels of social media practices had *lower* levels of relationship development quality (see Figure 12).

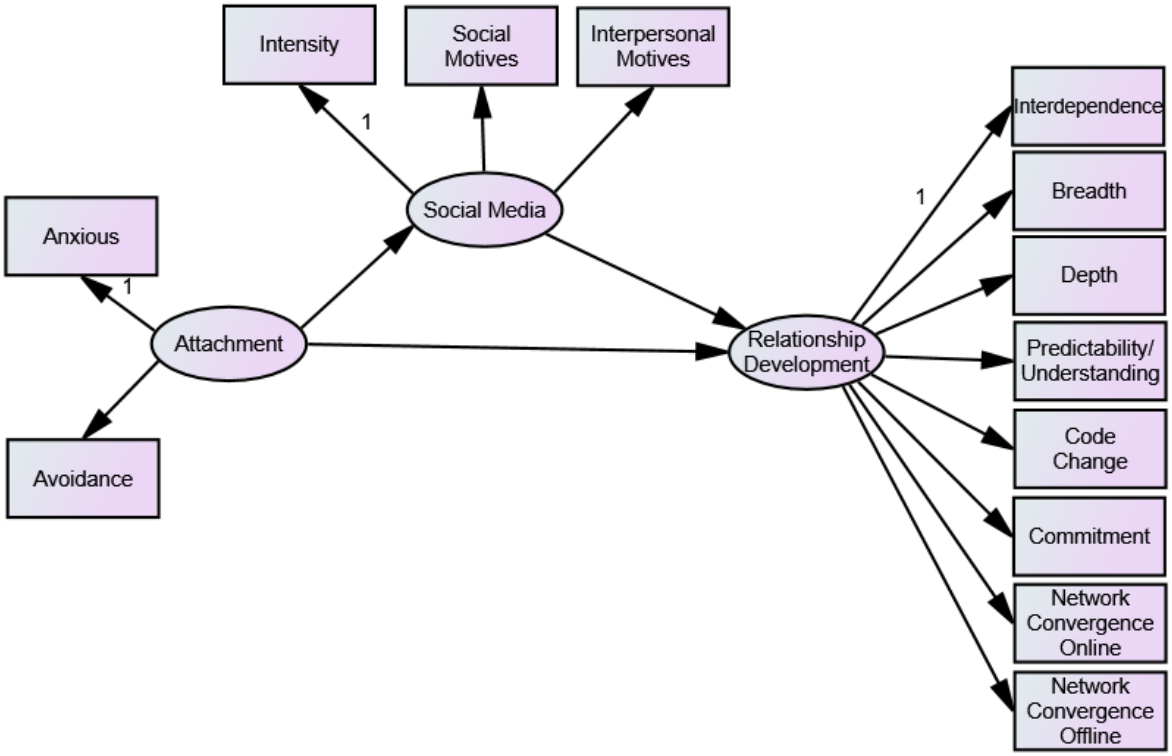

Figure 12 Hypothesized Structural Model with Manifest Variables

Model Specification and Identification

Before testing the hypothesized model, the measurement model was specified and identified. Byrne (2010) suggests that measurement models are psychometrically sound for the dataset and that the validity of the measurement should be evaluated before assessing the structural model. To assess the validity of the measurement model, confirmatory factor analysis (CFA) was conducted to assess the fit of the indicators measuring the latent variable. A CFA was conducted on each measure to ensure that the items were loading independently on the factors identified in the previous research (Ellison et al., 2007; Fox & Warber, 2013; Parks & Roberts,

1998; Wei et al., 2007). The CFA of each measurement model provided rationale for possibly modifying the models for these data.

Confirmatory Factor Analysis: Attachment

Attachment was measured using the *Experiences in Close Relationships Short form*.

The CFA of the ECR-S was conducted based on the exploratory factor analysis (EFA) and CFA conducted by Wei and colleagues (2007) and because the ECR-S is a mean score two-factor instrument, all items were constrained to load onto one of the two factors. However, within the current study, the factor loadings were all below .70, indicating that there may be more than two factors within the ECR-S for these data (MacCallum et al., 2001). Furthermore, Kline (2011) recommends that when CFA indicates low factor loadings, the researcher not be constrained by the originally specified factors and consider conducting an EFA as the current sample may not fit the original number of factors suggested. Therefore, an EFA was conducted for the purposes of this study.

The 12 items of the ECR-S were subjected to factor analysis using principal axis factoring. Prior to performing EFA, the suitability of the data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser – Meyer - Olkin value was .79, exceeding the recommended value of .6 (Kaiser 1970, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance, supporting the factorability of the correlation matrix.

Principal axis factoring revealed the presence of three factors with eigenvalues above 1, explaining 25.73%, 21.768%, and 10.65% of the variance respectively for a total of 45.07% of the variance explained. The rotated solution revealed the presence of a simple structure, with all three factors showing a number of strong loadings and all variables except one loading on only one component. Because one item (Item 2) displayed problematic cross-loading where the difference was less than .2, item 2 was deleted (Pallant, 2010). The results of this analysis did *not* support Wei and colleagues (2007) findings; however, the anxiety items, as suggested by the ECR-S authors, loaded onto one factor; anxious attachment (Cronbach's $\alpha = .81$), while the avoidant items were equally loaded on the remaining two factors; closeness avoidance (Cronbach's $\alpha = .77$) and partner avoidance (Cronbach's $\alpha = .74$).

Theoretically, a three-factor model of attachment is logical as the number of major types of attachment in adults is debated (Hazan & Shaver, 1994) and avoidant attachment is described by two factors in previous research (Bartholomew & Horowitz, 1991). Bartholomew and Horowitz described avoidant attachment as either *fearful-avoidant* or *dismissive-avoidant.* *Fearful-avoidant* is described as individuals perceiving themselves to be unworthy of love while perceiving others to be untrustworthy and rejecting. Therefore, individuals with fearful-avoidant attachment styles avoid others. *Dismissive-avoidant* can be explained as individuals who perceive themselves as worthy of love, yet with a negative disposition of others. Such individuals tend to protect themselves by avoiding close relationships and maintaining a sense of independence. Within the current research, the two factors explaining avoidant attachment were named *closeness avoidant* in relation to fearful-avoidant and *partner avoidant* in relation to dismissive-avoidant. The same names used by Bartholomew and Horowitz (1991) were *not* used

in the current study as the ECR-S was originally intended to measure only two factors of attachment and was *not* the same measure used by Bartholomew and Horowitz. The researcher coined these two terms based on the wording of the questions within these two factors.

Therefore, the ECR-S items were constrained to load on three factors. The loading factors were examined using .55 as a cutoff (Comrey & Lee, 1992; Tabachnick & Fidell, 2007); therefore, the model was respecified (see figure 13) by deleting Items (4, 10, and 12) that did *not* meet the suggested cutoff. In addition, errors 3 and 7, 3 and 11, 1 and 5, and 1 and 9 were freed based on the modification indices and were theoretically justified. The respecification provided a good fit for the ECR-S with these data (see table 12). Therefore, on the basis of findings related to the test of validity of the ECR-S, this measurement model represents the final best-fitting and most parsimonious model to represent the date (Byrne, 2010).

Table 12 Model Fit Indices of the ECR-S

	$\chi 2$	*df*	*P*	CMIN/*df*	GFI	CFI	TLI	RMSEA	Hoelter
Model 1	241.283	41	.000	5.885	.942	.898	.863	.083	< 200
ΔModel	-194.771	-27	.000	-2.562	+.042	+.075	+.084	-.026	--
Model 2	46.512	14	.000	3.322	.984	.973	.947	.057	>200

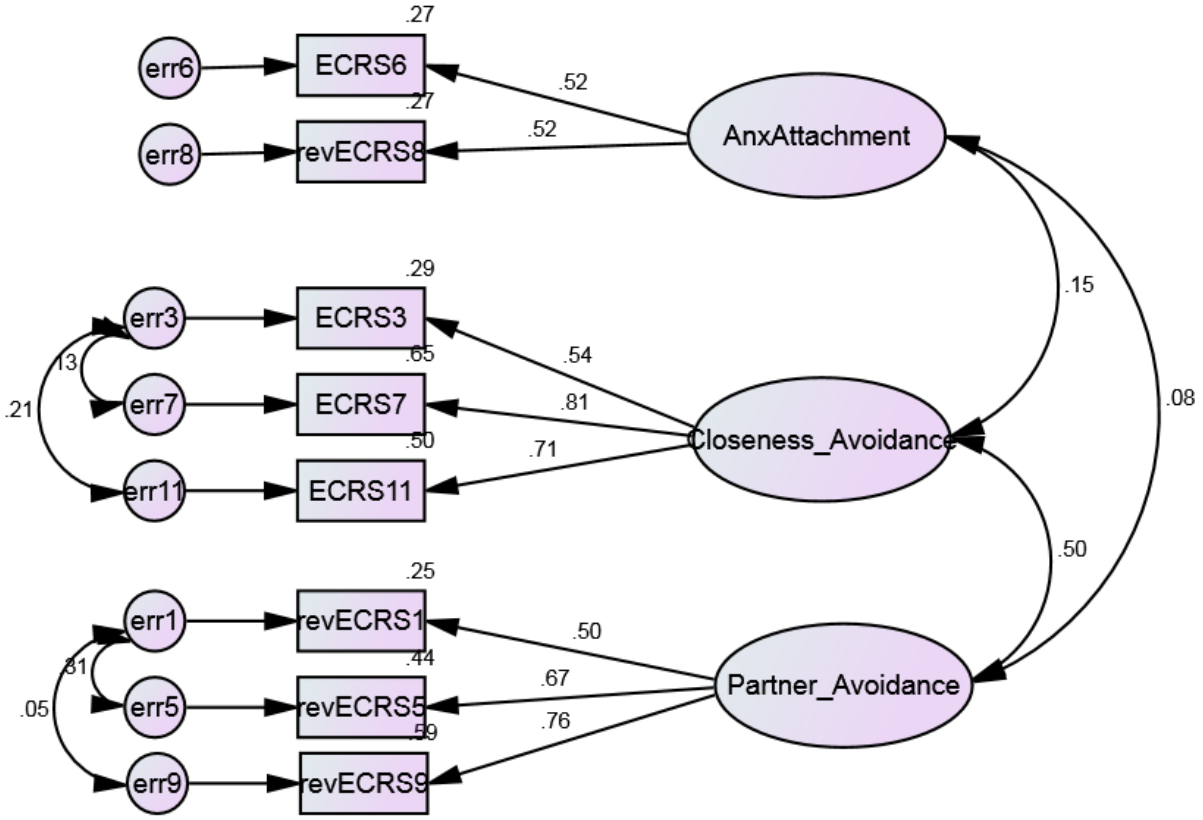

Figure 13 Confirmatory Factor Analysis ECR-S

Confirmatory Factor Analysis: Social Media Usage

Social media usage was measured using the *Facebook Intensity Scale* (FBI). Ellison and colleagues (2007) state that the *FBI* is a total score instrument; therefore, all the items should load into one factor. However, the factor loadings were all below .70 with these data, indicating that there may be more than one factor within the FBI for this particular sample (Kline, 2011; MacCallum et al., 2001). The reliability of the *FBI* was supported (Ellison et al., 2007; Lampe et al., 2011; Lou et al., 2012; Orr et al., 2009; Valenzuela et al., 2009); however, the validity of the

FBI is *not* supported by previous research. Therefore, an EFA was conducted for the purposes of this study.

The nine items of the FBI were subjected to factor analysis using principal axis factoring. Prior to performing EFA, the suitability of the data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser – Meyer - Olkin value was .841, exceeding the recommended value of .6 (Kaiser 1970, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance, supporting the factorability of the correlation matrix.

Principal axis factoring revealed the presence of two factors with eigenvalues above 1, explaining 47.04% and 14.71% of the variance respectively for a total of 61.75% of the variance explained in this model. The rotated solution revealed the presence of a simple structure, with both factors showing a number of strong loadings and all variables loading on only one component. Therefore, the FBI items were constrained to load on the two suggested factors; *Emotional Connectedness* (Items 1, 2, 3, 4, 5, 6, and 7; Cronbach's $\alpha = .878$) and *Friends* (Items 8 and 9; Cronbach's $\alpha = .77$). A two-factor model of Facebook Intensity was theoretically sound as Ellison and colleagues (2007) reported that these factors are inherently a part of the FBI. Therefore, the factor loadings were examined using 0.55 as a cutoff (Comrey & Lee, 1992; Tabachnick & Fidell, 2007). One item was deleted (Item 6) based on standardized residual covariances, while errors 4 and 7 were freed based on the modification indices and were theoretically justified. The respecified model had Cronbach α's of .89 for Emotional

Connectedness and .77 for Friends. The respecification provided a good fit for the FBI (see table 13).

Table 13 Model Fit Indices for the Respecified FBI

	$\chi 2$	*df*	*P*	CMIN/*df*	GFI	CFI	TLI	RMSEA	Hoelter
Model 1	406.644	26	.000	15.640	.868	.871	.822	.143	< 200
ΔModel	-371.048	-14	.000	-12.674	+.118	+.118	+.159	-.091	-
Model 2	35.596	12	.000	2.966	.986	.989	.981	.052	> 200

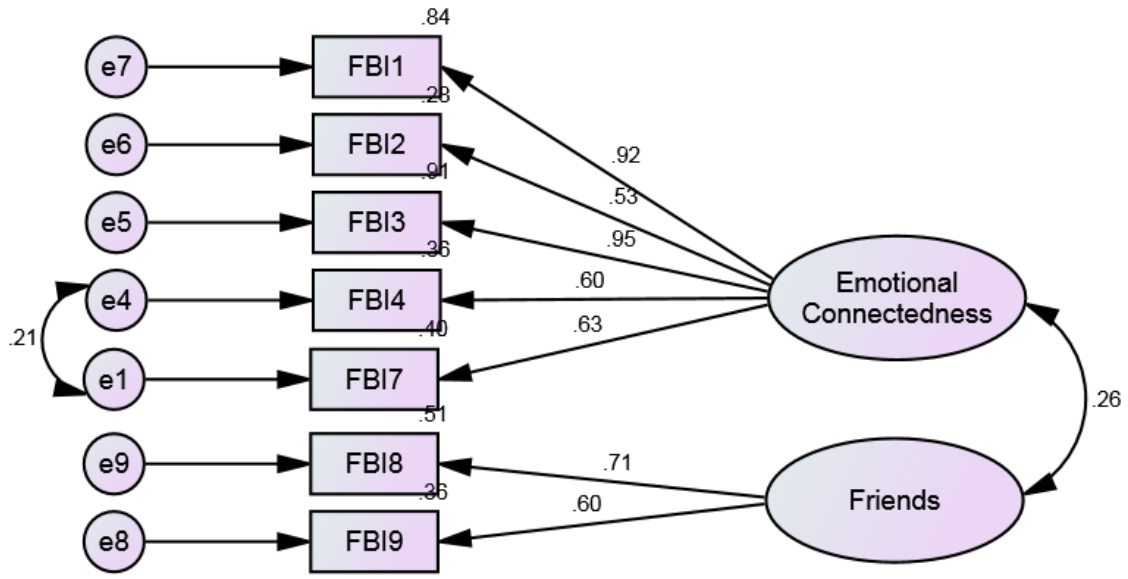

Figure 14 Confirmatory Factor Analysis FBI

Confirmatory Factor Analysis: Relationship Broadcasting

Relationship broadcasting as a subset of social media practices was measured using the *Motives for Going Facebook Official* scale (MGFBO). The CFA of the MGFBO was conducted based on the EFA conducted by Fox and Warber (2013). Therefore, the MGFBO items were

constrained to load on the two suggested factors of *Interpersonal Motives* and *Social Motives*. The loading factors were examined using .70 as a cut off (Comrey & Lee, 1992; Tabachnick & Fidell, 2007); therefore, the model was respecified (see Figure 15) by deleting items (1, 9, and10) that did *not* meet the suggested cutoff. In addition, one item (11) was deleted based on standardized residual covariances. Cronbach's α for the respecified model was .82 for Social Motives and .84 for Interpersonal Motives. The respecification provided an acceptable fit for the MGFBO (see table 14). Although the fit of the CMIN/*df* is *not* to the desired level, it is important to modify the model to include only those parameters that are substantially meaningful and relevant (Byrne, 2010). Therefore, on the basis of findings related to the test of validity of the MGFBO, this measurement model represents the final best-fitting and most parsimonious model to represent the data (Byrne, 2010).

Table 14 Model Fit Indices for the Respecified MGFBO

	$\chi 2$	*df*	*P*	CMIN/*df*	GFI	CFI	TLI	RMSEA	Hoelter
Model 1	610.216	43	.000	14.191	.853	.842	.798	.136	< 200
ΔModel 1	-555.826	-30	-.000	-10.007	+.126	+.14	+.172	-.069	--
Model 2	54.390	13	.000	4.184	.979	.982	.970	.067	> 200

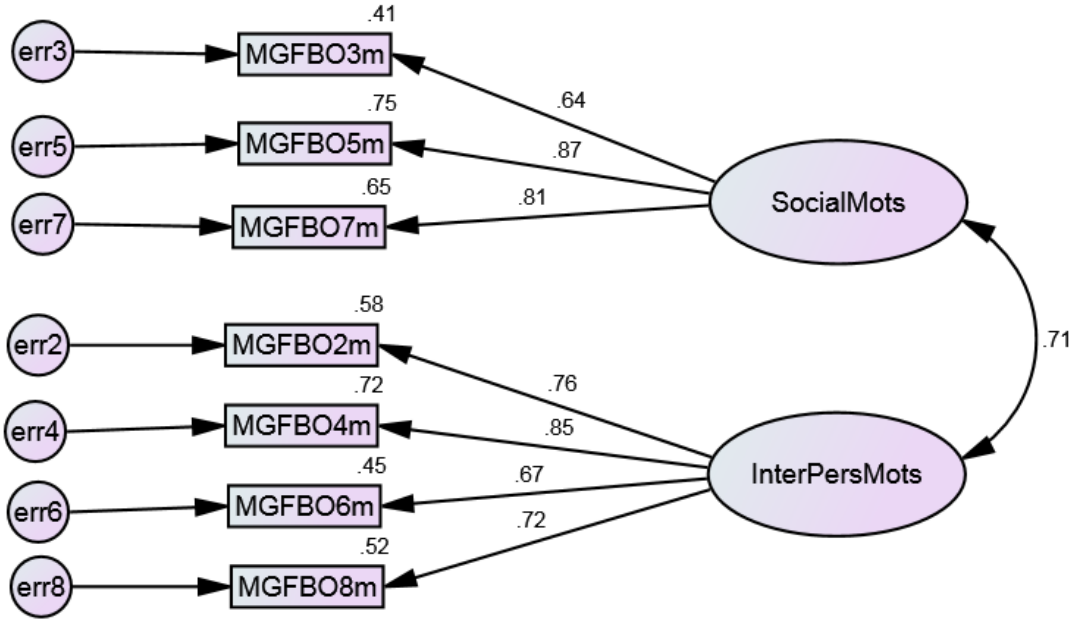

Figure 15 Confirmatory Factor Analysis MGFBO

Confirmatory Factor Analysis: Relationship Development

Relationship development was measured using the *Parks' Relational Development Scale* (PRDS). The CFA of the PRDS was conducted based on research by Parks and Roberts (1998). Therefore, the PRDS items were constrained to load on the suggested factors. It should be noted that running the model in the original format produced Heyward cases. Heywood cases exist when an error estimate of less than zero is produced. A negative error variance is logically impossible since it implies a less than zero percent error in an item, and by inference implies that more than 100% of the variance in an item is explained (Hair et al., 2010). Heywood cases typically exist in CFA models with small samples or when the three-indicator rule is *not* followed (Nasser & Wisenbaker, 2003). The three-indicator rule is satisfied when all factors have at least three indicators (Hair et al., 2010). However, as with the previous measurement

models, some factors had less than three indicators and do *not* produce Heywood cases. In this case however, the two factors, *Network Convergence Online* and *Network Convergence Offline*, were combined to form one factor, titled, *Network Convergence.* Theoretically, combining the two network convergence factors was justified, as Altman and Taylor (1974) and Parks and Roberts (1998) indicate that the relationship development dimension refers to converging of couples' social networks. Thus, combing the two PRDS factors eliminated the Heywood Cases, as models with sample sizes greater than 300 that adhere to the three-indicator rule are unlikely to produce Heywood Cases (Hair et al., 2010). The loading factors were examined using .55 as a cutoff (Comrey & Lee, 1992; Tabachnick & Fidell, 2007); therefore, the model was respecified (see figure 1) by deleting Items (14, 24, and 15) that did *not* meet the suggested cutoff. In addition, items were deleted (7, 16, 20, 21, 25, and 29) based on their standardized residual covariances, while errors were freed based on the modification indices (5 and 27) and were theoretically justified. Cronbach αs for the respecified model are as follows: (a) interdependence, .72; (b) breadth, .73; (c) depth, .72; (d) code change, .78; (e) predictability/understanding, .75; (f) commitment, .81; and (g) network convergence, .76 .The respecification provided an acceptable fit for the PRDS (see table 15). Although the fit of the CMIN/*df*, is *not* to the desired level, it is important to modify the model to include only those parameters that are substantially meaningful and relevant (Byrne, 2010). Therefore, on the basis of findings related to the test of validity of the PRDS, this measurement model represents the final best-fitting and most parsimonious model to represent the data (Byrne, 2010).

Table 15 Model Fit Indices for the Respecified PRD S

	$\chi 2$	*df*	*P*	CMIN/*df*	GFI	CFI	TLI	RMSEA	Hoelter
Model 1	1508.45	356	.000	4.237	.852	.855	.835	.067	< 200
ΔModel 1	-928	-189	-.000	-.757	-.074	-.070	-.070	-.008	--
Model 2	580.45	167	.000	3.48	.926	.925	.905	.059	> 200

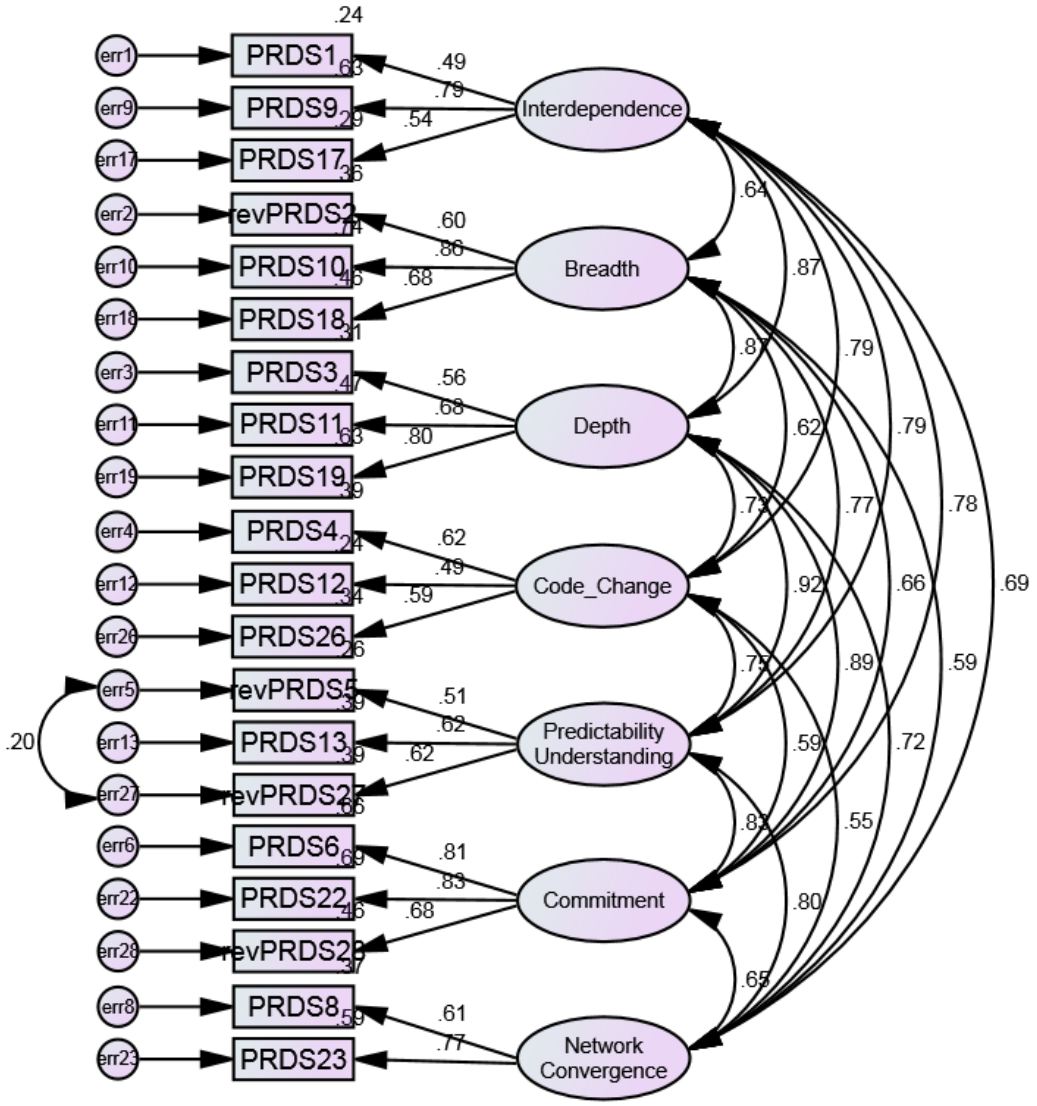

Figure 16 Confirmatory Factor Analysis PRDS

Attachment Measurement Model

Attachment was measured by anxious attachment, partner avoidance, and closeness avoidance (*Experiences in Close Relationships Scale;* ECR-S). The hypothesized measurement model for *Attachment* was specified using three indicators: (a) the mean scores of the anxious attachment subscale, (b) partner avoidance, and (c) closeness avoidance subscales of the ECR-S. The indicator values were calculated using the results from the respecified model of the instrument: (a) ECRS_AnxAttch: Anxious attachment is a mean score of items 6, and 4 (Cronbach's α = .652); (b) ECRS_PartAvoid: Partner avoidance is a mean score of items 1, 5, and 9 (Cronbach's α = .738); and (c) ECRS_CloseAvoid: Closeness avoidance is a mean score of items 3, 7, and 11 (Cronbach's α = .769). The measurement model was estimated using Maximum Likelihood estimation. The measurement model was estimated and it demonstrated good fit for these data. Therefore, the researcher did *not* have to modify the model (see Figure 17 and Table 16).

Table 16 Model Fit Indices of the ECR-S

	χ^2	*df*	*p*	CMIN/ *df*	GFI	CFI	TLI	RMSEA	Hoelter
Figure 4.6	1.996	1	.158	1.996	.998	.991	.972	.037	> 200

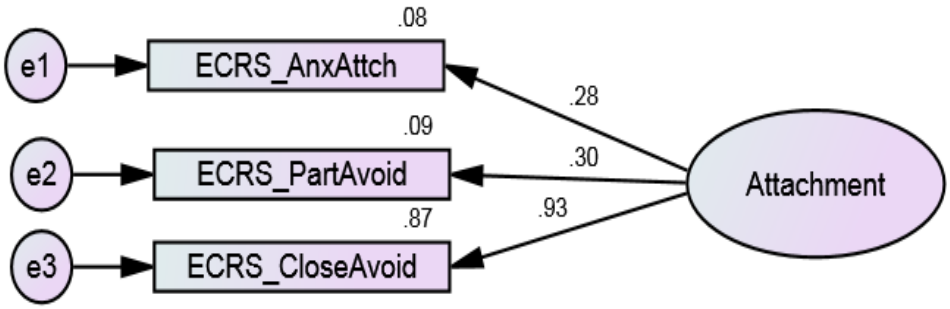

Figure 17 Measurement Model of Attachment

Social Media Measurement Model

Social media was measured by emotional connectedness and friends (*Facebook Intensity Scale; FBI)* and social and interpersonal motives (*Motives for Going Facebook Official scale; MGFBO*). The hypothesized measurement model for *Social Media* was specified using four indicators: the mean scores of the emotional connectedness and friends subscales of the *FBI* and the mean scores of the interpersonal motives and social motives factors of the *MGFBO* scale. The indicator values were calculated using the results from the respecified models of each instrument: (a) MGFBO factor 1: *Social Motives* is a mean score of items 3, 5, and 7 (Cronbach's α = .82); (b) MGFBO factor 2: *Interpersonal Motives* is a mean score of items 2, 4, 6, and 8 (Cronbach's α = .84); (c) FBI factor 1: *Emotional Connectedness* is a mean score of the items 1, 2, 3, 4, and 7 (Cronbach's α =.89); and (d) FBI factor 2: *Friends* is a mean score of the items 8 and 9 (Cronbach's α = .77). The measurement model was estimated using Maximum Likelihood estimation. The measurement model was estimated and it did *not* fit for these data. Therefore, the researcher decided to modify the model by consulting modification indices and regression weights. When a model is modified, the procedure then becomes exploratory in

nature, and is part of post hoc analyses (Byrne, 2010). The errors for the FBI Emotional Connectedness and FBI Friends were freed (errors 3 and 4); resulting in a good model fit for *Social Media* for these data (see Figure 18 and Table 17).

Table 17 Model Fit Indices of the Social Media Measurement Model

	χ^2	*df*	*p*	CMIN /*df*	GFI	CFI	TLI	RMSEA	Hoelter
Model 1	21.33	2	< .001	10.67	.986	.951	.854	.116	< 200
ΔModel 1	-19.052	-1	+.130	-8.392	+.012	+.046	+.127	-.074	--
Model 2	2.278	1	.131	2.278	.998	.997	.981	.042	> 200

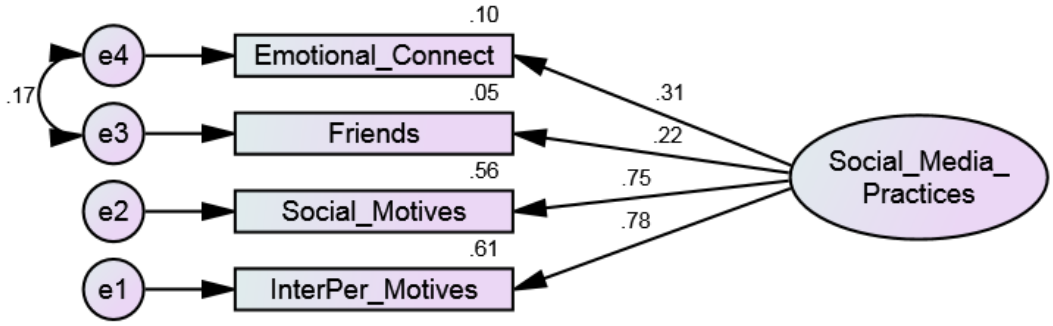

Figure 18 Measurement Model of Social Media

Relationship Development Measurement Model

Relationship development was measured by using seven developmental dimensions; interdependence, breadth, depth, code change, predictability/understanding, commitment, and network convergence (*Parks' Relationship Development Scale;* PRDS). The hypothesized measurement model for *Relationship Development* was specified using seven indicators:

comparing the observed means with the theoretical midpoints of the scales. The indicator values were calculated using the results from the respecified model of the PRDS: (a) interdependence is a mean score of items 1, 9, and 17 (Cronbach's α = .635; acceptable [Kline, 2000]); (b) breadth is a mean score of 2, 10, and 18 (Cronbach's α = .733; good [Kline, 2000]); (c) depth is a mean score of 3, 11, and 19 (Cronbach's α = .718; good [Kline, 2000]); (d) code change is a mean score of 4, 12, and 26 (Cronbach's α = .687; acceptable [Kline, 2000]; (e) predictability/understanding is a mean score of 5, 13, and 27 (Cronbach's α = .657; acceptable [Kline, 2000]; (f) commitment is a mean score of 6, 22, and 28 (Cronbach's α = .805; good [Kline, 2000]; and (g) network convergence is a mean score of 8, 15, and 23 (Cronbach's α = .582; poor [Kline, 2000]. The measurement model was estimated using Maximum Likelihood estimation. The measurement model was estimated and it did *not* fit these data. Therefore, the researcher decided to modify the model by consulting modification indices and regression weights, while also making considering what made the most theoretical sense. When a model is modified, the procedure then becomes exploratory in nature, and is part of post hoc analyses (Byrne, 2010). The errors for Interdependence and Code Change, as well as Interdependence and Network Convergence were freed. In addition, the errors for breadth and depth and breadth and predictability/understanding were also freed, resulting in a good model fit for *Relationship Development* for these data (see Figure 19 and Table 18).

Table 18 Model Fit Indices of the Relationship Development Measurement Model

	χ^2	*df*	*p*	CMIN /*df*	GFI	CFI	TLI	RMSEA	Hoelter
Model 1	83.226	14	< .001	5.945	.968	.966	.949	.083	> 200
ΔModel 1	-63.665	-4	+.033	-3.989	+.024	+.029	+.041	-.046	--
Model 2	19.561	10	.034	1.956	.992	.995	.990	.037	> 200

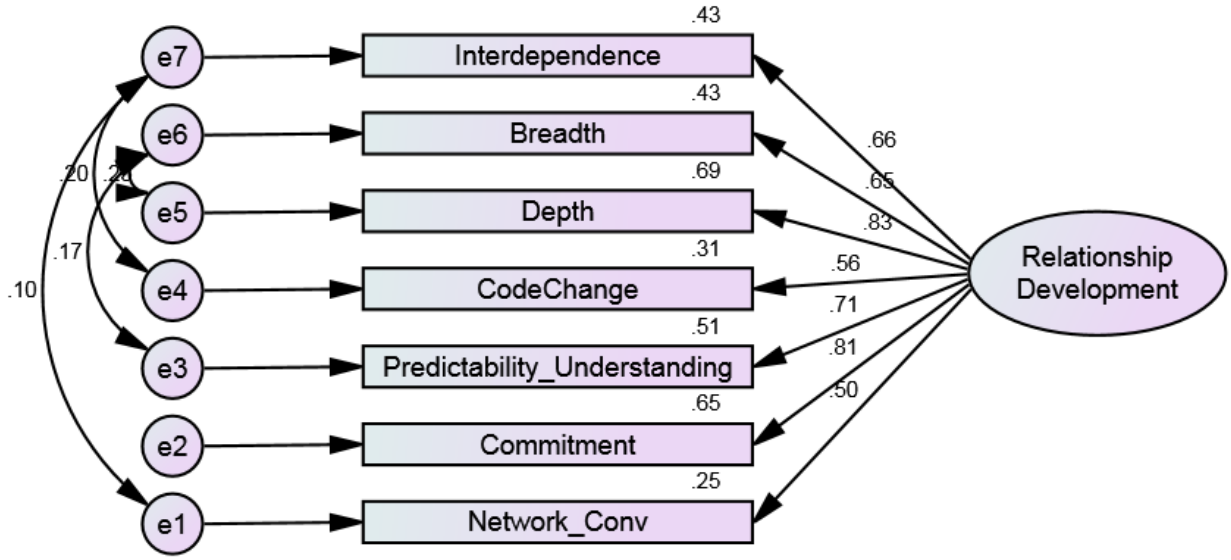

Figure 19 Measurement Model of Relationship Development

Complete Measurement Model

The complete measurement model, which included all measurement models of each construct. The measurement model was estimated using Maximum Likelihood estimation. The measurement model was estimated and it demonstrated good fit for these data. Therefore, the researcher did *not* have to modify the model (see Figure 20 and Table 19).

Table 19 Complete Measurement Model

	$\chi 2$	*df*	*p*	CMIN/ *df*	GFI	CFI	TLI	RMSEA	Hoelter
Figure 4.9	285.974	69	.000	4.145	.943	.932	.910	.066	> 200

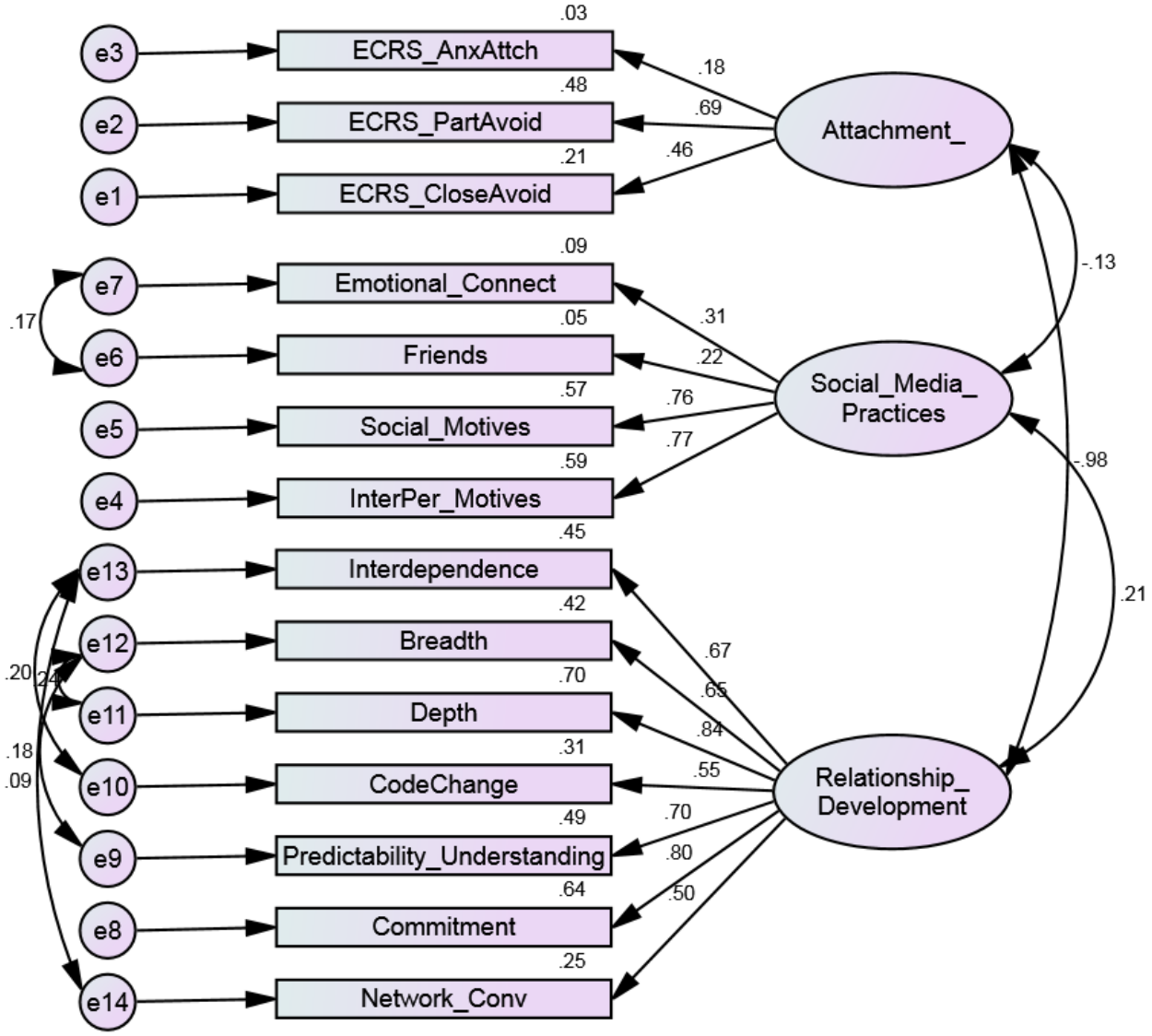

Figure 20 Complete Measurement Model

Structural Model

The hypothesized structural model was specified based on the measurement models. *Attachment* was defined as an exogenous latent variable, measured by three factor subscale scores on the *Experiences in Close Relationships- Short Form*. *Social Media Practices* was defined as a partial mediation variable (an exogenous latent variable and an endogenous latent variable) measured from the scores of the two subscales of the *Facebook Intensity Scale* and the two subscales of the *Motives for Going Facebook Official* scale. *Relationship development* was defined as an endogenous latent variable (dependent variable) measured from the subscale scores of the seven indicators of the *Parks' Relational Development Scale*. Maximum likelihood was used to estimate the hypothesized model. Examination of the fit indices indicated a poor fit for these data; therefore, modification indices were reviewed to respecify the model. Based on the examination of the modification indices and what made theoretical sense, errors 1 and 3, 4 and 5, and 9 and 10 were freed, making the model a better fit for these data (see Table 20 and Figure 21). The modification indices and regression weights offer no other suggestions for model respecification, and it made no theoretical sense to alter the model further, so the respecified model offers the most parsimonious and best fitting model to the data.

Table 20 Model Fit Indices of the Structural Model

	χ^2	*df*	*p*	CMIN /*df*	GFI	CFI	TLI	RMSEA	Hoelter
Model 1	745.231	73	< .001	10.21	.884	.788	.736	.113	< 200
ΔModel 1	-488.437	-6	-.000	-6.377	+.066	+.152	+.183	-.05	--
Model 2	256.794	67	<.001	3.833	.950	.940	.919	.063	> 200

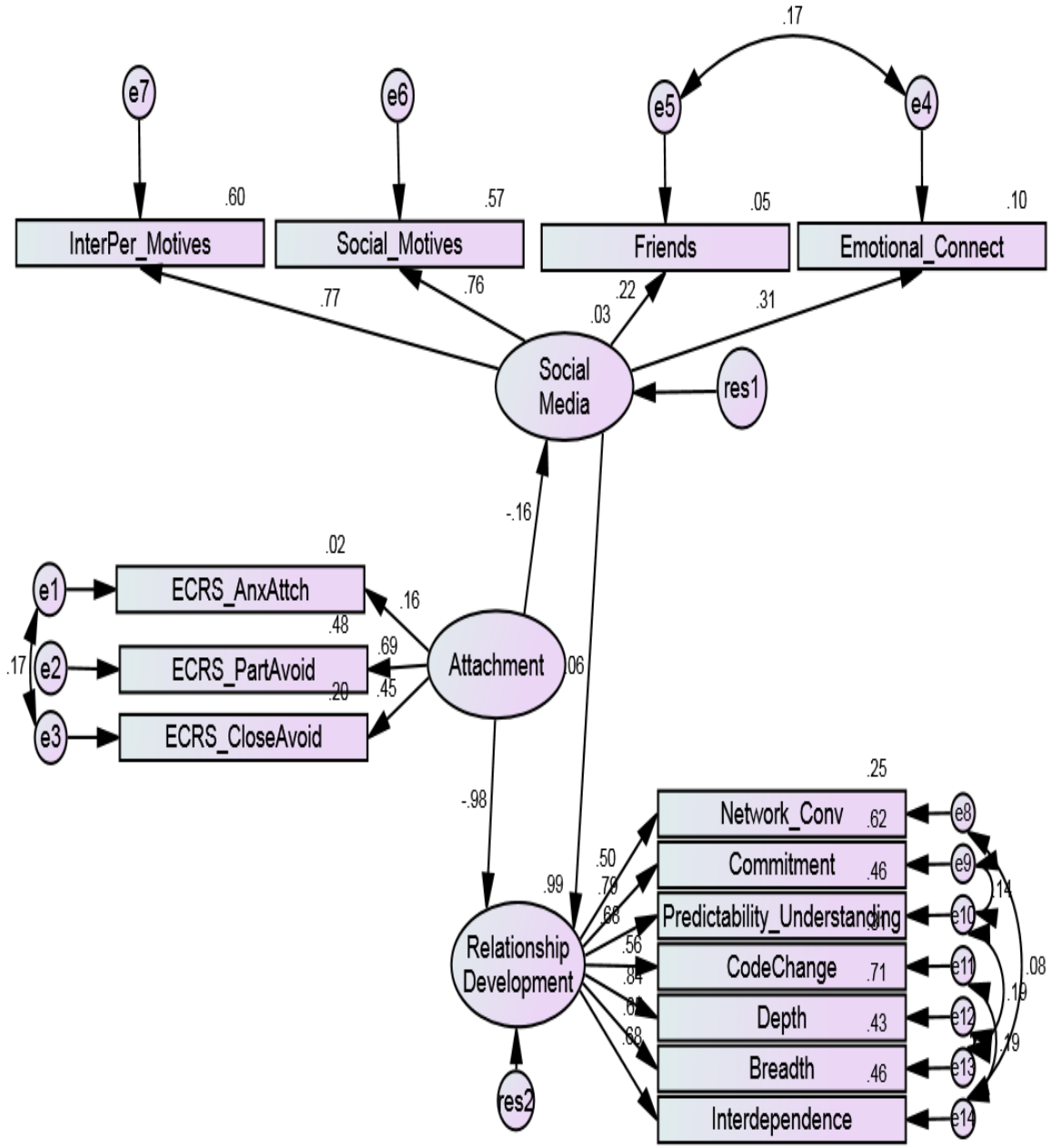

Figure 21 Structural Model

According to the tested structural model, the participants' attachment scores accounted for 3% of the variance in their social media practices, while the participants' attachment and social media practices scores account for 99% of the variance in their relationship development scores. Therefore, college students scoring higher in insecure attachment display lower social media practices, while college students scoring higher in insecure attachment have lower relationship development quality. In addition, college students scoring higher in social media practices have higher relationship development quality. However, these results should be interpreted with caution due to low factor loadings (< .25) of the indicators of attachment and social media, suggesting that the indicators are *not* providing sufficient explanation of the data, and that attachment and social media practices are more likely multidimensional constructs (Kline, 2011). Therefore, FBI_Friends was removed because of the low factor loading (.22); however, the researcher chose to retain attachment anxiety despite a low factor loading to maintain the original identity of insecure attachment. In addition, the sample used for this study showed 36.7% (n = 263) with anxious attachment, 9.2% (n = 66) with avoidant attachment, and 4% (n = 31) displayed insecure attachment with no discrepancy between the anxious or avoidant style. Based on Wei and colleagues (2007), it can be assumed that the remaining 49.8% (n = 357) of participants have secure attachment.

Therefore, the respecified model (see Figure 22) indicates that college student attachment (as measured by Anxious attachment, Partner Avoidance, and Closeness Avoidance) contributed to 3% of the variance in college student social media practices (standardized coefficient = -.17) and when controlling for social media practices, attachment contributed to 95% of the variance in college student relationship development (standardized coefficient -.98) scores. In

combination, attachment and social media practices contributed to 98% of the variance in relationship development scores (standardized coefficients -.98 and .06, respectively).

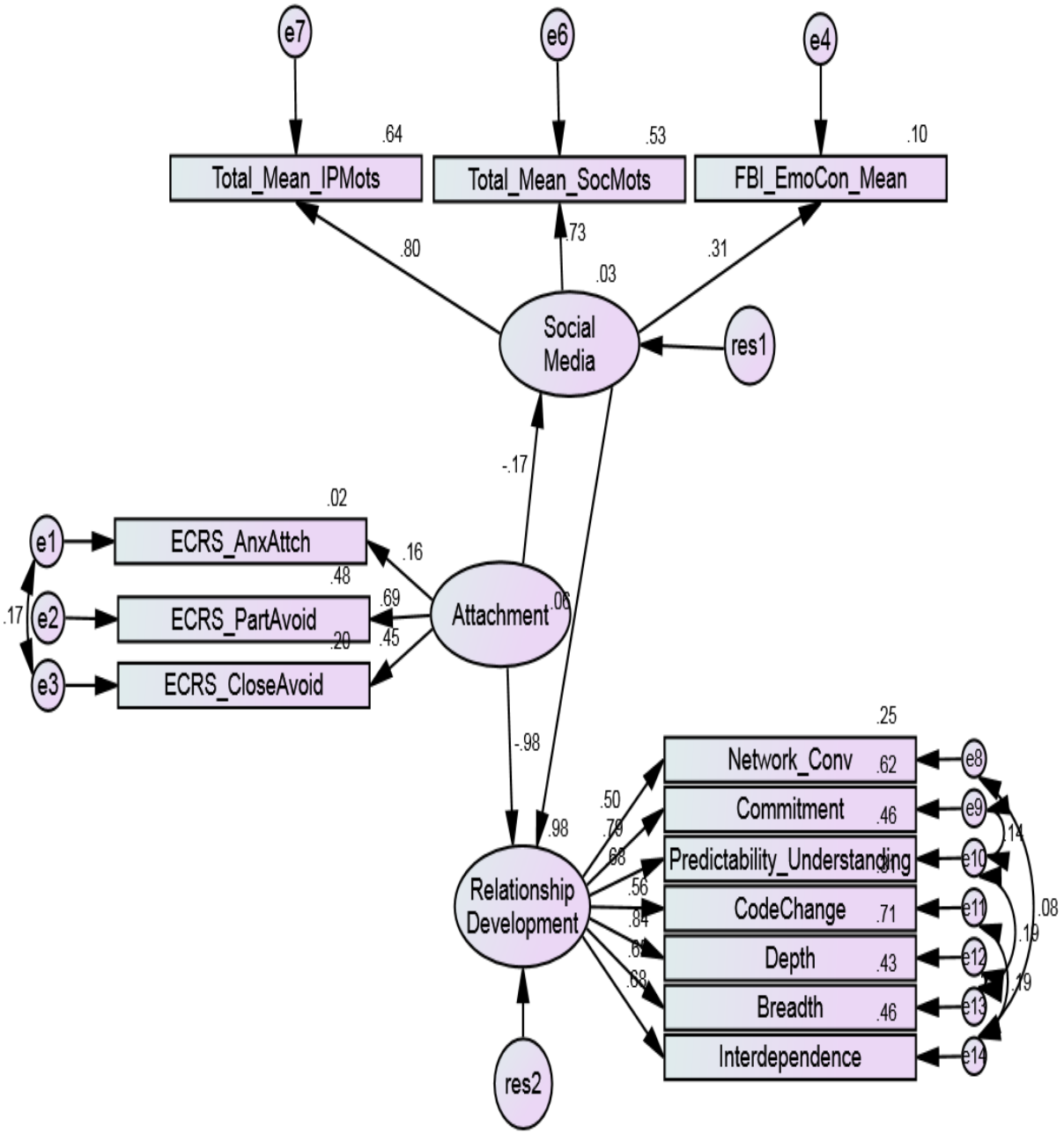

Figure 22 Respecified Structural Model Excluding FBI Friends

The relationship identified between attachment and social media practice scores was a negative correlation, suggesting that higher levels of insecure attachment contributed to lower levels of social media practices, while higher levels of insecure attachment contributed to lower relationship development scores. In addition, the results identified that greater social media practices contributed to greater relationship development scores. Specifically, the results identified that those participants who had greater emotional connectedness to Facebook, and who updated their relationship status either for social or interpersonal reasons, had greater quality of relationship development.

The addition of parameters, as identified by modification indices, was found to be justified, and no modification indices associated with structural paths were present in the output. Thus, no further consideration was given to the inclusion of addition parameters. However, originally specified structural paths that were shown to be redundant in in the model were addressed for model parsimony (Byrne, 2010). In reviewing the structural parameter estimates for the final model, the paths between Attachment and Social Media Practice, Attachment and Relationship Development, and Social Media Practice and Relationship Development, were all statistically significant. Therefore, in the interest of parsimony, as well as model fit, this structural model identified the best fitting model for these data. In addition, all factor variances and covariances were found to be statistically significant. The model for these data had a good fit (See Table 21).

Table 21 Model Fit Indices of the Respecified Structural Model

	χ^2	*df*	*p*	CMIN /*df*	GFI	CFI	TLI	RMSEA	Hoelter
Model 1	745.231	73	< .001	10.21	.884	.788	.736	.113	< 200
ΔModel 1	-518.787	-17	-.000	-6.17	+.068	+.162	+.188	-.05	--
Model 2	226.444	56	<.001	4.04	.952	.950	.924	.063	> 200

In determining a mediation effect, the researcher chose to employ both the Baron and Kenny (1986) approach to mediation, as well as bootstrapping, as AMOS can easily and efficiently test the direct and indirect effects of mediation models. Bootstrapping is a resampling technique where a large number of subsamples are drawn, models are estimated for each subsample, and then the values for the parameter estimates are determined from the set of models by calculating the mean of each estimated coefficient across all the subsample models (Hair et al., 2010). Bootstrapping was employed for the current study as it has been suggested to perform best in testing for mediation (Cheung & Lau, 2008). Baron and Kenny (1986) indicate that three conditions must be met for a mediation effect to be present: (a) the exogenous variable must influence the mediating variable; (b) the mediating variable must influence the endogenous variable; and (c) when controlling for the mediating variable, the direct effect between the exogenous and endogenous variable must be significantly reduced to demonstrate the presence of a mediation.

In testing these conditions, attachment affects social media practices (p = .021) and social media practice affects relationship development (p = .003). The direct effects of attachment on relationship development when controlling for social media practices ($ß$ = -.988) was statistically significant ($p < 0.001$), while the direct effects of attachment on relationship development through social media practices ($ß$ = -.982) is also statistically significantly reduced ($p < 0.001$). Therefore, there was a mediation presence in the tested structural model with these data based on the Baron and Kenny (1986) approach. However, using bootstrapping and examining the indirect effects suggests that there is no mediation effect as the indirect effect of attachment on relationship development through social media practices was *not* statistically significant (p = .097); therefore, the presence of a mediation model should be interpreted cautiously. Due to the ambiguity of mediation presence, the researcher chose to conduct a Sobel test to examine if a partial mediation existed. In this case, there was no statistical significance (z = .131, $p > .05$), indicating there is no partial mediation. Therefore, although attachment contributed to social media practices and relationship development, and social media practices contributed to relationship development, no mediation effect was present with these data.

Follow-up Analyses

Further analyses were conducted to investigate the tested model and model fit. Kline (2011) suggested that is it good practice for researchers using SEM to consider the existence of equivalent models that fit the same data; yet, this practice is uncommon. Furthermore, Kline describes three overarching goals of SEM and identifying the final retained model:

1. Has clear theoretical rationale (i.e., makes sense)

2. Differentiates between what is known and what is unknown; that is, what is the model's range of convenience or limits to its generality?

3. Sets conditions for posing new questions

Considering these three goals, the recommendation to investigate equivalent models, and to address the low factor loadings of the indicators that were measuring attachment and social media practices, a new model was specified as a post-hoc analysis. The low factor loadings may indicate that the indicators are multidimensional (Kline, 2011). Therefore, a new specified structural model with the anxious attachment indicator and the Facebook friends indicator removed was tested. The model fit the data well (see Table 22 and Figure 23).

Table 22 Model Fit Indices of Structural Model with Anxious Attachment and Facebook Friends Excluded

	χ^2	*df*	*p*	CMIN/ *df*	GFI	CFI	TLI	RMSEA	Hoelter
Figure 4.11	152.841	46	< .001	3.323	.966	.965	.949	.057	>200

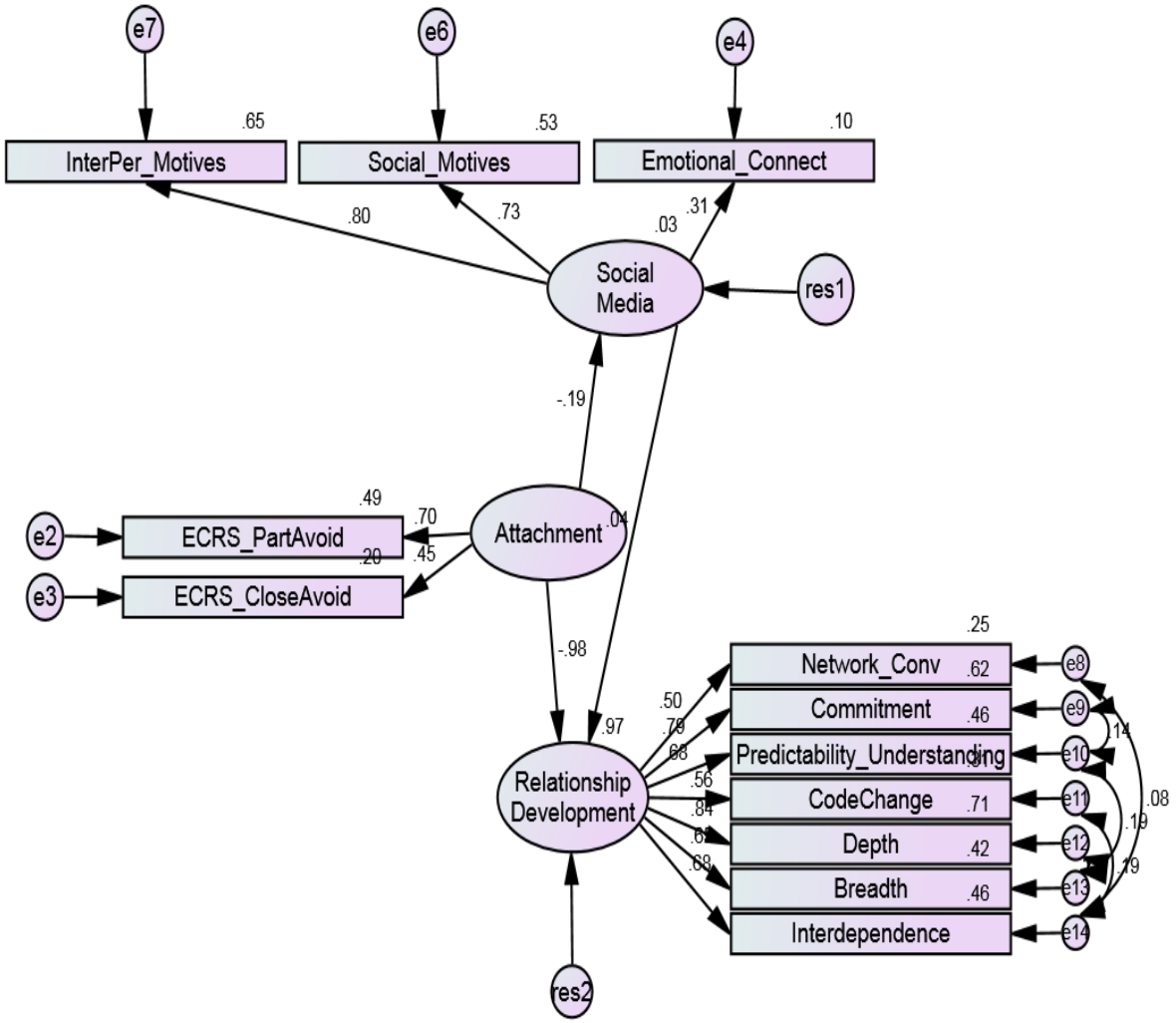

Figure 23 Structural Model with Anxious Attachment and Facebook Friends Excluded

The model was respecified again, which did *not* include attachment due to the construct of attachment only being measured by avoidance-related items. The new model resulted in a good fit (see Table 23 and Figure 24). In this model, higher levels of social media practices

contributed to higher levels of relationship development with social media practices accounting for 5% of the variance in relationship development quality

Table 23 Model Fit Indices of Structural Model with Dimensions of Attachment Excluded

	χ^2	*df*	*p*	CMIN/ *df*	GFI	CFI	TLI	RMSEA	Hoelter
Figure 24	97.150	29	< .001	3.350	.974	.972	.957	.054	> 200

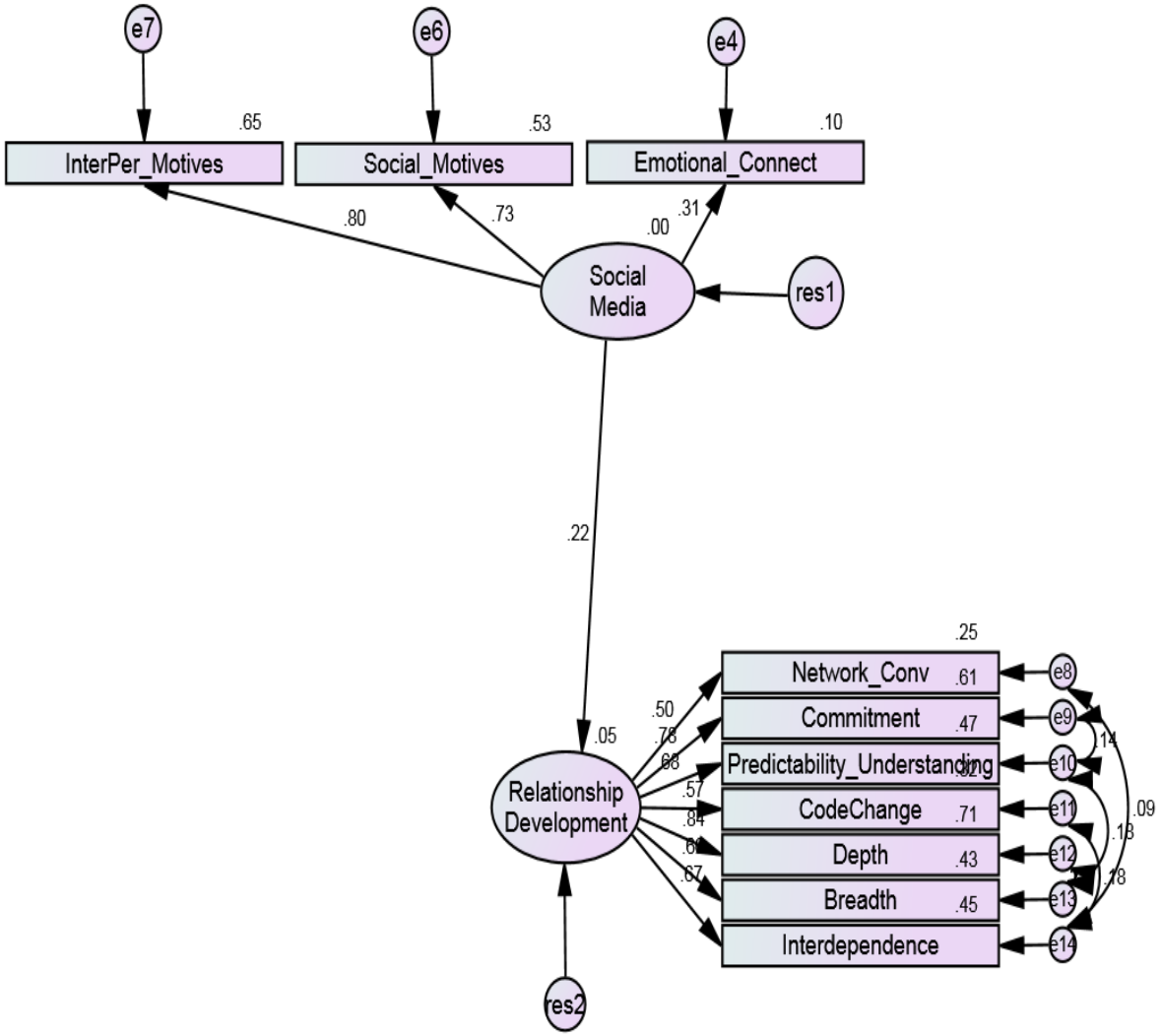

Figure 24 Structural Model with Attachment Excluded

A simultaneous multiple regression was conducted to examine if the factors on the *Experiences in Close Relationships Short Form* mean scores predicted enrolled college students social media practices (as measured by the FBI and the MGFBO). Overall, the linear composite

of the linear predictor variables (ECR-S mean scores) predicted 3.5% (r = .187) of the variance in Emotional Connectedness, F (3,714) = 12.69, p < .001; 1% of the variance (r = .10) in Friends, F (3,714) = 2.32, p > .001; 8.1% (r = .284) of the variance in Social Motives, F (3,714) = 31.36, p < .001; and 5.7% of the variance (r = 2.39) of in Interpersonal Motives, F (3, 714) = 21.75, p < .001 . Simultaneous multiple regression was conducted to examine if the factors on the ECR-S mean scores predicted enrolled college students relationship development (as measured by the PRDS). Overall, the linear composite of the linear predictor variables (ECR-S mean scores) predicted 27.9% (r = .528) of the variance in Interdependence, F (3, 714) = 91.92, p < .001; 23.4% (r = .484) of the variance in Breadth, F (3, 714) = 72.55, p < .001; 38.5% (r = .621) of the variance in Depth, F (3,714) = 149.07, p < .001; 13.3% (r = .365) of the variance in Code Change, F (3,714) = 36.51, p < .001; 25.6% (r = .506) of the variance in Predictability/Understanding, F (3,714) = 81.67, p < .001; 34.8% (r = .590) of the variance in Commitment, F (3,714) = 126.74, p < .001; and 11.9% (r = .344) of the variance in Network Convergence, F (3,714) = 31.95, p < .001.

Simultaneous multiple regression was conducted to examine if the factors on the *FBI* scores, as well as the MGFBO scores, predicted enrolled college students' relationship development (as measured by the PRDS). Overall, the linear composite of the linear predictor variables (*Emotional Connectedness, Friends, Social Motives,* and *Interpersonal Motives* scores) predicted 6.7% (r = .259) of the variance in Interdependence, F (4,711) = 12.78, p < .001; .5% (r = .074) of the variance in Breadth, F (4,711) = .970, p > .05; 2.4% (r = .156) of the variance in Depth, F (4,711) = 4.42, p < .05; 2.9% (r = .172) of the variance in Code Change, F (4,711) = 15.40, p < .001; 0.6% (r = .077) of the variance in Predictability/Understanding, F (4,711) =

1.062, $p > .05$; 2.0% ($r = .141$) of the variance in Commitment, F (4,711) = 3.631, $p < .05$; and 7.8% ($r = .278$) of the variance in Network Convergence, F (4,711) = 14.97, $p < .001$. However, among predictor variables, *Anxious Attachment* had the highest beta value (beta = .264, $p < .001$) for Social Motives and Interpersonal Motives (beta = .207, $p < .001$). Only *Interpersonal Motives* had significant beta coefficients for all seven dimensions of relationship development, and *Anxiety* had significant beta weights for all dimensions of Social Media Practices, except Friends.

Pearson's correlation was used to verify significant relationships between attachment and social media practices, attachment and relationship development, and social media practices and relationship development. Pearson's correlation was used as it is appropriate for continuous variables, such as the scores from various measures (Pallant, 2010). Table 24 presents the correlation coefficients for the scores.

Table 24 Correlation Coefficients for the Experiences in Close Relationships Short form, Facebook Intensity Scale, Motives for Going Facebook Official Scale, and the Parks Relational Development Scale

	Attachment-Anxious	Attachment-Avoidant	Facebook Intensity-Overall	Facebook Intensity-Emotional Connectedness	Facebook Intensity-Friends	Relationship Broadcasting-Social Motives	Relationship Broadcasting Interpersonal Motives
Facebook Intensity	$r = .174$ $r^2 = .03$ $p < .001$	$r = .154$ $r^2 = .024$ $p < .001$	N/A	N/A	N/A	$r = .259$ $r^2 = .067$ $p < .001$	$r = .284$ $r^2 = .081$ $p < .001$
Facebook Intensity-Emotional Connectedness	$r = .167$ $r^2 = .03$ $p < .001$	$r = .132$ $r^2 = .02$ $p = .934$	N/A	N/A	N/A	$r = .219$ $r^2 = .048$ $p < .001$	$r = .253$ $r^2 = .064$ $p < .001$
Facebook Intensity-Friends	$r = .062$ $r^2 = .004$ $p = .095$	$r = .068$ $r^2 = .004$ $p = .068$	N/A	N/A	N/A	$r = .188$ $r^2 = .035$ $p < .001$	$r = .156$ $r^2 = .024$ $p < .001$
Relationship Broadcasting-Social Motives	$r = .281$ $r^2 = .079$ $p < .001$	$r = .137$ $r^2 = .020$ $p < .001$	$r = .259$ $r^2 = .067$ $p < .001$	$r = .219$ $r^2 = .048$ $p < .001$	$r = .156$ $r^2 = .024$ $p < .001$	N/A	N/A
Relationship Broadcasting-Interpersonal Motives	$r = .230$ $r^2 = .053$ $p < .001$	$r = .139$ $r^2 = .020$ $p < .001$	$r = .284$ $r^2 = .081$ $p < .001$	$r = .253$ $r^2 = .064$ $p < .001$	$r = .156$ $r^2 = .024$ $p < .001$	N/A	N/A
Relationship Development-Interdependence	$r = .052$ $r^2 = .003$ $p = .164$	$r = -.455$ $r^2 = .207$ $p < .001$	$r = .077$ $r^2 = .006$ $p < .05$	$r = .090$ $r^2 = .008$ $p < .05$	$r = .015$ $r^2 = .0002$ $p = .687$	$r = .114$ $r^2 = .013$ $p < .001$	$r = .215$ $r^2 = .046$ $p < .001$

	Attachment-Anxious	Attachment-Avoidant	Facebook Intensity-Overall	Facebook Intensity-Emotional Connectedness	Facebook Intensity-Friends	Relationship Broadcasting-Social Motives	Relationship Broadcasting Interpersonal Motives
Relationship Development-Breadth	r = -.152 r^2 = .023 p < .001	r = -.473 r^2 = .224 p < .001	r = -.008 r^2 = .00006 p = .833	r = -.016 r^2 = .00026 p = .665	r = .022 r^2 = .0005 p = .564	r = -.066 r^2 = .0044 p = .077	r = .028 r^2 = .0008 p = .447
Relationship Development-Depth	r = -.067 r^2 = .0045 p =.075	r = -.591 r^2 = .349 p < .001	r = -.007 r^2 = .00005 p = .842	r = .0009 r^2 = .0000008 p = .992	r = -.023 r^2 = .00053 p = .540	r = -.025 r^2 = .0006 p = .508	r = .110 r^2 = .0121 p < .001
Relationship Development-Code Change	r = -.053 r^2 = .003 p = .160	r = -.342 r^2 = .117 p < .001	r = .038 r^2 = .0014 p = .308	r = .042 r^2 = .0018 p = .259	r = .002 r^2 = .000004 p = .957	r = .092 r^2 = .008 p < .001	r = .143 r^2 = .020 p < .001
Relationship Development-Predictability/Understanding	r = -.183 r^2 = .0335 p < .001	r = -.510 r^2 = .2601 p < .001	r = -.064 r^2 = .0041 p = .085	r = -.075 r^2 = .0056 p < .05	r = .007 r^2 = .00005 p = .847	r = -.114 r^2 = .013 p < .001	r = .045 r^2 = .002 p = .227
Relationship Development-Commitment	r = -.054 r^2 = -.003 p = .150	r = -.623 r^2 = -.388 p < .001	r = .009 r^2 = .00008 p = .816	r = .028 r^2 = .0008 p = .454	r = -.046 r^2 = -.002 p = .221	r = -.075 r^2 = -.0056 p < .05	r = .091 r^2 = .0083 p < .05

	Attachment-Anxious	Attachment-Avoidant	Facebook Intensity-Overall	Facebook Intensity-Emotional Connectedness	Facebook Intensity-Friends	Relationship Broadcasting-Social Motives	Relationship Broadcasting Interpersonal Motives
Relationship Development-Network Convergence Online	r = -.004 r^2 = -.00002 p = .904	r = -.135 r^2 = -.0182 p < .001	r = .233 r^2 = .054 p < .001	r = .184 r^2 = .034 p < .001	r = .219 r^2 = .048 p < .001	r = .134 r^2 = .018 p < .001	r = .162 r^2 = .026 p < .001
Relationship Development-Network Convergence Offline	r = -.141 r^2 = -.020 p < .001	r = -.466 r^2 = -.217 p < .001	r = .078 r^2 = .0061 p < .05	r = .048 r^2 = .0023 p = .199	r = .106 r^2 = .011 p < .05	r = .001 r^2 = .000001 p = .975	r = .075 r^2 = .0056 p < .05
Relationship Development-Network Convergence	r = -.041 r^2 = -.0017 p = .276	r = -.330 r^2 = -.110 p < .001	r = .159 r^2 = .0253 p < .001	r = .159 r^2 = .0253 p < .001	r = .160 r^2 = .0256 p < .001	r = .142 r^2 = .020 p < .001	r = .209 r^2 = .044 p < .001

A one-way between groups analysis of variance (ANOVA) was conducted to explore the relationship of attachment on social media practices, as measured by the emotional connectedness and friends subscales of the FBI (Ellison et al., 2007) and the social motives and interpersonal motives of the MGFBO (Fox & Warber, 2013). Participants were divided into three groups; anxious attachment, avoidant attachment, and secure attachment. There was a statistically significant difference at the $p < .05$ level in social motive scores for the three attachment styles: F (3, 712) = 6.88, $p < .001$. Despite reaching statistical significance, the actual difference in mean scores between groups was quite small. The effect size, calculated using eta squared, was .03. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Anxious attachment (M = 3.43, SD = .912) was different from Secure attachment (M = 3.06, SD = 1.05). Avoidant attachment (M = 3.14, SD = 1.11) did *not* differ from either Anxious or Secure attachment.

There was also a statistically significant difference at the $p < .05$ level in interpersonal motive scores for the three attachment styles: F (3, 712) = 5.06, $p < .001$. Despite reaching statistical significance, the actual difference in mean scores between groups was quite small. The effect size, calculated using eta squared, was .02. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Anxious attachment (M = 3.36, SD = .854) was different from Secure attachment (M = 3.13, SD = 1.02). Avoidant attachment (M = 3.05, SD = .983) did *not* differ from either Anxious or Secure attachment.

A one-way between groups ANOVA was conducted to explore the relationship of attachment on relationship development, as measured by the seven subscales of the PRDS (Parks

& Roberts, 1998); (1) interdependence, (2) breadth, (3) depth, (4) code change, (5) predictability/understanding, (6) commitment, and (7) network convergence. There was a difference at the $p < .05$ level in all subscales for the three attachment styles: (a) Interdependence: F (3,712) = 24.528, $p < .001$, eta squared = .09 (medium; Cohen, 1988); (b) breadth: F (3,712) = 14.39, $p < .001$, eta squared = .06 (medium; Cohen, 1988); (c) depth: F (3,712) = 30.59, $p < .001$, eta squared = .11 (medium; Cohen, 1988); (d) code change: F (3,712) = 24.528, $p < .001$, eta squared = .04 (small; Cohen, 1988); (e) predictability/understanding: F (3,712) = 17.11, $p < .001$, eta squared = .07 (medium; Cohen, 1988); (f) commitment: F (3,712) = 42.62, $p < .001$, eta squared = .15 (large; Cohen, 1988); and (g) network convergence: F (3,712) = 8.68, $p < .001$, eta squared = .04 (small; Cohen, 1988).

Post-hoc comparisons using the Tukey HSD test indicated that within Interdependence, the mean score for anxious individuals (M = 5.44, SD = .892) was different from avoidant individuals (M = 4.35, SD = 1.12), and that the mean score for avoidant individuals was significantly different from secure individuals (M = 5.46, SD = .993). Within Breadth, the mean score for anxious individuals (M = 5.81, SD = 1.02) was different from avoidant individuals (M = 5.16, SD = 1.08), and different from secure individuals (M = 6.05, SD = .934). The mean score for avoidant individuals (M = 5.16, SD = 1.08) was also significantly different from secure individuals (M = 6.05, SD = .934). Within Depth, the mean score for anxious individuals (M = 5.87, SD = .92) was different from avoidant individuals (M = 4.70, SD = 1.08), and the mean score for avoidant individuals was different from secure individuals (M = 6.01, SD = .968). Code change suggested that the mean score for anxious individuals (M = 4.97, SD = 1.06) was different from avoidant individuals (M = 4.43, SD = 1.28) and there was a difference between the

mean scores of avoidant individuals and secure individuals (*M* = 5.17, *SD* = 1.12). Within Predictability/Understanding, the mean score for anxious individuals (*M* = 5.69, *SD* = .98) was significantly different from avoidant individuals (*M* = 4.89, *SD* = 1.12), as well as from secure individuals (*M* = 5.93, *SD* = 1.01). The mean score for avoidant individuals was also different from the mean score of secure individuals. Within Commitment, the mean score for anxious individuals (*M* = 5.93, *SD* = 1.02) was different from avoidant individuals (*M* = 4.58, *SD* = 1.13). The mean score for avoidant individuals was different from secure individuals as well (*M* = 6.15, *SD* = 1.04). Lastly, within Network Convergence, the mean score for avoidant individuals (*M* = 4.67, *SD* = 1.13) was significantly different from those of secure individuals (*M* = 5.14, *SD* = .98).

Exploratory Research Questions

Exploratory Research Question 1

Is there a statistically significant relationship between emerging adults' attachment styles (as measured by the factor scores of the ECR-S; Wei et al., 2007)] and their reported demographic variables (e.g., gender, age, ethnicity, year in college, geographic location, relationship status, sexual orientation, etc.)?

The relationship between enrolled undergraduate students' attachment (as measured by the ECRS; Wei et al., 2007) and their demographic variables was investigated using Pearson's correlation. Preliminary analyses (i.e., a review of the scatterplot and evaluating skew and kurtosis) were performed to examine if the data met the assumptions (i.e., normality, linearity, and homoscedasticity) for Pearson product moment correlation. The data met the assumptions of

normality; therefore, meeting the criteria for Pearson correlation. The relationships were evaluated based on Cohen's (1988) suggested interpretations of relationships. The analyses were completed with all of the items in the instruments; therefore, the items that were removed for the SEM were put back into the total scores to ensure that all of the items were included.

The analyses identified the results of a small relationship between *Anxious Attachment* and participants reported age (r = -.100, p < .05); college year (r = -.095, p < .05), and relationship status (r = -.144, p < .001), and between *Avoidant Attachment* and participant reported ethnicity (r = -.081, p < .05), college year (r = -.139, p < .001), and a moderate correlation between *Avoidant Attachment* and relationship status (r = .293, p < .001). However, no relationship between either attachment styles was identified with ethnicity, college location, or college setting.

There was a small correlation between Anxious attachment and: (a) the reported quality of participants' intimate relationships over the past three years (r = -.194, p < .001); (b) the importance of becoming Facebook friends with someone they are romantically involved (r = .146, p < .001); (c) the importance of getting to know a significant other through the use of social media, like Facebook (r = .143, p < .001); (d) the importance of updating their relationship status on Facebook to "In a relationship" (r = .136, p < .001); and (e) the importance of their internet reputation on Facebook (r = .137, p < .001).

The analyses identified the results of a moderate relationship between *Avoidant Attachment* and participants reported quality of intimate relationships over the past three years (r = -.408, p < .001), and a small correlation between *Avoidant Attachment* and (a) the importance

of becoming Facebook friends with someone who they are romantically involved (r = -.118, p < .001) and (b) the importance of updating their relationship status on Facebook to "In a relationship" (r = -.152, p < .001). Table 25 provides a representation of the correlation results.

Table 25 Correlations between Attachment Styles and Demographic Variables

		Anxiety	Avoidance
Gender	*r* =	.048	-.071
	Variance	.23%	.50%
	p	.199	.058
Age	*r* =	-.100	-.043
	Variance	1%	.18%
	p	.007	.246
Ethnicity	*r*=	.013	-.081
	Variance	.017%	.66%
	p	.724	.029
College Year	*r* =	-.095	-.139
	Variance	.90%	1.9%
	p	.011	.000
College location	*r* =	-.035	-.022
	Variance	.12%	.05%
	p	.351	.559
College setting	*r* =	-.001	-.009
	Variance	.0001%	.008%

		Anxiety	Avoidance
	p	.985	.803
Relationship status	*r* =	-.144	-.293
	Variance	2.07%	8.58%
	p	.000	.000
Sexual orientation	*r* =	.039	-.037
	Variance	.15%	.14%
	p	.301	.328
How many years have you had a Facebook account?	*r* =	-.048	-.028
	Variance	.23%	.08%
	p	.198	.457
The quality of your intimate relationships over the past three years.	*r* =	-.194	-.408
	Variance	3.8%	16.6%
	p	.000	.000
Importance of becoming Facebook friends with someone who you are romantically involved.	*r* =	.146	-.118
	Variance	2.1%	1.4%
	p	.000	.001
Importance of getting to know a significant other through the use of social media, like Facebook.	*r* =	.143	.013
	Variance	2.0%	.02%
	p	.000	.737
Importance of updating your relationship status on Facebook to "In a relationship".	*r* =	.136	-.152
	Variance	1.9%	2.3%
	p	.000	.000
Importance of your internet reputation or	*r* =	.137	.016
	Variance	1.9%	.03%

		Anxiety	Avoidance
reputation on Facebook.	*p*	.000	.661

Because the analysis identified small correlations between college year and each subscale of the attachment construct, a one-way between-groups analysis of variance was conducted to explore the mean differences of college year on anxious attachment and avoidant attachment as measured by ECR-S. Participants were divided into five groups according to their year in college (i.e., First Years, Sophomore, Junior, Senior, or other). There was a difference at the $p < .05$ level in Anxiety scores (F [4, 713] = 3.72, $p < .05$) and Avoidance scores (F [4, 713] = 4.52, $p < .05$). The difference in mean scores was small, with the effect size for both Anxiety and Avoidance measured using eta squared being .20 (Cohen, 1988). Post-hoc comparisons of Anxious Attachment using the Tukey HSD test indicated that the mean score for First Years (M = 3.46, SD = 1.29) was different from Juniors (M = 3.07, SD = 1.43) and Seniors (M = 3.01, SD = 1.48), while comparisons of Avoidant Attachment using the Tukey HSD test indicated that the mean score for First Years (M = 3.23, SD = 1.43) was different from Seniors (M = 2.66, SD = 1.40) and the mean score for Sophomores (M = 3.18, SD = 1.37) was different from Seniors.

Similarly, the analysis identified small correlations between relationship status and each subscale of the attachment construct, so a one-way between-groups analysis of variance was conducted to explore the mean differeneces of relationship status on anxious attachment and avoidant attachment as measured by ECR-S. Participants were divided into eight groups: (1) single, (2) seeing someone/more than one person, (3) In a committed/exclusive relationship, (4) engaged, (5) married/partnered, (6) divorced, (7) Separated, and (8) Other. There was a

significant difference at the $p < .05$ level in Anxiety scores (F [7, 710] = 12.22, $p < .001$) and Avoidance scores (F [7, 710] = 21.06, $p < .001$). The effect size for Anxiety was at .11 (medium; Cohen, 1988) and the effect size for Avoidance was .17 (large; Cohen, 1988). Post-hoc comparisons of Anxious Attachment using the Tukey HSD test indicated that the mean score for single participants (M = 3.68, SD = 1.25) was different from those in a committed/exclusive relationship (M = 2.92, SD = 1.33), from those who are engaged (M = 2.47, SD = 1.38), and from those who are married/partnered (M = 2.25, SD = 1.26). The mean score for those participants seeing someone/more than one person (M = 3.51, SD = 1.36) was different from those in a committed relationship (M = 2.92, SD = 1.33), as well as from those who are married (M = 2.25, SD = 1.26). The mean score for those who are in a committed/exclusive relationship (M = 2.92, SD = 1.33) was different from those who are married (M = 2.25, SD = 1.26) and the mean score of those who are married (M = 2.25, SD = 1.26) was different from those who are divorced (M = 3.64, SD = 1.30).

Post-hoc comparisons of Avoidant Attachment using the Tukey HSD test indicated that the mean score for single participants (M = 3.55, SD = 1.37) was different from those in a committed (exclusive) relationship (M = 2.44, SD = 1.24), those who are engaged (M = 2.20, SD = 1.34), and those who are married (M = 2.03, SD = 1.06). The mean score for those participants seeing someone/more than one person (M = 3.57, SD = 1.43) was different from those in a committed relationship (M = 2.44, SD = 1.24), those who are engaged (M = 2.20, SD = 1.34), as well as from those who are married (M = 2.03, SD = 1.06).

Exploratory Research Question 2

Is there a statistically significant relationship between emerging adults' social media practices (as measured by the scores of the FBI [Ellison et al., 2007] and MGFBO [Fox & Warber, 2013]) and their reported demographic variables (e.g., gender, age, ethnicity, year in college, geographic location, relationship status, sexual orientation, etc.)?

The relationship between currently enrolled undergraduate students' social media practices (as measured by the *Facebook Intensity Scale* [Ellison et al., 2007] and the *Motives for Going Facebook Official scale* [Fox & Warber, 2013]) and their demographic variables was investigated using Pearson's correlation. Preliminary analyses (i.e., a review of the scatterplot and evaluating skew and kurtosis) were performed to examine if the data met the assumptions (i.e., normality, linearity, and homoscedasticity) for Pearson product moment correlation. The data met the assumptions of normality; therefore, meeting the criteria for Pearson correlation. The relationships were evaluated based on Cohen's (1988) suggested interpretations of relationships. The analyses were done with all of the items in the instruments; therefore, the items that were removed for the SEM were put back into the total scores to ensure that all of the items were included.

The analyses identified the results of a small correlation between the FBI and: (a) age (r = -.105, $p < .05$), (b) ethnicity (r = .092, $p < .05$), and (c) relationship status (r = -.134, $p < .001$). There was a moderate correlation between the FBI and the number of years having a FB account (r = .232, $p < .001$). In addition, there was a moderate correlation between the FBI scores and the participants' reported answers regarding: (a) the importance of becoming Facebook friends with

someone they are romantically involved (r = .415, p < .001); (b) the importance of getting to know a significant other through the use of social media, like Facebook (r = .365, p < .001); (c) the importance of updating their relationship status on Facebook to "in a relationship" (r = .341, p < .001); and (d) the importance of their internet reputation on Facebook (r = .340, p < .001).

The analyses identified small correlations between the Social Motives of the MGFBO and: (a) age (r = -.182, p < .001); (b) college year (r = -.138, p < .001); and (c) relationship status (r = -.163, p < .001). The analyses also identified small correlations between the social motives of the MGFBO and: (a) the importance of becoming Facebook friends with someone you are romantically involved (r = .242, p < .001); (b) the importance of getting to know a significant other through the use of social media, like Facebook (r = .223, p < .001); (c) the importance of internet reputation or reputation on Facebook (r = .126, p < .001); and (d) a moderate correlation between social motives and the importance of updating your relationship status on Facebook to "In a relationship" (r = .366, p < .001).

The analyses identified small correlations between interpersonal motives from the MGFBO and age (r = -.105, p < .001) and college location (r = .103, p < .05). Furthermore, the analyses supported moderate correlations between interpersonal motives and the importance of becoming Facebook friends with someone who you are romantically involved (r = .341, p < .001) and the importance of updating your relationship status on Facebook to "In a relationship" (r = .447, p < .001), as well as small correlations between interpersonal motives and the importance of getting to know a significant other through the use of social media, like Facebook

(r = .257, p < .001) and the importance of their internet reputation or reputation on Facebook (r = .164, p < .001). Table 26 provides a representation of the correlation results.

Table 26 Correlations between Social Media Practices and Demographics

		Social Motives	Interpersonal Motives	Facebook Intensity
Gender	*r* =	-.026	-.007	.040
	Variance =	.07%	.0049%	.16%
	p	.490	.843	.89
Age	*r* =	-.182	-.105	-.096
	Variance =	3.3%	1.1%	.92%
	p	.000	.005	.010
Ethnicity	*r*=	.032	.023	.092
	Variance	.10%	.053%	.85%
	p	.386	.532	.013
College Year	*r* =	-.138	-.022	-.006
	Variance =	1.9%	.05%	.004%
	p	.000	.557	.865
College location	*r* =	-.066	-.103	-.063
	Variance =	.44%	1.06%	.40%
	p	.078	.006	.090
College setting	*r* =	-.025	.027	.040
	Variance =	.063%	.073%	.16%
	p	.510	.467	.286
Relationship status	*r* =	-.163	-.008	-.134

		Social Motives	Interpersonal Motives	Facebook Intensity
	Variance =	2.66%	.006%	1.80%
	p	.000	.834	.000
Sexual orientation	*r* =	-.057	-.070	-.032
	Variance =	.33%	.49%	.10%
	p	.125	.059	.400
How many years have you had a Facebook account?	*r* =	-.008	.028	.232
	Variance =	.006%	.08%	5.4%
	p	.840	.459	.000
The quality of your intimate relationships over the past three years.	*r* =	-.007	.072	-.008
	Variance =	.005%	.52%	.006%
	p	.865	.052	835
Importance of becoming Facebook friends with someone who you are romantically involved.	*r* =	.242	.341	.415
	Variance =	5.9%	11.6%	17.2%
	p	.000	.000	.000
Importance of getting to know a significant other through the use of social media, like Facebook.	*r* =	.223	.257	.365
	Variance =	5%	6.6%	13.3%
	p	.000	.000	.000
Importance of updating your relationship status on Facebook to "In a relationship".	*r* =	.366	.447	.341
	Variance =	13.4%	20%	11.6%
	p	.000	.000	.000
Importance of your internet reputation or reputation on Facebook.	*r* =	.126	.164	.340
	Variance =	1.6%	2.7%	11.6%
	p	.001	.000	.000

Because the analysis identified small correlations between age and each subscale of the social media practices construct, a one-way between-groups analysis of variance was conducted to explore the mean differences of age on levels of Facebook Intensity, Emotional Connectedness, and Friends, as measured by the FBI, and Social and Interpersonal Motives as measured by the MGFBO. Participants were divided into six groups according to their self-reported age: (1) 18 – 25, (2) 26 – 33, (3) 34 – 41, (4) 42 – 49, (5) 50 – 57, and (6) 58 -65. There was a difference at the $p < .05$ level in overall Facebook Intensity (F [5, 712)] = 2.91, $p < .05$) Friends (F [5, 712] = 14.33, $p < .001$), Social Motives (F [5, 712] = 6.87, $p < .001$), and Interpersonal Motives (F [5, 712] = 2.98, $p < .05$). The effect sizes, calculated using eta squared, was .02 (small; Cohen, 1988) for Facebook Intensity, .09 (medium; Cohen, 1988) for Friends, .05 (small; Cohen, 1988) for Social Motives, and .02 (small; Cohen, 1988) for Interpersonal Motives.

Post-hoc comparisons using the Tukey HSD test indicated that within Facebook Intensity overall scores, the mean score for 18 – 25 year olds (M = 3.12, SD = .860) was different from 42 – 49 year olds (M = 2.33, SD = .810). Within Friends, the mean score for 18 – 25 year olds (M = 3.01, SD = 1.26) was different from 26 – 33 year olds (M = 1.99, SD = .977), 34 -41 year olds (M = 1.83, SD = .885), 42 – 49 year olds (M = 1.50, SD = .842), and 58 – 65 year olds (M = 1.00, SD = .000). Within Social Motives, the mean score for 18 – 25 (M = 3.27, SD = .975) year olds was different from 26 – 33 year olds (M = 2.73, SD = 1.20), 42 - 49 year olds (M = 2.33, SD = 1.26), and 58 – 65 year olds (M = 1.44, SD = .770). Lastly, within Interpersonal Motives, the mean score for 18 – 25 year olds (M = 3.21, SD = .932) was different from 58 – 65 year olds (M = 1.58, SD = 1.01).

Exploratory Research Question 3

Is there a statistically significant relationship between emerging adults' relationship development (as measured by the scores of the PRDS [Parks & Roberts, 1998]) and their reported demographic variables (e.g., gender, age, ethnicity, year in college, geographic location, relationship status, sexual orientation, etc.)?

The relationship between currently enrolled undergraduate students' relationship development (as measured by the *Parks' Relational Development Scale;* Parks & Roberts, 1998) and their demographic variables was investigated using Pearson's correlation. Preliminary analyses (i.e., a review of the scatterplot and evaluating skew and kurtosis) were performed to examine if the data met the assumptions (i.e., normality, linearity, and homoscedasticity) for Pearson product moment correlation. The data met the assumptions of normality; therefore, meeting the criteria for Pearson correlation. The relationships were evaluated based on Cohen's (1988) suggested interpretations of relationships. The analyses were done with all of the items in the instruments; therefore, the items that were removed for the SEM were put back into the total scores to ensure that all of the items were included.

The analyses identified a small relationship between Interdependence and ethnicity (r = .092, p < .05), relationship status (r = .162, p < .001), the quality of the participants' intimate relationships over the past three years (r = .270, p < .001), the importance of becoming Facebook friends with someone they are romantically involved, (r = .201, p < .001), and the importance of updating their relationship on Facebook to "In a relationship" (r = .158, p < .001). The analyses identified a small relationship between breadth and gender (r = .157, p < .001), ethnicity (r =

.106, $p < .001$), the number of years participants have had a Facebook account ($r = .082$, $p < .05$), the quality of participants' intimate relationship over the past three years ($r = .269$, $p < .001$), the importance of becoming Facebook friends with someone they are romantically involved ($r = .084$, $p < .05$), and the importance of getting to know a significant other through the use of social media, like Facebook ($r = .074$, $p < .05$). A small relationship was identified by the analyses between depth and gender ($r = .117$, $p < .05$), age ($r = .086$, $p < .05$), ethnicity ($r = .077$, $p < .05$), relationship status ($r = .130$, $p < .001$), the number of years participants have had a Facebook account ($r = .084$, $p < .05$), and the importance of becoming Facebook friends with someone they are romantically involved ($r = .138$, $p < .001$). In addition, the analyses identified a moderate relationship between depth and the quality of their intimate relationships over the past three years ($r = .318$, $p < .001$). The analyses identified a small relationship between code change and age ($r = -.075$, $p < .05$), ethnicity ($r = .074$, $p < .05$), relationship status ($r = .087$, $p < .05$), the quality of their intimate relationships over the past three years ($r = .260$, $p < .001$), the importance of becoming Facebook friends with someone they are romantically involved ($r = .099$, $p < .05$), and the importance of updating their relationship status on Facebook to "In a relationship" ($r = .088$, $p < .05$). The analyses identified a small relationship between Predictability/Understanding and gender ($r = .128$, $p < .001$), ethnicity ($r = .122$, $p < .001$), relationship status ($r = .169$, $p < .001$), and the importance of participants' internet reputation or reputation on Facebook ($r = -.080$, $p < .05$). The analyses identified a moderate relationship between Predictability/Understanding and the quality of participants' intimate relationships over the past three years ($r = .326$, $p < .001$). The analyses identified a small relationship between Commitment and gender ($r = .159$, $p < .001$), ethnicity ($r = .075$, $p < .05$), relationship status ($r =$

.178, $p < .001$), the importance of becoming Facebook friends with someone participants are romantically involved ($r = .170$, $p < .001$), and the importance of updating their relationship status on Facebook to "In a relationship" ($r = .113$, $p < .05$). The analyses identified a moderate relationship between Commitment and the quality of participants' intimate relationships over the past three years ($r = .364$, $p < .001$). The analyses identified a small relationship between Network Convergence Online and age ($r = -.095$, $p < .05$), ethnicity ($r = .127$, $p < .001$), year in college ($r = -.112$, $p < .05$), the quality of participants' intimate relationship over the past three years ($r = .088$, $p < .05$), the importance of becoming Facebook friends with someone participants are romantically involved ($r = .180$, $p < .001$), the importance of getting to know a significant other through the use of social media like Facebook ($r = .108$, $p < .05$), the importance of updating their relationships status on Facebook to "In a relationship" ($r = .143$, $p < .001$), and the importance of participants' internet reputation or reputation on Facebook ($r = .120$, $p < .001$). Last, the analyses identified a small relationship between Network Convergence Offline and ethnicity ($r = -.087$, $p < .001$), college location ($r = -.087$, $p < .05$), relationship status ($r = .136$, $p < .001$), the importance of becoming Facebook friends with someone participants are romantically involved ($r = .164$, $p < .001$), and the importance of updating their relationship stats on Facebook to "In a relationship" ($r = .174$, $p < .001$). The analyses identified a moderate relationship between Network Convergence Offline and the quality of participants' intimate relationships over the past three years ($r = .313$, $p < .001$). Table 27 provides a representation of the correlation results, including the variance explained.

Table 27 Correlations between Relationship Development and Demographics

		Interdependence	Breadth	Depth	CodeChange	Predictability Understanding	Commitment	PRDSNCOn_Means	PRDSNCOff Means
Gender	*r*	.023	.157	.117	-.012	.128	.159	.015	.041
	Variance	.053%	2.45%	1.4%	.014%	1.6%	2.5%	.023%	.17%
	p	.530	.000	.002	.752	.001	.000	.683	.268
Age	*r*	-.063	-.025	.086	-.075	-.029	-.030	-.095	-.063
	Variance	0.4%	.06%	.74%	.56%	.084%	.09%	.90%	.40%
	p	.093	.505	.022	.045	.432	.429	.011	.093
Ethnicity	*r*	.092	.106	.077	.074	.122	.075	.127	.137
	Variance	.85%	1.1%	.60%	.50%	1.5%	.60%	1.6%	1.9%
	p	.013	.004	.039	.047	.001	.046	.001	.000
College Year	*r*	-.049	.038	.014	-.019	.008	.037	-.112	.023
	Variance	.20%	.14%	.02%	.04%	.006%	.14%	1.3%	.0053%
	p	.193	.309	.711	.621	.823	.326	.003	.547
College location	*r*	-.041	-.043	-.047	-.020	-.028	-.076	-.034	-.087
	Variance	.17%	.20%	.22%	.04%	.078%	.58%	1.2%	.77%

		Interdependence	Breadth	Depth	CodeChange	Predictability Understanding	Commitment	PRDSNCOn_Means	PRDSNCOff Means
	p	.275	.245	.205	.595	.451	.041	.369	.020
College setting	*r*	.018	-.047	-.036	.009	-.012	-.004	-.013	-.026
	Variance	.032%	.22%	.13%	.008%	.014%	.002%	.017%	.068%
	p	.630	.210	.342	.820	.757	.905	.725	.482
Relationship status	*r*	.162	.084	.130	.087	.169	.178	-.007	.136
	Variance	2.6%	.71%	1.7%	.76%	2.9%	3.2%	.005%	1.8%
	p	.000	.024	.000	.019	.000	.000	.842	.000
Sexual orientation	*r*	-.031	.025	-.015	-.027	-.035	.006	-.019	-.029
	Variance	.10%	.06%	.02%	.073%	.12%	.004%	.036%	.084%
	p	.411	.511	.679	.476	.346	.882	.607	.435
How many years have you had a Facebook account?	*r*	.002	.082	.084	.056	.023	.046	.061	.066
	Variance	.0004%	.67%	.71%	.314%	.053%	.21%	.37%	.44%
	p	.947	.029	.024	.134	.533	.217	.105	.078
The quality of your intimate	*r*	.270	.269	.318	.260	.326	.364	.088	.313
	Variance	7.3%	7.3%	10.1%	7.0%	11%	13.2%	.77%	9.8%

		Interdependence	Breadth	Depth	CodeChange	Predictability Understanding	Commitment	PRDSNCOn_Means	PRDSNCOff Means
relationships over the past three years.	*p*	.000	.000	.000	.000	.000	.000	.018	.000
Importance of becoming Facebook friends with someone who you are romantically involved.	*r*	.201	.084	.138	.099	.064	.170	.180	.164
	Variance	4.0%	.71%	1.9%	1.0%	.41%	2.9%	3.2%	2.7%
	p	.000	.025	.000	.008	.087	.000	.000	.000
Importance of getting to know a significant other through the use of social media, like Facebook.	*r*	.060	-.074	-.034	.017	-.057	-.016	.108	-.013
	Variance	.36%	.55%	.12%	.03%	.32%	.03%	1.2%	.017%
	p	.108	.047	.356	.653	.128	.670	.004	.727
Importance of updating your	*r*	.158	.017	.073	.088	.025	.113	.143	.174
	Variance	2.5%	.03%	.53%	.77%	.063%	1.3%	2.0%	3.0%

		Interdependence	Breadth	Depth	CodeChange	Predictability Understanding	Commitment	PRDSNCOn_Means	PRDSNCOff Means
relationship status on Facebook to "In a relationship".	*p*	.000	.644	.052	.018	.501	.002	.000	.000
Importance of your internet reputation or reputation on Facebook.	*r*	.068	-.025	-.018	-.027	-.080	-.007	.120	.011
	Variance	.50%	.06%	.03%	.07%	.64%	.005%	1.44%	.012%
	p	.071	.512	.626	.478	.032	.855	.001	.770

Because the analysis identified small correlations between ethnicity and each subscale of the relationship development construct, a one-way between-groups ANOVA was conducted to explore the mean difference of ethnicity on relationship development, as measured by the PRDS. Participants were divided into nine groups based on self-reported ethnicity: (1) African/African American, (2) Asian/Asian American, (3) Black, (4) Hispanic, (5) Multiracial, (6) Native American, (7) Pacific Islander, (8) White, and (9) Other. There was a statistically significant difference at the $p < .05$ level in Interdependence scores (F [8, 709] = 2.046, $p < .05$), Predictability/Understanding (F [8, 709] = 2.75, $p < .05$), Network Convergence Online (F [8, 709] = 3.09, $p < .05$), and Network Convergence Offline (F [8, 709] = 2.91, $p < .05$). Despite reaching statistical significance, the actual difference in mean scores between groups was quite small. The effect sizes were calculated using eta squared and are as follows: (a) Interdependence .02 (small; Cohen, 1988), (b) Predictability/Understanding .03 (small; Cohen, 1988), (c) Network Convergence Online .03 (small; Cohen, 1988), and (d) Network Convergence Offline .03 (small; Cohen, 1988). Post-hoc comparisons within Predictability/Understanding using the Tukey HSD indicated the mean score for African/African Americans (M = 5.30, SD = 1.35) was different from Multiracial participants (M = 6.17, SD = .856) and White participants (M = 5.81, SD = .987) and within Network Convergence Offline, the mean score for African/African American participants (M = 5.15, SD = 1.33) was different from White participants (M = 5.71, SD = 1.04).

Chapter Summary

Chapter Four presented the results of the data analyses procedures which included: (a) descriptive analysis, (b) structural equation modeling, (c) simultaneous multiple regression, (d) analysis of variance, and (e) Pearsons Correlations (two-tailed). Chapter Five continues with a discussion of the results, offering implications for college counselors, counselor educators, and areas for future research.

CHAPTER FIVE: DISCUSSION

The purpose of Chapter Five is to provide an overview of the study, the research methodology, and a discussion of the results. Chapter Five expands upon the results presented in Chapter Four, and compares findings to those presented in Chapter Two. Specifically, the results of the primary research hypothesis and the exploratory questions are discussed and explained. In addition, this chapter (a) reviews the limitations of the study (e.g., research design, sampling, and instrumentation); (b) provides recommendations for future research; and (c) presents implications for college counseling, counselor education, and instrument development.

Summary of Study

The purpose of this research study was to investigate the directional relationship between college students' attachment styles and social media practices with their relationship development. This investigation tested the theoretical model that undergraduates' attachment styles (as measured by the *Experiences in Close Relationships- Short form* [ECR-S; Wei et al., 2007]) and social media practices (as measured by the *Facebook Intensity Scale* [FBI; Ellison et al., 2007] and *Motives for Going Facebook Official Scale* [MGFBO; Fox & Warber, 2013]) contributed to their quality of relationship development (as measured by the *Parks Relational Development Scale* [PRDS; Parks & Roberts, 1998]). Specifically, this investigation tested the hypothesized directional relationship that students scoring in the insecure attachment range (i.e., avoidant or anxious) with *higher* levels of social media practices have *lower* levels of relationship development quality. In addition, this investigation examined the relationship between college students' attachment styles, social media practices, and relationship

development quality with their reported demographic information (e.g., age, current school level, and ethnicity).

There is limited research that investigates the directional relationship between attachment styles, social media practices, and relationship development. Yet, the existing literature (e.g., Fox & Warber, 2013; Marshall et al., 2013) does support the theoretical model examined that college students scoring in the insecure attachment range have lower levels of relationship development, as well as college students' social media practices influences their intimate relationship development. Attachment styles and social media practices, attachment styles and relationship development, and social media practices and relationship development were examined in psychology and communication literature; (e. g., Jenkins et al., 2012; Lee, 2013; Marshall et al., 2013) however, the relationship between these three constructs was *not* identified nor was it examined in the counseling literature. Therefore, investigating the relationship between attachment styles, social media practices, and relationship development provides increased insight into the identity development in the area of relationship development for college students. Identity development and exploration in the area of relationship development is a central tenet of emerging adulthood (Arnett, 2000), and the identification of the potential relationship between attachment styles and social media practices may assist in the understanding of relationship development and interpersonal relationships of college students. Relationship difficulties are the primary reason individuals seek counseling services (Olson et al., 2011), and intimate relationships broadcasted over social media influence daily functioning (Fox & Warber, 2013); therefore, identifying relationship development of college students and clarifying the relationship

between attachment styles and social media practices as they contribute to relationship development offers meaningful insight for the counseling field.

The study was approved by the University of Central Florida's institutional review board (IRB). Data collection was conducted September 30, 2013 through November 15, 2013. The sample for the study included 717 college students from UCF, ODU, and MC. To increase the response rate and reduce sampling error, Dillman's (2007) *Tailored Design Method* was implemented. The overall usable response rate of all 7,117 college students was 10.1% (N = 717). The participants completed the data collection instruments through Qualtrics, which consisted of four instruments: (a) *General Demographic Questionnaire* (Sherrell, 2013); (b) the ECR-S (Wei et al., 2007); (c) the FBI (Ellison et al., 2007); (d) the MGFBO (Fox & Warber, 2013); and (d) the PRDS (Parks & Roberts, 1998). The statistical procedure used to analyze the data included structural equation modeling (SEM). Specifically, multiple regression, path analysis, and confirmatory factor analysis (Ullman, 2007) were conducted. The exploratory research questions were examined using: descriptive statistics, Pearson's correlations, and multiple linear regression (MLR; Pallant, 2010). An alpha level of .05 was used in the data analyses; however, because the sample size was large, an alpha level of .001 would have been more appropriate as it would have helped to eliminate some of the identified statistical significance results that had minimal to no practical significance.

Discussion

The following section examines and expands upon the results presented in Chapter Four. Specifically, a review of the descriptive data analyses conducted on the demographic data and

instrumentation scores is presented. In addition, the results of statistical analyses conducted to investigate the primary research hypothesis and exploratory questions are discussed. The results are compared to previous research that was presented in Chapter Two, focused on college students' attachment styles, social media practices, and relationship development, and the relationship between these constructs.

Descriptive Data Analysis

Participants

All participants in the study were enrolled undergraduate college students. Descriptive data and measures of central tendency for all participants (*N* = 717) are presented. The majority of participants were female (*n* = 491, 68.5%), compared to those who identified as male (*n* = 218, 30.4%), self-identified as something other than female, male, or transgender (*n* = 5, .7%) or transgender (*n* = 3, .4%). The majority of participants were between the ages of 18 – 25 (*n* = 630, 87.9%), followed by those between the ages of 26 – 33 (*n* = 40, 5.6%), those between the ages of 34 – 41 (*n* = 21, 2.9%), those between the ages of 42 – 49 (*n* = 13, 1.8%), those between the ages of 50 -57 (*n* = 10, 1.4%), and those between the ages of 58 – 65 (*n* = 3, .4%). Ethnicity and race of participants (*N* = 717) was 436 (60.8%) White, 104 (14.5%) Hispanic, 64 (8.9%) African/African American, 36 (5.0%) Asian/Asian American, 31 (4.3%) Black, 25 (3.5%) Multiracial, 2 (.3%) Native American, 2 (.3%) Pacific Islander, and 17 (2.4%) Other. The reported relationship status for the participants (*N* = 717) was 293 (40.9%) single, 262 (36.5%) in a committed (exclusive) relationship, 77 (10.7%) seeing someone/more than one person, 45 (6.3%) married or partnered, 15 (2.1%) engaged, 11 (1.5%) divorced, 10 (1.4%), and 4 (.6%)

separated. Sexual orientation of participants (*N* = 717) was 656 (91.5%) straight or heterosexual; 33 (4.6%) bisexual; 19 (2.6%) lesbian, gay, or homosexual; 5 (.7%) something else; and 4 (.6%) uncertain.

Regarding participants' (*N* = 717) year in schooling, 284 (39.6%) reported being freshman, 177 (24.7%) reported being juniors, 144 (20.1%) reported being seniors, 104 (14.5%) reported being sophomores, and 8 (1.1%) reported being Other. The majority of participants reported that their college location was in the south (*n* = 712, 99.3%), followed by 2 (.3%) in the West and 2 (.3%) in the Southwest, followed by 1 (.1%) in the Midwest. The environmental setting of the participants' schools was 407 (56.8%) urban, 279 (38.9%) suburban, and 31 (4.3%) rural. The reported demographic data for the participants was consistent with previous research with undergraduate college students (e. g., Duran, Kelly, & Rotaru, 2011; Fox & Warber, 2013; Jenkins-Guarnieri, Wright, & Hudiburgh, 2013; Lampe, Wohn, Vitak, & Ellison, 2011; Valenzuela, Park, & Lee, 2009).

In regards to Facebook, all (100%) of participants (*N* = 717) had active Facebook accounts. In addition, 287 (40.0%) had had an account for 3 – 4.9 years, 271 (37.8%) had had an account for 5 – 6.9 years, 74 (10.3%) had had an account for 7 – 8.9 years, 57 (7.9%) had had an account for 1 - 2.9 years, 21 (2.9%) had had an account for less than one year, and 7 (1.0%) had had an account for 9 years.

Self-reported intimate relationships and social media

In order to assess the undergraduate students' intimate relationships as they relate to social media such as Facebook, which may influence their relationship development, four five-

point Likert scaled statements were incorporated on the demographic assessment (Sherrell, 2013). The four Likert scale statements examined participants' self-report of: (a) importance of becoming Facebook friends with someone they are romantically involved, (b) importance of getting to know a significant other through social media, (c) importance of updating their relationship status to "In a relationship", and (d) importance of their internet reputation. Statements were reported over a Likert scale ranging from one to five: 1 = not at all important, 2 = low importance, 3 = slightly important, 4 = important, and 5 = very important. These items were developed by the primary researcher; therefore, there is *no* literature to compare whether these results were consistent or inconsistent with other samples.

Facebook Friends and Significant Others.

Participants were asked to rate their social media usage and significant others by rating, "*Importance of becoming Facebook friends with someone who you are romantically involved*" from a scale regarding ranging from one (not at all important) to five (very important). The measures of central tendency for the participants' responses to this item were: M = 3.16, SD = 1.37; range 1 – 5).Therefore, the majority of the college students rated becoming Facebook friends with a romantic partner as slightly important.

Relationship Building and Facebook.

The Likert scale that participants were asked to rate regarding getting to know partners through Facebook was, "*Importance of getting to know a significant other through the use of social media, like Facebook"* from a scale ranging from one (not at all important) to five (very important). The measures of central tendency for the participants' responses to this item were: M

= 2.28, *SD* = 1.14; range 1 – 5). Therefore, the majority of the college students rated getting to know a romantic partner through Facebook with low importance.

Updating Relationship Status.

The Likert scale statement that participants were asked to rate regarding updating their relationship status through Facebook was, "*Importance of updating your relationship status on Facebook to 'In a relationship'*" from a scale ranging from one (not at all important) to five (very important). The measures of central tendency for the participants' responses to this item were: *M* = 2.44, *SD* = 1.21; range 1 – 5). Therefore, the majority of college students rated the importance of updating their relationship status with low importance.

Internet Reputation.

The Likert scale statement that participants were asked to rate regarding their internet reputation was, "*Importance of your internet reputation or reputation on Facebook*" from a scale ranging from one (not at all important) to five (very important). The measures of central tendency for the participants' responses to this item were: *M* = 2.56, *SD* = 1.39; range 1 – 5. Therefore, the majority of college students rated the importance of their internet reputation or reputation on Facebook with low importance.

Instrumentation and Measurement Models

There were four data collection instruments used to measure the constructs investigated in this study. *Attachment style* was measured by the ECR-S (Wei et al., 2007), while *Social Media Practices* were measured using the FBI (Ellison et al., 2007) and the *MGFBO* (Fox &

Warber, 2013). *Relationship development* was measured using the PRDS (Parks & Roberts, 1998). To assess the validity of each instrument and to develop the measurement model, a confirmatory factor analysis (CFA) was conducted on each instrument used in the study to ensure that the items were loading independently on the factors suggested by previous research (Maslach et al., 1996). The CFA of each instrument provided rationale for the specification of the measurement model for these data. Because of a lack of established validity on the ECR-S and the FBI, an exploratory factor analysis (EFA) was conducted to provide insight into the structure of the items and help to propose the measurement models (Hair et al., 2010). However, EFA does *not* test a theory and should *not* be the only technique used to validate a measurement model; therefore, CFA was also conducted for these four assessment instruments (Hair et al., 2010).

Attachment Style

The ECR-S (Wei et al., 2007) was used to identify college student attachment styles. The ECR-S includes 12 items and two subscales: (a) Avoidant Attachment, and b2) Anxious Attachment. The items contain a 7-point Likert scale format that ranges from “strongly disagree” to “strongly agree”. Each subscale has six items. Cronbach’s α assessing the internal consistency of the ECR-S was .723, indicating acceptable internal consistency reliability with these data (Pallant, 2010). In addition, Cronbach’s α assessing the internal consistency for Avoidant Attachment was .746, indicating an acceptable internal consistency of the avoidance scale of the ECR-S, while Cronbach’s α assessing the internal consistency for Anxious Attachment was .715, also indicating an acceptable internal consistency of the anxious subscale of the ECR-S with

these data. However, the internal consistency reliability of these subscales was lower than previous research identifying the Cronbach α to be .84 (Avoidance) and .78 (Anxiety; Wei et al., 2007). Higher scores on each subscale of the ECR-S indicate greater alignment with that particular attachment style, while low scores on each subscale suggest a secure attachment. A review of the results of the measures of central tendency identified that approximately half of the college students in this study demonstrate insecure attachment (Avoidant Attachment: 6 items, *M* = 3.02, *SD* = 1.43; range = 1.00 – 7.00; *Mdn* = 2.67; mode = 2.00); Anxious Attachment: 6 items, *M* = 3.25; *SD* = 1.38; range = 1.00 – 7.00; *Mdn* = 3.33; mode = 3.33). Moreover, within this study, 36.7% (*n* = 263) of participants displayed anxious attachment, 9.2% (*n* = 66) displayed with avoidant attachment, and 4% (*n* = 31) displayed insecure attachment with no discrepancy between the anxious or avoidant style. Based on Wei and colleagues (2007), the results may be interpreted that the remaining 49.8% (*n* = 357) of participants had a secure attachment style.

The CFA of the ECR-S was conducted based on the EFA conducted by the researcher, and supported a three-factor structure. The researcher choose to conduct an EFA as all the factor loadings were low, indicating that there may be more than two factors within the ECR-S for these data. Therefore, an EFA was conducted for the purposes of this study. Principal axis factoring identified the presence of three factors with eigenvalues above 1, for a total of 45.07% of the variance explained in this model. The rotated solution revealed the presence of a simple structure, with all three factors showing strong loadings and all variables except one loading on one component. The cross-loading item was deleted, as the difference was less than 0.2 (Pallant, 2010), and the resulting factors were Anxious Attachment (α = .81), Closeness Avoidance (α =

.77), and Partner Avoidance ($\alpha = .74$). These results were *not* consistent with Wei and colleagues (2007) findings. Previous research (e.g., Bartholomew & Horowitz, 1991; Collins & Read, 1990; Feeney & Noller, 1990) found that a single avoidant category may pool conceptually different patterns of avoidance found in adulthood together; therefore, grouping individuals together under an ambiguous title of avoidance (Bartholomew & Horowitz, 1991). The data within the current study aligned with the previous research (e.g., Bartholomew & Horowitz), as more than one avoidant factor was identified with this dataset.

The factor loadings were examined using .55 as a cutoff (Comrey & Lee, 1992; Tabachnick & Fidell, 2007); the ECR-S model was respecified by deleting items (4, 10, and 12) that did *not* meet the suggested cutoff. In addition, errors 3 and 7, 3 and 11, 1 and 5, and 1 and 9 were freed based on the modification indices. The respecification of the ECR-S model provided a good fit as evidenced by producing a chi-square of 46.512 ($df = 14$, χ^2 ratio = 3.322, $p < .001$) and root mean square error of approximation of .057. All other CFA fit indices indicated a good model fit with GFI = .984, CFI = .973, and TLI = .947. Therefore, the final ECR-S CFA for this sample identified a good fitting model for this data set.

Social Media Practices

The FBI (Ellison et al., 2007) is a self-report measure that has nine items focusing on emotional connectedness, Facebook friends, actual friends, and time spent on the website Facebook. Participants are asked to rate how they experience the nine items on three Likert scales: (a) 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly agree; (b) 1 = 0 – 14 minutes, 2 = 15 – 29 minutes, 3 = 30 – 44 minutes, 4 = 45 – 59 minutes, 5 = 1 hour

or more; and (c) 1 = less than 100, 2 = 101 – 200, 3 = 201-300, 4 = 301 – 400, 5 = 401 – 500, and 6 = more than 500. Cronbach's α assessing the internal consistency of the total FBI was .830, indicating an acceptable internal consistency (Pallant, 2010) that aligned with Ellison and colleagues' (2007) findings. Ellison and associates indicate that the FBI is a total mean score instrument, and that higher scores indicate higher levels of Facebook intensity; however, there are *not* categories of different levels of Facebook intensity. The average FBI mean score was 3.09 (*SD* = .87, range 1.00 – 5.22, *Mdn* = 3.11, mode = 3.78), which was consistent with Ellison and colleagues (2007) findings (*M* = 2.98, *SD* = 0.79). Considering that the FBI is described as a total mean score instrument, all of the items should load onto one factor. However, a CFA of the FBI was conducted constraining all items to load onto one factor, all factor loadings were low, indicating that there may be more than one factor within the FBI for these data. Because the validity was *not* supported by other samples, an EFA was conducted for the purposes of this study. Principal axis factoring revealed the presence of two factors with eigenvalues above 1, for a total of 61.75% of the variance explained in the FBI model. The rotated solution revealed the presence of a simple structure, with both factors showing strong loadings and all variables loading on one component. Therefore, the items of the FBI were constrained to load onto two suggested factors; *Emotional Connectedness* (Cronbach's α = .878) and *Friends* (Cronbach's α = .77). The factor loadings were examined using 0.55 as a cutoff (Comrey & Lee, 1992; Tabachnick & Fidell, 2007). One item was deleted (Item 6) based on standardized residual covariances, while errors 4 and 7 were freed based on the modification indices. The revised model produced a chi square of 35.596 (df = 12, χ^2 ratio = 2.966, $p < .001$) and root mean square error of approximation of .052. All other CFA indices indicated a good model fit with GFI =

.986, CFI = .989, and TLI = .981. Therefore, the final FBI CFA identified a good fitting model for these data.

The MGFBO (Fox & Warber, 2013) is an 11 item self-reporting questionnaire that has two subscales measuring individuals' motives for posting their relationship status; interpersonal motives and social motives. The 11 MGFBO items contain a 5- point Likert scale format that range from "strongly disagree" to "strongly agree". There are seven items associated with *Social Motives,* and four items associated with *Interpersonal Motives.* Cronbach's α assessing the internal reliability consistency of the MGFBO was .882 with these data, indicating an acceptable internal consistency of the scale measuring two factors of relationship broadcasting (Pallant, 2010). The internal consistencies for the two MGFBO subscales were Cronbach's α of .845 for *Social Motives* and .837 for *Interpersonal Motives*, indicating an acceptable internal reliability consistency (Pallant, 2010). The internal consistency reliability of the MGFBO with these data was higher than in research with other samples (Fox & Warber, 2013). Fox and Warber (2013) indicate that the MGFBO is a two-factor scale, with the higher mean scores on each subscale indicating whether the individuals align more with social motives or interpersonal motives for updating their relationship status. However, there are *not* categories of different levels of social or interpersonal motives. The average MGFBO mean subscale scores were 3.19 for social motives (*SD* = 1.02, range = 1.00 – 5.00, *Mdn* = 3.33, mode = 4.00) and 3.18 for interpersonal motives (*SD* = .966, range = 1.00 – 5.00, *Mdn* = 3.25, mode = 4.00). To date, the MGFBO was only used in one published research study (Fox & Warber, 2013), and the measure was examined with EFA. The MGFBO scale scores were *not* listed; therefore, the results from the current study *cannot* be compared to those of Fox and Warber (2013).

The CFA of the MGFBO was conducted based on the EFA by Fox and Warber (2013) and supported the same two factor structure. The factor loadings were examined using .70 as a cut off (Comrey & Lee, 1992; Tabachnick & Fidell, 2007); therefore, the model was respecified by deleting items (1, 9, and10) that did *not* meet the suggested cutoff. In addition, item 11 was deleted based on standardized residual covariances. Cronbach's α for the respecified model was .82 for *Social Motives* and .84 for *Interpersonal Motives*. The two- factor model produced a chi-square of 54.390 (df = 13, χ^2 ratio = 4.184, p < .001) and root mean square error of approximation of .067. All other CFA fit indices indicated a good model fit with GFI = .979. CFI = .982, and TLI = .970. Although the fit of the CMIN/*df* is *not* to the desired level, it is important to modify the model to include only those parameters that are substantially meaningful and relevant (Byrne, 2010). Therefore, the CFA for the MGFBO represented the final best-fitting and most parsimonious model with these data (Byrne, 2010).

Relationship Development

The PRDS (Parks & Roberts, 1998) was used to measure participants' quality of relationship development determined by eight subscales: *interdependence* (I), *breadth* (B), *depth* (D), *code change* (CC), *predictability/understanding* (PU), *commitment* (C), *network convergence online* (NCOn), and *network convergence offline* (NCOf). The PRDS is a self-report instrument with 29 items. Participants were asked to rate their agreement on a Likert scale: 1 = Strongly disagree, 2 = Disagree, 3 = Slightly disagree, 4 = Neutral, 5 = Slightly agree, 6 = Agree, and 7 = Strongly agree. Cronbach's α assessing internal consistency of the total PRDS was .895 with these data, indicating an acceptable internal consistency (Pallant, 2010). In

addition, the Cronbach's α for each of the eight PRDS subscales was calculated with these data: *interdependence* (.623), *breadth* (.733), *depth* (.777), *code change* (.621), *predictability/understanding* (.727), *commitment* (.860), *network convergence online* (.504), and *network convergence offline* (.677). The internal consistencies of the individual subscales of the PRDS ranged from poor (*network convergence online*, .504) to good (*Commitment*, .860; Pallant, 2010). As noted in Gliem and Gliem (2003), increasing the number of items in the scale may increase the internal consistency. Therefore, when items from the *Network Convergence Online* and *Network Convergence Offline* subscales were combined due to a Heywood case, as well as theoretical justification, Cronbach's α for the subscale *Network Convergence* was .668 with these data. A review of the measures of central tendency identified that the college students in this study had high levels of relationship development: (1) *Interdependence* (6 items; *M* = 21.06; *SD* = 3.89; range = 4.00 – 28.00; *Mdn* = 21.00; mode = 22.00), (2) *Breadth* (3 items; *M* = 17.59; *SD* = 3.07; range = 3.00 – 21.00; *Mdn* = 18.00; mode = 18.00), (3) *Depth* (5 items; *M* = 29.07; *SD* = 4.97; range = 5.00 – 35.00; *Mdn* = 30.00; mode = 35.00), (4) *Code Change* (4 items; *M* = 19.84; *SD* = 4.45; range = 4.00 – 28.00; *Mdn* = 20.00; mode = 21.00), (5) *Predictability/Understanding* (4 items; *M* = 22.82; *SD* = 3.91; range = 4.00 – 28.00; *Mdn* = 24.00; mode = 24.00), (6) *Commitment* (4 items; *M* = 19.69; *SD* = 2.80; range = 4.00 – 28.00; *Mdn* = 20.00; mode = 22.00), (7) *Network Convergence Online* (2 items; *M* = 8.99; *SD* = 2.77; range = 2.00 – 14.00; *Mdn* = 9.00; mode = 8.00), (8) *Network Convergence Offline* (3 items; *M* = 16.84; *SD* = 3.27; range = 3.00 – 21.00; *Mdn* = 18.00; mode = 18.00), (9) *Network Convergence* (5 items; *M* = 25.84; *SD* = 5.07; range = 5.00 – 35.00; *Mdn* = 26.00; mode = 29.00).

The CFA of the PRDS was conducted based on Parks and Roberts (1998) work and supported the seven-factor structure that included the factor *Network Convergence* as a combination of network convergence online and offline to avoid Heywood Cases. The factor loadings were examined using .55 as a cutoff (Comrey & Lee, 1992; Tabachnick & Fidell, 2007); therefore, the model was respecified by deleting Items (14, 24, and 15) that did *not* meet the suggested cutoff. In addition, items were deleted (7, 16, 20, 21, 25, and 29) based on their standardized residual covariances, while errors were freed based on the modification indices (5 and 27). Cronbach αs for the respecified model are as follows: (a) interdependence, .72; (b) breadth, .73; (c) depth, .72; (d) code change, .78; (e) predictability/understanding, .75; (f) commitment, .81; and (g) network convergence, .76. The seven-factor model produced a chi-square of 580.45 (df = 167, χ^2 ratio = 3.48, $p < .001$), root mean square error of approximation of .059. All other CFA fit indices indicated a good model fit with GFI = .926, CFI = .925, and TLI = .905. Although the fit of the CMIN/*df*, is *not* to the desired level, it was important to modify the PRDS model to include only those parameters that are substantially meaningful and relevant (Byrne, 2010). Therefore, the PRDS measurement model represents the final best-fitting and most parsimonious model to represent these data (Byrne, 2010).

Measurement Model of Attachment

College student attachment was measured by the ECR-S (Wei et al., 2007). The hypothesized measurement model for attachment was based on the CFA conducted on the ECR-S. The ECR-S measurement model consisted of mean scores on three indicators: anxious attachment, closeness avoidance, and partner avoidance. The indicator values were calculated

using the results of the respecified model of the instrument: (a) *Anxious Attachment* is a mean score of items 6 and 8 (Cronbach's α = .81); (b) *Closeness Avoidance* is a mean score of items 3, 7, and 11 (Cronbach's α = .77); and (c) *Partner Avoidance* is a mean score of items 1, 5, and 9 (Cronbach's α = .74). The ECR-S model produced a chi-square of 1.996 (df = 1, χ^2 ratio = 1.996, p = .158) and root mean square error of approximation of .037. All other CFA fit indices indicated a good model fit with GFI = .998, CFI = .991, and TLI = .972 with these data.

Similar to the present study, the ECR-S was used and modified when measuring attachment with other samples. Drouin and Landgraff (2012) utilized all 12 items of the ECR-S. Eastwick and Finkel (2008) used the 12 items of the ECR-S, but modified the scale by adjusting the wording and changing the statement "my partner" to "romantic partners" to allow participants to express their attachment style even if they were *not* currently in a romantic relationship.

Measurement Model of Social Media Practices

College students' social media practices were measured using the FBI (Ellison et al., 2007) and the MGFBO (Fox & Warber, 2013).The hypothesized measurement model for social media practices was based on the CFAs conducted on the FBI and MGFBO. The measurement model consisted of mean scores on two indicators of the FBI: *emotional connectedness* and *friends*, and two indicators of the MGFBO: *social motives* and *interpersonal motives*. The indicator values of the FBI were calculated using the results of the respecified model of the instrument: (a) Emotional Connectedness is a mean score of items 1, 2, 3, 4, and 7 (Cronbach's α = .89); and (b) Friends is a mean score of items 8 and 9 (Cronbach's α = .77). The indicator

values of the MGFBO were calculated using the results of the respecified model of the instrument: (a) *Social Motives* is a mean score of items 3, 5, and 7 (Cronbach's α = .82); and (b) *Interpersonal Motives* is a mean score of items 2, 4, 6, and 8 (Cronbach's α = .84). Furthermore, the errors for the FBI *Emotional Connectedness* and *Friends* were freed. The FBI model produced a chi-square of 2.278 (df = 1, χ^2 ratio = 2.278, p = .131) and root mean square error of approximation of .042. All other CFA fit indices for the FBI indicated a good model fit with GFI = .998, CFI = .997, and TLI = .981 with these data.

Measurement Model of Relationship Development

College students' relationship development was measured using the PRDS (Parks & Roberts, 1998). The hypothesized measurement model for relationship development was based on the CFA conducted on the PRDS. The measurement model consisted of mean scores on seven indicators of the FBI: (1) *Interdependence*, (2) *Breadth*, (3) *Depth*, (4) *Code Change*, (5) *Predictability/Understanding*, (6) *Commitment*, and (7) *Network Convergence*. The indicator values of the PRDS were calculated using the results of the respecified model of the instrument: (a) *Interdependence* is the score of items 1, 9, and 17 (Cronbach's α = .72); (b) *Breadth* is the score of items 2, 10, and 18 (Cronbach's α = .73); (c) *Depth* is the score of items 3, 11, and 19 (Cronbach's α = .72); (d) *Code Change* is the score of items 4, 12, and 26 (Cronbach's α = .78); (e) *Predictability/Understanding* is the score of items 5, 13, and 27 (Cronbach's α = .75); (f) *Commitment* is the score of items 6, 22, and 28 (Cronbach's α = .81); and (g) *Network Convergence* is the score of items 8, 15, and 23 (Cronbach's α = .76). In addition, the errors for *Interdependence* and *Code Change*, and *Interdependence* and *Network Convergence* were freed.

The PRDS model produced a chi-square of 19.561 (df = 10, χ^2 ratio = 1.956, p = .034) and root mean square error of approximation of .037. All other CFA fit indices for the PRDS indicated a good model fit with GFI = .992, CFI = .995, and TLI = .990 with these data.

Complete Measurement Model

The complete measurement model, which included all measurement models of each construct, supported a good fit for these data. The model produced a chi-square of 285.974 (df = 69, χ^2 ratio = 4.145, p < .001) and root mean square error of approximation of .066. All other CFA fit indices indicated a good model fit with GFI = .943, CFI = .932, and TLI = .910 (see Figure 25)

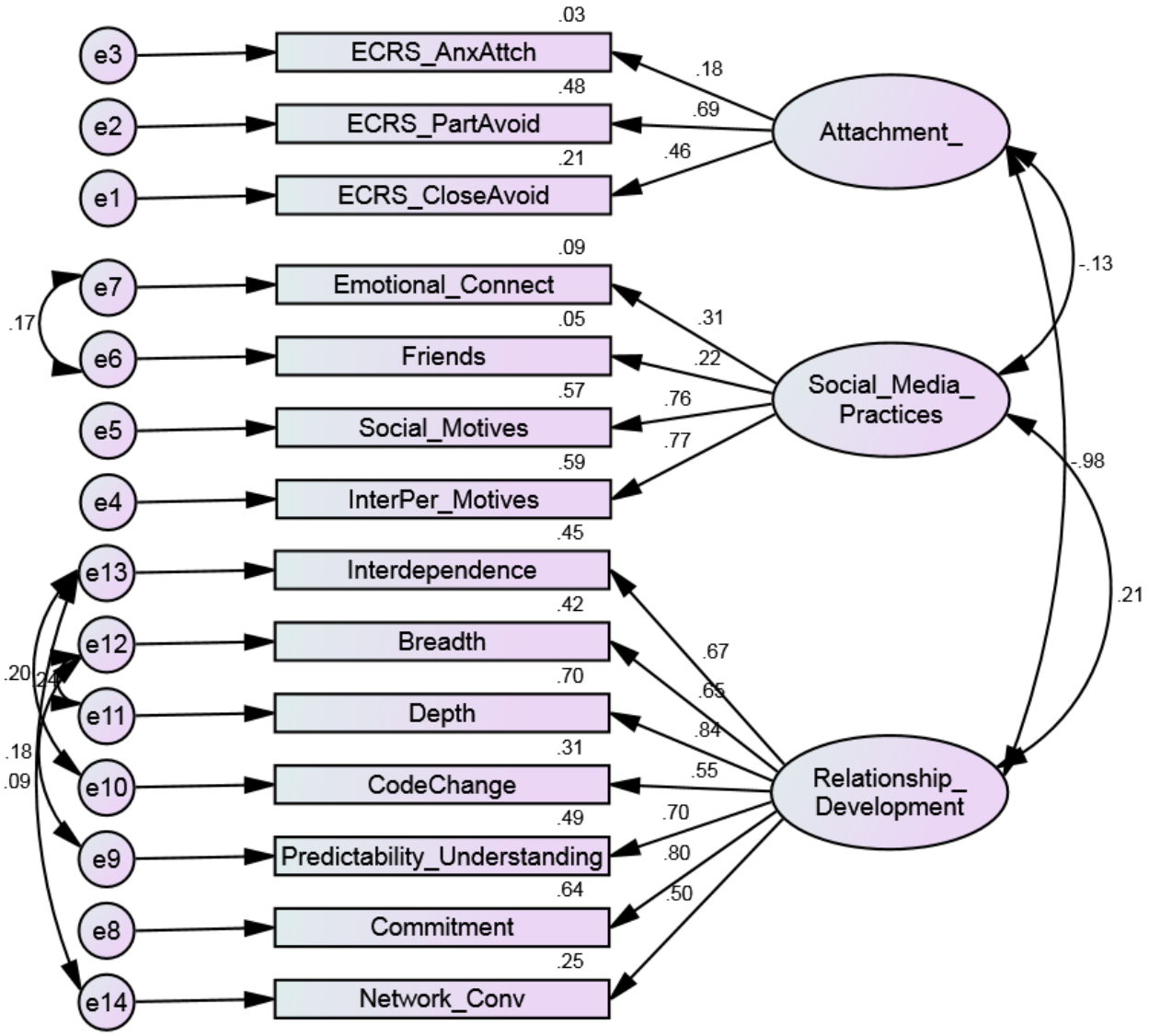

Figure 25 Complete Measurement Model

Primary Research Question Results

Primary Research Question

Do enrolled undergraduate college students' attachment styles (as measured by the ECR-S; [Wei et. al., 2007]) and social media practices (as measured by the FBI [Ellison et al., 2007]

and the MGFBO [Fox & Warber, 2013]) contribute to their quality of their relationship development (as measured by the PRDS [Parks & Roberts, 1998])?

Research Hypothesis

The research hypothesis tested in this investigation was: The influence of college students' attachment styles (as measured by the ECR-S; Wei et al., 2007)] on their relationship development (as measured by the PRDS) is partially mediated by their social media practices (as measured by the FBI; Ellison et al., 2007 and the MGFBO; Fox & Warber, 2013). Specifically, the investigation tested the hypothesized directional relationship that young adults' scoring in the insecure attachment range (i.e., avoidant or anxious) with *greater* levels of social media practices had *lower* levels of relationship development quality (see Figure 26).

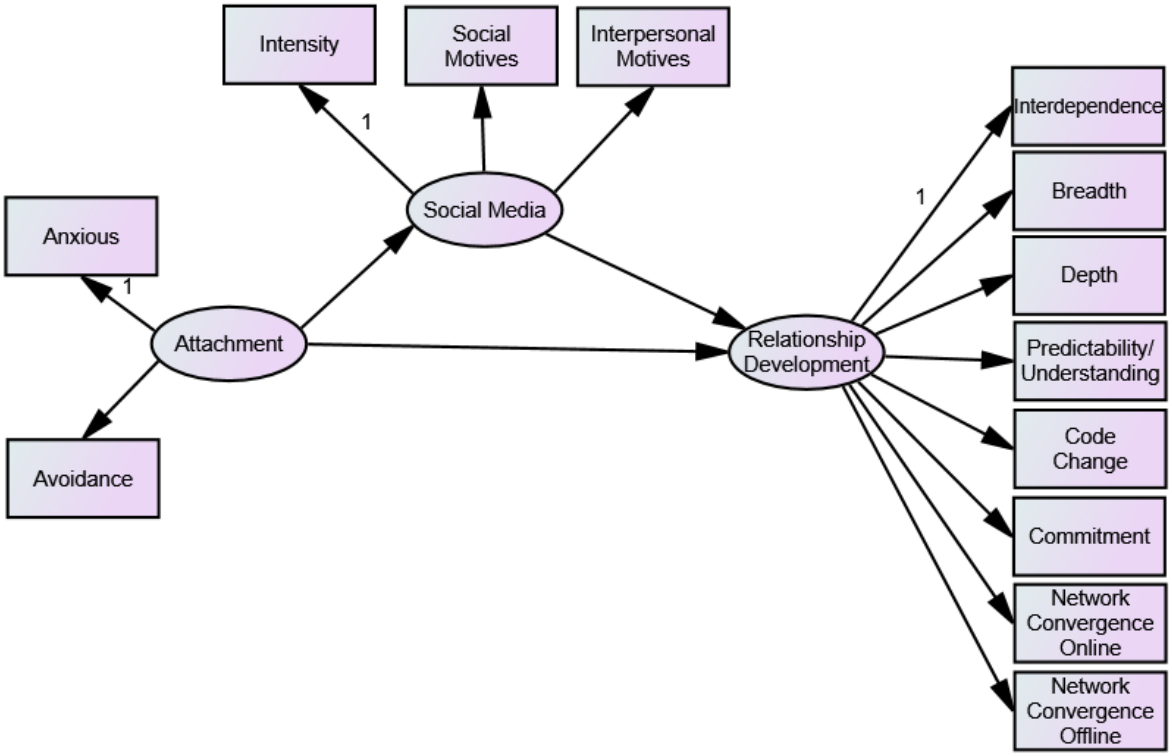

Figure 26: Hypothesized Structural Model with Manifest Variables

To investigate the hypothesis, a structural model was developed (based on the measurement model) and tested. According to the tested model (see Figure 27), attachment style accounts for 3% of the variance for social media practices and in combination with social media practices, attachment style accounts for 99% of the variance in relationship development for these data and was a good model fit. When controlling for social media practices, attachment styles accounted for 95% of the variance in relationship development, and when controlling for attachment style, social media practices accounted for 5% of the variance in relationship. The structural model produced a chi-square of 256.794 (df = 67, χ^2 ratio = 3.833, p < .001) and root mean square error of approximation of .063 with these data. All other SEM fit indices indicated a

good model fit with GFI = .950, CFI = .940, and TLI = .919 with these data. The relationship between attachment style and social media practices (Standardized coefficient = -.16) and attachment style and relationship development (standardized coefficient was -.98) was negative, suggesting that those who had higher levels of insecure attachment exhibited lower levels of social media practices and relationship development quality. Furthermore, the relationship between social media practices and relationship development (standardized coefficient = .06) was positive, suggesting that college students with greater social media practices had higher quality of relationship development. Therefore, the research hypothesis the college students' social media practices partially mediated the relationship between their attachment styles and relationship development was *not* accepted.

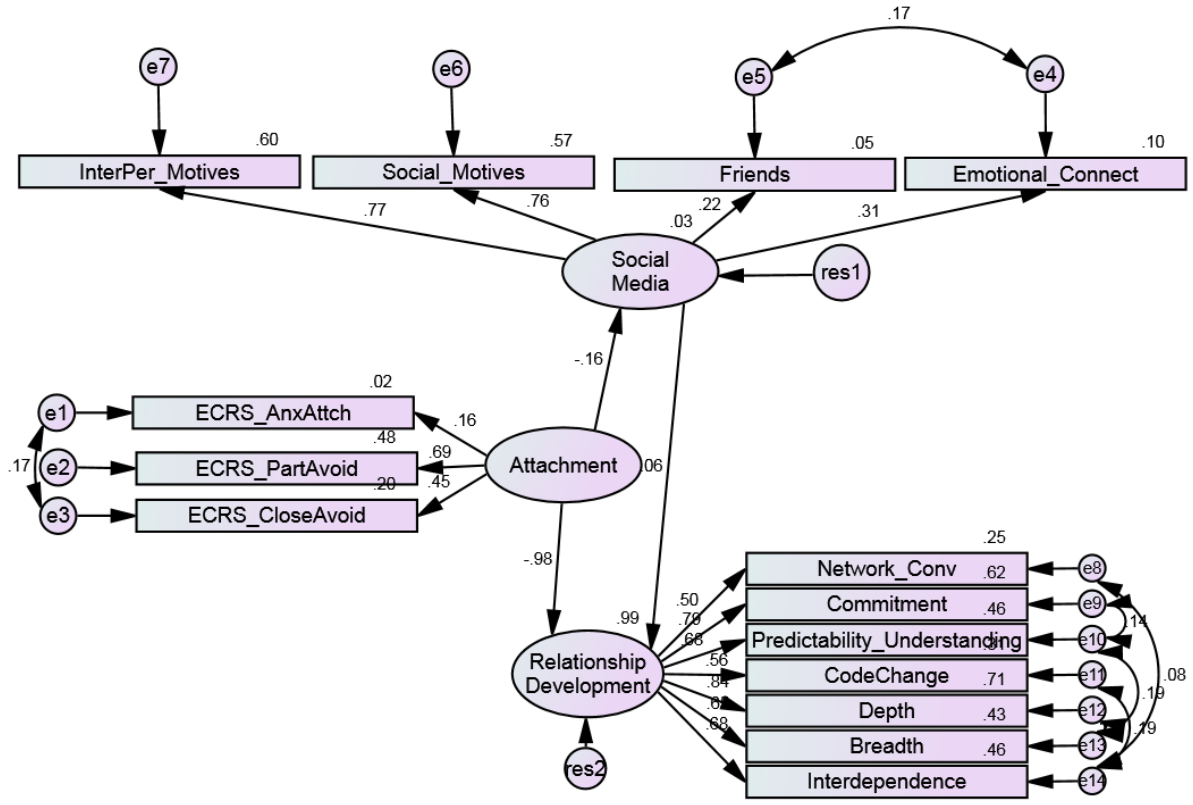

Figure 27: Respecified Structural Model

The results of this study were consistent with previous studies focused on attachment styles and intimate relationships. Hazan and Shaver (1987), Feeny and Noller (1990), Levy and Davis (1988), and Simpson (1990) identified that individuals' perceptions of their relationships were related to their attachment styles. Individuals with secure attachment report higher levels of satisfaction, intimacy, trust, and commitment in their relationships, whereas individuals with avoidant attachment report lower levels of these characteristics. Moreover, individuals with

anxious attachment report less satisfaction and more conflict and ambivalence. Pistole (1989) examined the attachment styles of 137 undergraduate students as they relate to relationship satisfaction and identified that secure individuals (M = 38.81) reported a higher level of relationship satisfaction than those in both the anxious (M = 33.00; Newman-Keul = 4.55, $p < 0.05$) and the avoidant (M = 34.28) groups (Newman-Keul= 3.89, $p < 0.05$). Furthermore, the securely attached individuals (M = 17.61) exhibited a higher level of cohesion than the anxious (M =15.66) attached participants (Newman-Keul = 3.49, $p < 0.05$). Computed effect sizes for satisfaction were 0.17 and 0.05 for cohesion (Pistole, 1989).

Davis, Kirkpatrick, Levy, and O'Hearn (1994) examined attachment styles as they relate to the relationship development process of 354 couples. Specifically, they examined partner pairing, relationship satisfaction, and relationship stability; their results identified that certain pairings of attachment styles; specifically, anxious-anxious and avoidant-avoidant, were unlikely to exist among partners who consider themselves in a serious relationship. Davis and colleagues report that partners in these pairings either: (a) are *not* initially attracted to each other; or (b) begin dating but are unsatisfied with one another early on, leading to a quick termination of the relationship. The couples who identified themselves as in a serious dating relationship had attachment styles that were related to satisfaction, commitment, and conflict. Generally, attachment security is associated with greater satisfaction and commitment than insecurity, but they found the specific pattern of effects is conditioned by gender (Davis et al., 1994). Anxious females and avoidant males evidenced the most negative relationship ratings, irrespective of their partners' attachment styles, yet in relation to relationship stability, anxious males and avoidant

females showed the highest breakup rates across time. Therefore, that participants in this study with higher insecure attachment had lower relationship development quality was consistent.

The results from the current study related to attachment styles and social media practices were both consistent and inconsistent with previous findings. Marshall, Bejanyan, DiCastro, and Lee (2013) examined attachment styles as predictors of Facebook-related jealousy and surveillance in romantic relationships among 255 individuals and their results identified that participants with anxious attachment were positively associated with Facebook surveillance (r = .27, p < .05) and that those with avoidant attachment were negatively associated with Facebook surveillance (r = -.28, p < .05); therefore, the participants with an anxious attachment checked Facebook more often. Within the current study, those with anxious attachment were positively associated with Facebook Intensity (r = .174, r^2 = .03, p < .001), while those with avoidant attachment were also positively associated with Facebook Intensity, (r = .154, r^2 = .024, p < .001). In addition, Jenkins-Guarnieri, Wright, and Hudiburgh (2012) examined the relationships among emerging adults' (N = 463) attachment styles, personality traits, interpersonal competency, and Facebook use and their results identified that there was *not* a relationship between Facebook use (as measured by the *Facebook Intensity Scale*) and attachment style. The results of the current study differ from the results of Jenkins-Guarnieri and colleagues as relationships were found between Facebook Intensity and insecure attachment (Anxious: r = .174, r^2 = .03, p < .001; Avoidant: r = .154, r^2 = .024, p < .001). Although both identified relationships were statistically significant, Anxious Attachment recorded a higher beta value (*beta* = .138, p < .001) than Avoidant Attachment (*beta* = .108, p < .05).

The results from the current study related to social media practices and relationship development were both consistent and inconsistent with previous findings. Fox and Warber (2013) examined emerging adults' perceptions, motives, and behaviors on Facebook and reported *no* differences between men and women for interpersonal motives (t [401] = .87, p > .05) or social motives (t [401] = 1.03, p > .05). Within the current study, *no* differences were identified between men, women, transgender, or self-identified participants and their interpersonal motives (F [3, 714] = .099, p > .05) or their social motives (F [3, 714] = .916, p > .05). Fox and Warber reported that within their sample (N = 403) of emerging adults, differences existed between males and females in three areas: (1) Going FBO means a relationship is exclusive and that partners are *not* dating other people (t [400] = 3.68, p < .05, Cohen's d = 0.37), (2) FBO represented a serious step in the relationship that indicated long-term stability (t [401] = 1.96, p < .05, Cohen's d = .20), and (3) Going FBO was a social act that would garner attention both online and offline (t [401] = 2.46, p < .05, Cohen's d = 0.25). Within the current study, differences were identified between reported gender and the importance of becoming Facebook friends with someone you are romantically involved with (F [3, 714] = 2.68, p < .05). Post-hoc tests using the Tukey HSD test identified that there was a difference between males (M = 2.90, SD = 1.36) and females (M = 3.26, SD = 1.35); however, the effect size was small (.02; Cohen, 1988). Differences were also identified between reported gender and the importance of getting to know a significant other through the use of social media, like Facebook (F [3, 714] = .916, p < .05). Post-hoc tests using the Tukey HSD test identified that there was a difference between males (M = 2.29, SD = 1.11) and females (M = 3.67, SD = 1.15); however, the effect size was small (eta squared = .01; Cohen, 1988). However, in contrast to Fox and Warber's

results, there was *not* a difference between self-reported gender and the importance of updating your relationship status to “In a relationship,” with these data.

Yum and Kara (2006) examined the relationship development of college students (*N* = 361) over the internet in three cultures: Korea, Japan, and the United States and found that a combination of breadth and depth (labeled as self-disclosure) across each culture was positively associated with all relationship quality variables except network convergence online. The results of the current study, although small effect sizes, were consistent with these results in that ethnicity correlated with each relationship quality examined. Although no previous research was identified that investigated the relationship between attachment styles, social media practices, and relationship development directly, previous studies with similar samples examining attachment styles, social media practices, and relationship development supported the hypothesis and results of the current study. Nevertheless, the results of the current study should be interpreted with caution due to the low factor loading (< .25) of the indicators of attachment style and social media, suggesting that the indicators are *not* providing sufficient explanation of the data, and that attachment style and social media practices are more likely multidimensional constructs (Kline, 2011). Therefore, replication of the current investigation is warranted with another sample of college students to test the primary research hypothesis.

Post-Hoc Analyses

To further understanding of the hypothesized model and to account for bias, *Facebook Friends* (Items 8 and 9) were removed because of their low factor loadings (.22); however, the researcher chose to retain attachment anxiety despite a low factor loading to maintain the original

identity of insecure attachment. Therefore, the respecified tested model (see Figure 28) indicates that college student attachment (as measured by *Anxious attachment*, *Partner Avoidance*, and *Closeness Avoidance*) contributed to 3% of the variance in college student social media practices (standardized coefficient = -.17) and when controlling for social media practices, attachment styles contributed to 95% of the variance in college student relationship development (standardized coefficient -.98) scores. In combination, attachment style and social media practices contributed to 98% of the variance in relationship development scores (standardized coefficients -.98 and .06, respectively). The hypothesis supported this model and it was a good model fit, producing a chi-square of 226.444 ($df = 56$, χ^2 ratio = 4.04, $p < .001$) and root mean square error of approximation of .063. All other fit indices indicated a good model fit with GFI = .952, CFI = .950, and TLI = .924 with these data. Therefore, based on this model, insecure attachment styles negatively contributed to relationship development quality as well as social media practices, while social media practices positively contribute to relationship development quality.

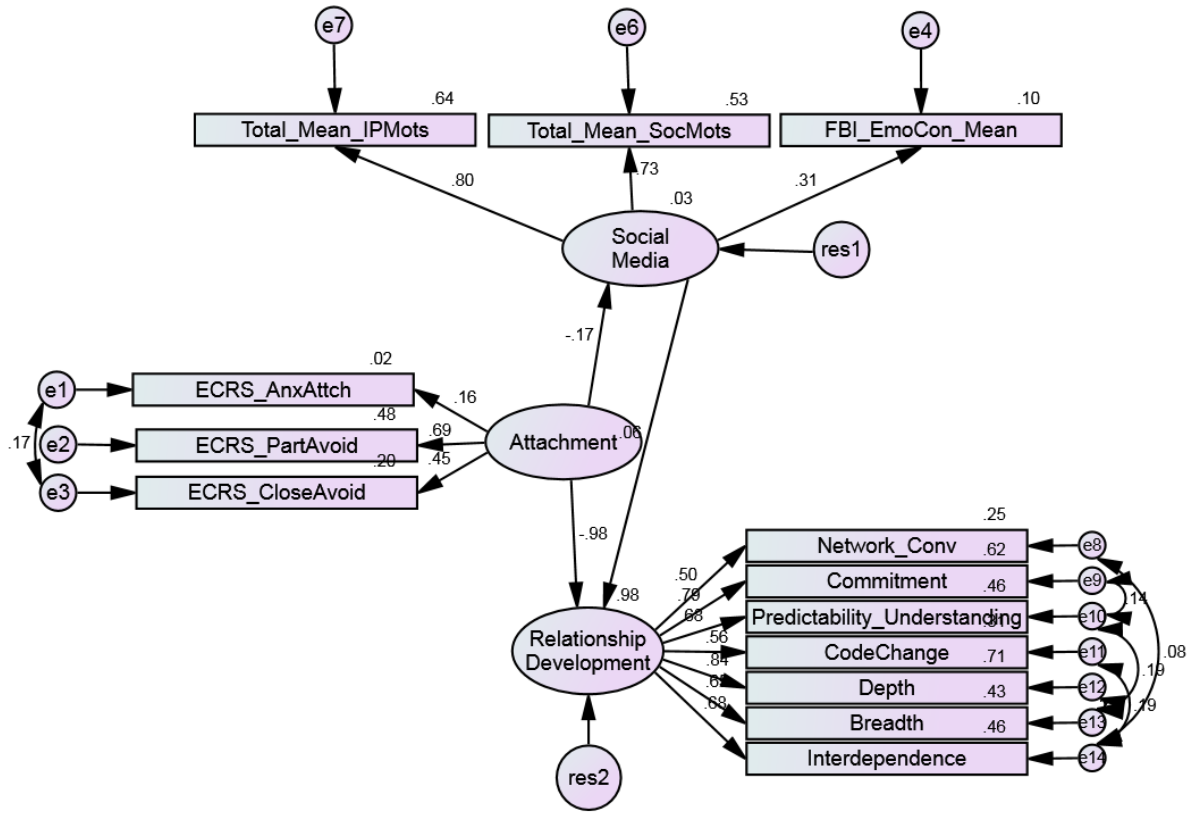

Figure 28: Respecified Structural Model Excluding FBI Friends

Follow –Up Analyses

To address the low factor loadings of the indicators of the original hypothesized model and to investigate equivalent models (Kline, 2011), a new model was specified as a post-hoc analysis. The low factor loadings on *Anxious Attachment* and *Friends* may suggest that that these indicators are multidimensional (Kline, 2011). Therefore, a new specified structural model with the anxious attachment indicator and the Facebook friends indicators removed was tested. The

model fit the data well, producing a chi-square of 152.841 (df = 46, χ^2 ratio = 3.32, $p < .001$) and root mean square error of approximation of .057. All other fit indices indicated a good model fit with GFI = .966, CFI = .965, and TLI = .950 with these data. Attachment style accounted for 3% of the variance in social media practices and attachment style and social media practices in combination accounted for 97% of the variance in relationship development scores.

The model was respecified again, which did *not* include attachment style due to the construct only being measured by Avoidance-related items. The model fit the data well, producing a chi-square of 97.150 (df = 29, χ^2 ratio = 3.35, $p < .001$) and root mean square error of approximation of .054. All other fit indices indicated a good model fit with GFI = .974, CFI = .972, and TLI = .957. Social media practices accounted for 5% of the variance in relationship development scores (standardized coefficient of .22).

Simultaneous multiple linear regression (MLR) analysis was conducted to examine if the mean ECR-S factor scores predicted enrolled college students social media practices (as measured by the FBI and the MGFBO). Overall, the linear composite of the linear predictor variables (ECR-S mean scores) predicted 3.5% (r = .187) of the variance in Emotional Connectedness, F (3,714) = 8.58, $p < .001$; 0.9% of the variance (r = .10) in Friends, F (3,714) = 2.18, $p > .001$; 5.5% (r = .234) of the variance in Social Motives, F (3,714) = 13.75, $p < .001$; and 5.6% of the variance (r = 2.36) of in Interpersonal Motives, F (3, 714) = 14.02, $p < .001$. A MLR was conducted to examine if the factors on the ECR-S mean scores predicted enrolled college students' relationship development (as measured by the PRDS). Overall, the linear composite of the linear predictor variables (ECR-S mean scores) predicted 27.9% (r = .528) of

the variance in Interdependence, F (3, 714) = 91.92, $p < .001$; 23.4% ($r = .484$) of the variance in Breadth, F (3, 714) = 72.55, $p < .001$; 38.5% ($r = .621$) of the variance in Depth, F (3,714) = 149.07, $p < .001$; 13.3% ($r = .365$) of the variance in Code Change, F (3,714) = 36.51, $p < .001$; 25.6% ($r = .506$) of the variance in Predictability/Understanding, F (3,714) = 81.67, $p < .001$; 34.8% ($r = .590$) of the variance in Commitment, F (3,714) = 126.74, $p < .001$; and 11.9% ($r = .344$) of the variance in Network Convergence, F (3,714) = 31.95, $p < .001$.

Simultaneous MLR analysis was conducted to examine if the factors on the FBI scores, as well as the MGFBO scores, predicted enrolled college students' relationship development (as measured by the PRDS). Overall, the linear composite of the linear predictor variables (*Emotional Connectedness, Social Motives,* and *Interpersonal Motives* scores) predicted 6.7% ($r = .259$) of the variance in Interdependence, F (3,714) = 12.78, $p < .001$; .5% ($r = .074$) of the variance in Breadth, F (3,714) = .1.151, $p > .05$; 2.2% ($r = .150$) of the variance in Depth, F (3,714) = 5.47, $p < .001$; 2.9% ($r = .170$) of the variance in Code Change, F (3,714) = 7.11, $p < .001$; 0.6% ($r = .077$) of the variance in Predictability/Understanding, F (3,714) = 1.403, $p > .05$; 1.4% ($r = .120$) of the variance in Commitment, F (3,714) = 3.447, $p < .05$; and 6.6% ($r = .257$) of the variance in Network Convergence, F (3,714) = 16.821, $p < .001$. However, among predictor variables, *Anxious Attachment* had the highest beta value (beta = .264, $p < .001$) for Social Motives and Interpersonal Motives (beta = .207, $p < .001$). Only *Interpersonal Motives* had significant beta coefficients for all seven dimensions of relationship development, and *Anxiety* had significant beta weights for all dimensions of Social Media Practices, except Friends.

Summary of Results of the Hypothesis

Overall, the results of the data analyses procedures supported that college students with higher levels of insecure attachment have lower levels of relationship development, yet the results do *not* support that college students with higher levels of social media practices had lower levels of relationship development. However, the model respecification process allowed a thorough examination of what dimensions of attachment and social media practices were contributing to participants' relationship development. The findings of this study identified that three dimensions of *attachment styles*: (1) *Anxious Attachment*, (2) *Partner Avoidance*, and (3) *Closeness Avoidance* contributed to all dimensions of *Social Media Practices* (3.5% of the variance in *Emotional Connectedness*; 5.5% of the variance in *Social Motives*; and 5.6% of the variance in *Interpersonal Motives*) and all dimensions of *Relationship Development* (27.9% of the variance in *Interdependence*; 23.4% of the variance in *Breadth*; 38.5% of the variance in *Depth*; 13.3% of the variance in *Code Change*; 25.6% of the variance in *Predictability/Understanding*; 34.8% of the variance in *Commitment*; and 11.9% of the variance in *Network Convergence*). Furthermore, the three dimensions of *Social Media Practices* (*Emotional Connectedness*, *Social Motives*, and *Interpersonal Motives*) contributed to the seven dimensions of *Relationship Development* (.7% of the variance in *Interdependence*; .5% of the variance in *Breadth*; 2.2% of the variance in *Depth*; 2.9% of the variance in *Code Change*; and 6.6% of the variance in *Network Convergence*). Nevertheless, when the *Friends* factor was removed from the respecified model and when analyzed individually, accounted for between only 0 - .3% of the variance of the dimensions of relationship development. Therefore, the findings with these data identified that social media practices contributed more than the number

of Facebook friends and actual friends to college students' relationship development, which was consistent with previous research (Ellison et al., 2011).

Exploratory Questions' Results

Exploratory Research Question 1

Is there a statistically significant relationship between emerging adults' attachment styles (as measured by the factor scores of the ECR-S; Wei et al., 2007) and their reported demographic variables (e.g., gender, age, ethnicity, year in college, geographic location, relationship status, sexual orientation, etc.)?

The relationship between enrolled college students' attachment (as measured by the ECR-S; Wei et al., 2007) and their demographic variables was investigated using a Pearson correlation. The analyses were conducted with all of the ECR-S factor scores; therefore, the items that were removed for the SEM were put back into the total scores to ensure that all of the factors were being accounted. The analyses supported the results and the significant relationships are presented in Table 28.

Table 28: Significant Correlations between Attachment Styles and Demographic Variables

Attachment:	Age	Ethnicity	College Year	Relationship Status	Quality of Intimate Relationships over the Past Three Years	The importance of becoming Facebook friends with someone they are romantically involved	The importance of getting to know a significant other through the use of social media, like Facebook	The importance of updating their relationship status on Facebook to "In a relationship"	The importance of their internet reputation or reputation on Facebook
Anxious: *r* = Variance =	-.100 1.0%	*NS*	-.095 0.9%	-.144 2.1%	-.194 3.8%	.146 2.1%	.143 2.0%	.136 1.9%	.137 1.9%
Avoidant: *r* = Variance =	*NS*	-.081 .66%	-.139 2.0%	.293 8.6%	-.408 16.6%	-.118 1.4%	*NS*	-.152 2.3%	*NS*

Few published studies were identified that examined college students' attachment styles and how they relate to their demographic characteristics. Drouin and Ladngraff (2012) examined texting, sexting, and attachment among college students' romantic relationships and reported that there was *no* difference between gender and anxious attachment; however, men (M = 2.58, SD = 1.19) scored higher (t [744] = 3.55, $p < .001$) in avoidant attachment than women (M = 2.25, SD = 1.17). Similarly, Bartholomew and Horowitz (1991) reported that female participants (M = 3.10, t [75] = 2.88, $p <.001$) received higher scores on the preoccupied rating, which aligns with anxious attachment, than males (M = 2.00). Male participants (M = 4.01, t [75] = 2.70, $p < .001$) received higher scores that females (M = 3.10) on the dismissing rating, which aligns with avoidant attachment. The results of the current study align with previous research in that there was *not* a difference between gender in anxious attachment; yet differ from previous research in that females (M = 4.42, SD = .746; F [717] = 6.603, $p < .001$) scored higher than males (M = 4.16, SD = .800) in avoidant attachment. Morey and colleagues (2013) reported that age was positively correlated with avoidance (r [279] = .19, p = .001); however, the results of the current study were inconsistent with these findings as age was negatively correlated with anxiety (r (717) = .10, $p <.05$).

Although there were relationships between the dimensions of attachment style (as measured by the ECR-S), the strength of the relationships were small, signifying limited practical significance. However, a moderate, negative correlation between the quality of participants' intimate relationships over the past three years and increased avoidant attachment (16.6% of the variance), as well as a small, negative correlation was identified between the quality of participants of intimate relationships over the past three years and increased anxious

attachment (3.8% of the variance). Moreover, the importance of becoming FB friends with someone participants were romantically involved had a positive correlation for those with Anxious attachment (2.1% of the variance) and a negative correlation for those with Avoidant attachment (1.4% of the variance), as did the importance of updating one's relationship status on Facebook to "In a relationship" (1.9% of the variance for Anxious attachment and 2.3% of the variance for Avoidant attachment).

Exploratory Research Question 2

Is there a statistically significant relationship between emerging adults' social media practices (as measured by the scores of the FBI [Ellison et al., 2007] and MGFBO [Fox & Warber, 2013]) and their reported demographic variables (e.g., gender, age, ethnicity, year in college, geographic location, relationship status, sexual orientation, etc.)?

The relationship between currently enrolled undergraduate students' social media practices (as measured by the FBI; [Ellison et al., 2007] and the *MGFBO* [Fox & Warber, 2013]) and their demographic variables was investigated using Pearson's correlation. The analyses were conducted with all the FBI and MGFBO items; therefore, the FBI and MGFBO items that were removed for the SEM were put back into the total scores to ensure that all of the items were accounted for. The results are presented in Table 29.

Table 29: Correlations between Social Media Practices and Demographics

Social Media Practices	Age	Ethni-city	College Location	College Year	Relationship Status	# of Years having a FB account	The importance of becoming Facebook friends with someone they are romantically involved	The importance of getting to know a significant other through the use of social media, like Facebook	The importance of updating their relationship status on Facebook to "in a relationship"	The importance of their internet reputation or reputation on Facebook
<u>FB Intensity</u> *r* = Variance =	-.105 1.1%	.092 .85%	*NS*	*NS*	-.134 1.8%	.232 5.4%	415 17.2%	.365 13.3%	.341 11.6%	.340 11.6%
<u>Social Motives</u> *r* = Variance =	-.182 3.3%	*NS*	*NS*	-.138 1.9%	-.163 2.7%	*NS*	.242 5.1%	.223 5.0%	.366 13.4%	.126 1.6%
<u>Interpersonal Motives</u> *r* = Variance =	-.105 1.1%	*NS*	.103 1.1%	*NS*	*NS*	*NS*	.341 11.6%	.257 6.6%	.447 20.0%	.164 2.7%

Few published studies were identified that examined college students' social media practices and how they relate to their demographic characteristics. Fox and Warber (2013) studied the relationship development of college students (N = 401) in the age of Facebook and reported that *no* differences emerged between men and women for interpersonal motives (t [401] = 0.87, $p > .05$) or social motives (t [401] = 1.03, $p > .05$]. The results of the current study were consistent with these findings, as *no* differences were identified between genders for interpersonal motives (F [714, 3] = .099, $p > .05$) or social motives (F [714, 3] = .493, $p > .05$). Furthermore, Fox and Warber reported that females (M = 4.49, SD = 0.64) were more likely than men (M = 4.24, SD = 0.64) to endorse the idea that going FBO means a relationship is exclusive and that partners are *not* dating other people (t [400] = 3.68, $p < .001$, Cohen's d = 0.37), while women (M = 3.57, SD = 0.68) were also more likely than men (M = 3.42, SD = 0.70) to believe that FBO represented a serious step in the relationship that indicated long-term stability (t [401] = 1.96, $p < .05$, Cohen's d = 0.20). The results of the current study were inconsistent with Fox and Warber's results, as there was *no* difference between genders on the importance on updating one's relationship status to "In a relationship", or FBO with these data.

Elphinston and Noller (2011) examined Facebook intrusion of college students (N = 342) and reported that individuals who more highly involved with Facebook may have more relationship difficulties (F [5, 287] = 6.55, $p < 0.001$, *beta* = -.20). The results of the current study were inconsistent with these results, as a negative correlation was identified between Facebook Intensity and the quality of participants' intimate relationships over the past three years; however, mean differences between the scores were *not* identified (F [1, 716] = .044, $p >$

.05, *beta* = -.008). Therefore, the current study did *not* identify that participants with greater Facebook usage had greater relationship difficulties.

Exploratory Research Question 3

Is there a statistically significant relationship between emerging adults' relationship development (as measured by the scores of the PRDS [Parks & Roberts, 1998]) and their reported demographic variables (e.g., gender, age, ethnicity, year in college, geographic location, relationship status, sexual preference, etc.)?

The relationship between currently enrolled undergraduate students' relationship development (as measured by the PRDS*;* Parks & Roberts, 1998) and their demographic variables was investigated using Pearson's correlation. The analyses were conducted with all of the factors from the PRDS; therefore, the items that were removed for the SEM were put back into the total scores to ensure that all of the items were being accounted. The significant correlations are presented in Table 30.

Table 30: Correlations between Relationship Development and Demographics

Relationship Develop-ment	Age	Gen-der	Ethnic-ity	Year in Col-lege	Relation-ship Status	# of Years having a FB ac-count	The quality of the partici-pants' intimate relation-ships over the past three years	The importance of becoming Facebook friends with someone they are romantic-ally involved	The impor-tance of getting to know a significant other through the use of social media, like Facebook	The importance of updating their relationship status on Facebook to "In a relationship"	The importance of participants' internet reputation or reputation on Facebook
Inter-Dependence: *r* = Variance =	*NS*	*NS*	.092 .85%	*NS*	.162 2.6%	*NS*	.270 7.3%	.201 4.0%	*NS*	.158 2.5%	*NS*
Breadth: *r* = Variance =	*NS*	.157 2.5%	.106 1.1%	*NS*	*NS*	.082 .67%	.269 7.2%	.084 .71%	.074 .55%	*NS*	*NS*
Depth: *r* = Variance =	.086 .74%	.117 1.4%	.077 .60%	*NS*	.130 1.7%	.084 .71%	.318 10.1%	.138 1.9%	*NS*	*NS*	*NS*
Code Change: *r* = Variance =	-.075 .56%	*NS*	.074 .55%	*NS*	.087 .76%	*NS*	.260 6.8%	.099 .98%	*NS*	.088 .77%	*NS*
Predictability/ Understanding: *r* =	*NS*	.128	.122	*NS*	.169	*NS*	.326	*NS*	*NS*	*NS*	-.080

Relationship Develop-ment	Age	Gen-der	Ethnic-ity	Year in Col-lege	Relation-ship Status	# of Years having a FB ac-count	The quality of the partici-pants' intimate relation-ships over the past three years	The importance of becoming Facebook friends with someone they are romantic-ally involved	The impor-tance of getting to know a significant other through the use of social media, like Facebook	The importance of updating their relationship status on Facebook to "In a relationship"	The importance of participants' internet reputation or reputation on Facebook
Variance =		1.6%	1.5%		2.9%		10.6%				.64%
<u>Commitment:</u> *r* = Variance =	*NS*	.159 2.5%	.075 .56%	*NS*	.178 3.2%	*NS*	.364 13.2%	.170 2.9%	*NS*	.113 1.3%	*NS*
<u>Network Convergence Online:</u> *r* = Variance =	-.095 .90%	*NS*	.127 1.6%	-.112 1.3%	*NS*	*NS*	.088 .77%	.180 3.2%	.108 1.2%	.143 2.0%	.120 1.4%
<u>Network Convergence Offline:</u> *r* = Variance =	*NS*	*NS*	-.087 .76%	*NS*	.136 1.8%	*NS*	.313 9.8%	.164 2.7%	*NS*	.174 3.0%	*NS*

Few published studies were identified that examined college students' relationship development and how they relate to their demographic characteristics. Yum and Hara (2006) examined computer-mediated relationship development of college students (N = 361) across three cultures; Japanese, American, and South Korean. The authors were interested in examining self-disclosure as it relates to the dimensions of relationship development as measured by the PRDS (Parks & Roberts, 1998), so they chose to combine Breadth and Depth and renamed the combined variable Self-Disclosure. Yum and Hara results identified relationships between self-disclosure and commitment (r = 0.68, p < .01); and self-disclosure and code change (r = 0.64, p < .01) across all cultures which was consistent with the current study findings, as all dimensions of relationship development related to ethnicity; interdependence: r = 0.92, p < .05; breadth: r = 0.106, p < .001; depth: r = 0.077, p < .05; code change: r = 0.074, p < .05; predictability/understanding: r = .122, p < .001; commitment: r = 0.075, p < .05; network convergence online: r = .127, p < .001; and network convergence offline: r = .137, p < .001.

Solomon and Theiss (2008) examined romantic relationship development among emerging adults (N = 315). Although using different measures, the authors reported *no* differences between males and females in their measure of relationship development. The results of the current study are inconsistent with Solomon and Theiss's results, as there were differences identified between males (M = 5.60, SD = 1.06) and females (M = 5.98, SD = .983) in breadth (F [3, 714] = 8.00, p < .001, Cohen's d = .03), between males (M = 5.59, SD = 1.11) and females (M = 5.91, SD = 1.00) in depth (F [3, 714] = 5.61, p < .001, Cohen's d = .02), between males (M = 5.52, SD = 1.13) and females (M = 5.83, SD = 1.00) in predictability/understanding (F [3, 714] = 4.65, p < .05, Cohen's d = .02), and between males (M = 5.55, SD = 1.27) and females (M =

6.01, *SD* = 1.07) in commitment (F [3, 714] = 8.61, $p < .001$, Cohen's $d = .03$). No differences were identified between males and transgender participants or males and participants who self-identified, nor females and transgender participants or females and those participants who self-identified.

In summary, the results of this study were primarily consistent with previous studies focused on attachment styles and intimate relationships (Davis et al., 1994; Pistole, 1989). Specifically, as insecure attachment increases, intimate relationship development quality decreases (large effect size). In addition, the results of the study were consistent with previous research identifying positive relationships between insecure attachment styles and social media usage (small effect size; Marshall et al., 2013). Furthermore, the results of the study were consistent with previous research on social media and relationship development (small effect size; Fox & Warber, 2013). Finally, relationships were identified between gender and Facebook practices. Specifically, females and males differed in the following areas: (a) the importance of becoming Facebook friends with someone they are romantically involved with, and (b) the importance of getting to know a significant other through the use of Facebook. The theoretical model was supported with these data.

Limitations of the Study

The results of this study should be interpreted while considering the explained limitations.

Research Design Limitations

Efforts were made to limit threats to construct, internal, and external validity within this descriptive, correlational research study; however, not all threats could be mitigated. A threat to internal validity for this study was *characteristic correlations* (Frankel et al., 2012), which suggests that a correlation between variables is *not* explained by the specific constructs, being studied, but because of other characteristics of a participant. The research design did *not* establish a way to specifically include participants who had limited relationship experience or high levels of insecure attachment. Furthermore, correlational research does *not* imply causality.

Sampling Limitations

A primary limitation for the present study was the low overall response rate (10.1%) compared to previous studies (Ellison et al., 2007; Junco, 2012; Lampe, Wohn, Vitak, Ellison, & Wash, 2011; Pike, 2008). An effort was made to follow Dillman's (2000) *Tailored Design* method and an incentive was provided to increase the response rate. In addition, participants all attended universities in the southern United States, suggesting that the results may *not* be generalized with college students in other areas of the country.

In addition, self-selection bias refers to the individuals who choose *not* to participate in the study who may have characteristics that may be different and significant from those who do participate, which means that is cannot be generalizable. Self-selection bias is a significant threat to validity for the current study because of the specific constructs being studied. Specifically, college students who have *not* had experience with intimate relationships, or college students with high levels of avoidant attachment may have elected *not* to participate and those who have

had more experience with intimate relationships or who are more secure in their attachment may be likely to participate; therefore, there is potential for limited variance within the collected data.

Another limitation of this study is that there is limited variance between the constructs of Attachment and Social Media Practices, as well as between Social Media Practices and Relationship Development. The lack of variance identified may suggest that college students who are more securely attached are more likely to complete surveys regarding their romantic relationships or that college students who have greater social media practices are more likely to complete an online survey. Lastly, sampling bias is a limitation to the current study as random sampling was *not* conducted.

Instrumentation Limitations

The primary limitation regarding instrumentation was the ECR-S and the FBI. The FBI is a new instrument and its psychometric properties are still being investigated; however, for the current study, there were low factor loadings on the FBI for these data. The ECR-S also provided some limitation to the current study, as the two-factor measure did *not* fit these data and there was low factor loading on the Anxiety factor for these data. Adding an additional measure of attachment may have been beneficial. Measurement error of the instruments (e.g., difference between the measured value and the true value; Graziano & Raulin, 2004) was accounted for in the data. In addition, participants' answers on one instrument may have influenced how they answered on the other instruments in the study. Furthermore, data collection instruments in this study were all self-report; therefore, there may be bias with participant responses that may influence study results. Caution should be taken when interpreting the results of this study.

Nevertheless, despite these identified limitations, the present study contributed to the current college counseling, counselor education, and instrument development literature.

Recommendations for Future Research

Future research should consider the limitations that were presented in the current study. Efforts should be made to increase response rate to increase generalizability of the results (strengthening external validity). It may be beneficial to conduct data collection in person, using a paper-pencil approach to increase response rate (Dillman, 2000), or conducting a mail-out data collection approach using Dillmans' (2000) *Tailored Design Method*. In addition, a strategy should be developed to recruit participants who have more insecure attachment, or who have lower social media practices to provide more variance of the data.

Future research should include revised versions of the FBI and possibly the ECR-S to ensure sound psychometrics of the measurements. It may be valuable to revise the structural model to account for current dimensions of social media practices, while also using more than one measure of attachment since secure attachment is *not* accounted for in the ECR-S, despite Wei and colleagues (2007) alluding to this possibility. Researchers may consider conducting a qualitative inquiry to gain further understanding of counselor's perceptions of clients' attachment, social media usage, and relationship development. Future research may want to investigate how college counselors are exploring students' social media practices as they relate to their relationship development. Future research may also want to further examine the relationship between attachment, social media practices, and relationship development within the counseling field, and specifically counseling with older adults, and with adolescents.

Implications

The contribution of the findings of the current study to the counseling literature provide: (a) insight into clients' attachment styles as they relate to social media, (b) insight into individuals' attachment styles and relationship development quality, and (c) awareness of the relationship between individuals' social media practices and relationship development quality. The relationship between the constructs of attachment, social media practices, and relationship development are clarified, addressing an identified gap in the counseling literature. Furthermore, assessing college students' attachment, social media practices, and relationship development supports the psychometric properties of the measures used in this study. The implications for college counselors, counselor education, and instrument development are discussed further.

College Counselor Implications

Intimate relationships during the college years influence students' identity, self-concept, and psychological well-being (Simon & Barrett, 2010). Young adults seek companionship, emotional security, love, and physical intimacy from romantic partners, with the ultimate goal for many being that of a finding a long-term mate (Meirer & Allen, 2008). Moreover, college students often seek couples counseling, or counseling assistance for intimate relationship difficulties (Gibbons & Shurts, 2010; Olson, Defrain, & Skolgrand, 2010). Therefore, college counselors should assess clients' attachment styles as they influence students' abilities to develop functional relationships. Attachment styles are powerful contributors to college students' relationship development quality; therefore, college counselors should explore how students' attachment styles manifest into their interpersonal relationships. Exploring attachment styles

would assist clients in the self-awareness process as it relates to the formation of their functional relationships. Furthermore, college students, as the largest consumers of social media, are creating cyber-cultures that may be less understood by older counselors (Akhtar, 2011; Essig, 2012, Zilberstein, 2013). However, Essig warns against the inclination for counselors to formulate negative judgments about social media usage and suggests that such assumptions hinder the understanding of the relevance of technology to modern culture and the positive experiences social media can provide. Therefore, identifying college student attributes that have a causal relationship with their relationship development may be beneficial for college counselors. Based on the current research study, college counselors should inquire about social media practices during psychosocial intakes, as this variable may play a small, yet significant, role in students' abilities to develop functional interpersonal relationships.

Identity exploration, including the development of intimate relationships, is an important activity during emerging adulthood (Arnett, 2004). Moreover, relationship difficulties are the primary reasons individuals seek counseling services (Olson, DeFrain, & Skolgrand, 2010); therefore, college counselors should question students who seek services for relationship struggles about their attachment and their social media practices. Similar to the results of the current study, those who are insecurely attached may experience lower relationship development quality and lower social media practices. Those with greater social media practices may have greater relationship development. Although the identified correlations between attachment styles, social media practices, and relationship development need to be interpreted with caution, it is an important implication for the field of college counseling to recognize the influence these three

constructs have on one another. Furthermore, the exploratory findings of this study provide a rationale for further investigation of college student relationship development.

Counselor Education Implications

Relationship difficulties are the primary reason individuals seek counseling services (Olson et al., 2010); therefore, based on the results of the current study, counselor educators should teach developing counselors about the tenets of attachment style; *not* just how it relates to infants and their caregivers, rather on how attachments styles typically remain constant throughout clients' lives. Furthermore, counselor educators should address how to assess clients' attachment styles, as well as the powerful role of attachment style in potential clients' relationship development. Counselor educators should educate developing counselors on how the influence of attachment styles manifests into clients' lives, specifically within their abilities to develop functional relationships.

Moreover, CACREP (2009) emphasizes that counselors are able to recognize societal trends that may influence clients and their daily functioning. Therefore, counselor educators are responsible for sharing these current societal trends and their implications for counseling with their students. In addition, the findings that increased insecure attachment contributes to decreased social media practices and relationship development quality, while increased social media practices contributes to increased relationship development quality is important for counselor educators to pass along to developing counselors as these findings highlight potential exploration points of client case conceptualizations (Elphinston & Noller, 2010; Mohr, Gelso, & Hill, 2005; Pistole & Watkins, 1995). Furthermore, counselor educators should support

developing counselors by sharing current results indicating that there were relationships between insecure attachment and Facebook usage, with Anxious attachment making a greater contribution to *Facebook Intensity* (*beta* = .138). In addition, counselor educators should consider sharing that differences existed between males and females and the importance of becoming Facebook friends with someone individuals are romantically involved with, with females placing greater importance on the connection. Lastly, counselor educators may consider supporting developing counselors by sharing that there was also a difference between males and females thoughts on the importance of using social media to get to get to know a significant other, with females placing more importance on the act.

Instrument Development Implications

The current study identified and supported different measurement models for the ECR-S, FBI, and PRDS. Specifically, the ECR-S identified three factors, compared to two as identified by Wei and colleagues (2007), while the FBI identified two factors, compared to one as reported by Ellison and colleagues (2007). The PRDS identified seven factors, as opposed to eight as reported by Parks and Roberts (1998). The additional identified factors from this study align with previous research and were theoretically justified; therefore, future researchers should consider the potential for additional factors depending on their sample.

Chapter Summary

Chapter Five reviewed and compared study results from the current investigation with existing research in the field. The results of the study partially support the hypothesized theoretical model; however, they need to be interpreted with caution due to the limitations of the

study (i.e., research design, sampling, instrumentation). In addition, the exploratory results provide a foundation for future research focused on the contribution of social media on individuals' interpersonal relationships. This study contributes to the literature on counseling and counselor education.

APPENDIX A: IRB APPROVAL LETTER

University of Central Florida

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: **Renee Smith Sherrell** and Co-PI: **Deborah Casamassa Beidel**

Date: **September 23, 2013**

Dear Researcher:

On 9/23/2013, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review:	Exempt Determination
Project Title:	The Contribution of Undergraduate College Students' Attachment Style, Social Media Usage, and Relationship Broadcasting on their Relationship Development
Investigator:	Renee Smith Sherrell
IRB Number:	SBE-13-09591
Funding Agency:	
Grant Title:	
Research ID:	N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Patria Davis on 09/23/2013 04:24:32 PM EDT

IRB Coordinator

APPENDIX B: EXPLANATION OF RESEARCH

EXPLANATION OF RESEARCH

Title of Project: The Contribution of Undergraduate College Students' Attachment Style, Social Media Usage, and Relationship Broadcasting on their Relationship Development

Principal Investigator: Renee S. Sherrell

Faculty Supervisor: Glenn W. Lambie

Dear College Student,

You are being invited to take part in a research study. Whether you participate or not is up to you. The purpose of this research investigation is to explore the contribution of undergraduate college students' attachment style, social media usage, and relationship broadcasting on their relationship development. The objective is to identify how these constructs relate and contribute to one another.

If you wish to participate, you will complete a set of questions related to your attachment style, social media usage, relationship broadcasting, and relationship development. Additionally, you will be providing some general demographic information. Any information you provide and your participation in this study is ***confidential***.

To complete this questionnaire should take no longer than 15 minutes.

You must be 18 years of age or older to take part in this research study.

Your participation in this research project is voluntary. You do not have to participate. You do not have to answer any questions that you do not wish to answer. Please be advised that you may choose not to participate in the study, and may withdraw from the study at any time without consequence.

For each completed survey contributed to this study, a one dollar donation to the One Love Foundation will be made. One Love is a college-based organization working towards the prevention of relationship violence among college student. This charity organization aligns with the study's focus on college relationships.

Study contact for questions about the study or to report a problem:

If you have any questions or comments about this research, please contact Renee Sherrell at (321) 795-0074; reneesherrell@knights.ucf.edu, University of Central Florida, College of Education, Counselor Education Program, Orlando, FL.

IRB contact about your rights in the study or to report a complaint: Research at the University of Central

Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). This research has been reviewed and approved by the IRB. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823- 2901.

APPENDIX C: GENERAL DEMOGRAPHICS QUESTIONNAIRE

General Demographics Questionnaire

Directions: Please complete sections A-H by marking the appropriate choice. All responses are confidential.

A. Please enter your gender

☐ Female

☐ Male

☐ Transgender

☐ Self-identify, please describe:

B. What is your age? _____

C. Ethnicity: Please identify your ethnicity by marking the most appropriate box.

☐ African/ African American

☐ Asian/ Asian American

☐ Black

☐ Hispanic

☐ Multiracial

☐ Native-American

☐ Other (please specify): _____

☐

Pacific/Islander

☐ White

D. Where are you in your college schooling?

☐ First Year

☐ Sophomore

☐ Junior

☐ Senior

☐ Other, please explain

E. Where is your college/university located within the United States?

☐ **Northeast** (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont)

☐ **Southeast** (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia)

☐ **Midwest** (Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin)

☐ **West** (Alaska, California, Colorado, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming,)

☐ **Southwest** (Arizona, Hawaii, New Mexico, Oklahoma, Texas)

F. Which of the following best describes the location of your campus?

☐ Urban

☐ Suburban

☐ Rural

G. Relationship Status: Please identify your current relationship status by marking the most appropriate box.

☐ Single

☐ Seeing someone/ more than one person

☐ In a committed (exclusive) relationship

☐ Engaged

☐ Married/Partnered

☐ Divorced

☐ Separated

☐ Other, Please explain

J. Which of the following most accurately describes how you identify your sexual orientation?

☐ **Lesbian, gay, or homosexual**

☐ **Straight or heterosexual**

☐ **Bisexual**

☐ **Something Else, please explain**

☐ **Uncertain**

K. Do you currently have an active Facebook account?

☐ Yes

☐ No

L. How many years have you had a Facebook account? _____

M. Please respond to each statement by using the following rating scales:

1. The quality of your intimate relationships over the past three years.				
Very Poor	Poor	Satisfactory	Strong	Very Strong
2. Importance of becoming Facebook friends with someone who you are romantically involved.				
Not at all Important	Low Importance	Slightly Important	Important	Very Important
3. Importance of getting to know a significant other through the use of social media, such as Facebook.				
Not at all Important	Low Importance	Slightly Important	Important	Very Important
4. Importance of updating your relationship status on Facebook to "In a relationship."				
Not at all Important	Low Importance	Slightly Important	Important	Very Important
5. Importance of your internet reputation or reputation on Facebook.				
Not at all	Low Importance	Slightly	Important	Very Important

Important		Important		

APPENDIX D: RECRUITMENT EMAIL

From: Renee S. Sherrell [reneesherrell@knights.ucf.edu] (through Qualtics)

To: recipient

Subject: Initial Request for Participation in a Research

[DATE}

Dear College Student:

I am writing to request your assistance with a significant study being conducted at the University of Central Florida to understand the contribution of undergraduate college students' attachment styles, social media usage,, and relationship development.

This study aims to develop an accurate understanding of these unique constructs and their relationships. Therefore, I need to survey a diverse set of currently enrolled undergraduate students to get their input. You provided your address to help in this study after hearing an in-class explanation of the research, from another student, or from seeing a flyer on campus. As a college student, you were selected as a potential participant for this investigation. The

requirements to participate in this study include: (a) being 18 years old, (b) having undergraduate student status, and (c) having a Facebook account.

Your participation in responses to this survey is very important and will help contribute to a growing body of research on factors that influence young adults' relationship development. As a part of this study, I am looking for your individual responses to the four instruments and demographics form. Your input is an integral part of this research.

Additionally, as a sign of appreciation, for every completed survey, I will donate one dollar to the One Love Foundation.

This is a short questionnaire and should take you 15 minutes to complete. Please click the link below to go to the survey website (or copy and paste the survey link into your internet browser) and then enter the personal access code to begin the survey.

Survey Link: [XXXX]

Personal Access Code: [XXXX]

Your participation in this survey is voluntary and all of your responses will be confidential. The access code is used to remove you from the list one you have completed the survey. No personally identifiable information will be associated with your responses in any reposts of this data. Should you have any questions or comments, please feel free to contact me at reneesherrell@knights.ucf.edu or 321-795-0074. This study has been reviewed and approved by the University of Central Florida Institutional Review Board, and if you have any questions about your rights as a participant in this study, you may contact them by telephone at 407-823-2901.

I appreciate your time and consideration in completing the survey. It is only through the help of participants like you that I can provide information to help guide the development of research regarding the counseling profession.

Many Thanks!

Renee S. Sherrell

Principal Investigator

University of Central Florida

College of Education

4000 Central Florida Blvd.

Orlando, FL 32816

APPENDIX E: REMINDER EMAIL

From: Renee S. Sherrell [reneesherrell@knights.ucf.edu] (through Qualtics)

To: recipient

Subject: Research Survey on College Student Attachment Styles, Social Media and Relationships

[DATE]

Dear College Student:

We recently asked for your participation in a survey that we are conducting with currently enrolled undergraduate students. We are asking participants to complete a set of online questionnaires concerning attachment styles, social media usage, and relationship development.

This is a short set of questionnaires and should take you 15 minutes to complete. If you have already completed this survey, we appreciate your participation! If you have not responded to this survey, we encourage you to take a few minutes and complete the survey.

Don’t forget, for every completed survey I will donate a dollar to the One Love Foundation!

Please click the link below to go to the survey website (or copy and paste the survey link into your internet browser) and then enter the personal access code to begin the survey.

Survey Link: [XXXX]

Personal Access Code: [XXXX]

Your response is important and your answers are confidential. Getting direct input from practicing counselors regarding this topic will help guide the development of research on this topic. Thank you for your assistance in this study!

Much Appreciation,

Renee S. Sherrell

Principal Investigator

University of Central Florida

College of Education

4000 Central Florida Blvd.

Orlando, FL, 32816

APPENDIX F: FINAL REMINDER EMAIL

From: Renee S. Sherrell [reneesherrell@knights.ucf.edu] (through Qualtics)

To: recipient

Subject: Final Request for your Response to a Research Investigation

[DATE]

Dear College Student:

This time of the year can be a busy time and I understand how valuable your time is. I am hoping you may be able to give about 15 minutes or your time to help us collect information pertaining to college students' attachment styles, social media usage, and relationship development.

If you have already completed this survey, I really appreciate your participation. If you have not yet responded, I would like to urge you to complete the questionnaires.

I plan to end this study soon, so I wanted to email all potential participants who have not responded to make sure they had a chance to contribute.

Also, I am making a dollar donation to the One Love Foundation for every survey completed.

Please click the link below to go to the survey website (or copy and paste the survey link into your internet browser) and then enter the personal access code to begin the survey.

Survey Link: [XXXX]

Personal Access Code: [XXXX]

Thank you in advance for completing this survey. Your response is important and confidential.

Sincerely,

Renee S. Sherrell

Principal Investigator

University of Central Florida

College of Education

4000 Central Florida Blvd.

Orlando, FL, 32816

APPENDIX G: THANK YOU EMAIL

From: Renee Sherrell [reneesherrell@knights.ucf.edu]

Sent: date

To: recipient

Subject: Thank You for Your Time

Date

Thank you so much for your time and contribution to my study. Your feedback is very much appreciated. A donation of $1.00 will be made to end relationship violence among college students, because you took the time to complete my survey.

If you have any questions or comments about this research, please contact me (Renee Sherrell, reneesherrell@knights.ucf.edu) or my faculty advisor Dr. Glenn W. Lambie (glenn.lambie@ucf.edu).

Thank you,

Renee S. Sherrell

Doctoral Candidate

University of Central Florida

APPENDIX H: EXPERIENCES IN CLOSE RELATIONSHIPS SHORT FORM

Experiences in Close Relationships Scale-Short Form

Instructions: The following statements concern how you feel in romantic relationships. We are interested in how you generally experience relationships, not just what is happening in a current relationship. Please respond to each statement by indicating how much you agree or disagree with the statement. Circle your answer by using the following rating scale:

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

1. It helps to turn to my romantic partner in times of need.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2. I need a lot of reassurance that I am loved by my partner.	1	2	3	4	5	6	7
3. I want to get close to my partner, but I keep pulling back.	1	2	3	4	5	6	7
4. I find that my partner(s) don't want to get as close as I would like.	1	2	3	4	5	6	7
5. I turn to my partner for many things, including comfort and reassurance.	1	2	3	4	5	6	7
6. My desire to be very close sometimes scares people away.	1	2	3	4	5	6	7

7. I try to avoid getting too close to my partner.	1	2	3	4	5	6	7
8. I do not often worry about being abandoned.	1	2	3	4	5	6	7
9. I usually discuss my problems and concerns with my partner.	1	2	3	4	5	6	7
10. I get frustrated if romantic partners are not available when I need them.	1	2	3	4	5	6	7
11. I am nervous when partners get too close to me.	1	2	3	4	5	6	7
12. I worry that romantic partners won't care about me as much as I care about them.	1	2	3	4	5	6	7

APPENDIX I: FACEBOOK INTENSITY SCALE

Facebook Intensity Scale

Instructions: The following statements reflect individuals' connectedness and use of the social networking site Facebook. Please respond to each statement by indicating how much you agree or disagree with the statement. Circle your answer by using the following rating scale:

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

1. Facebook is a part of my everyday activity.	**1**	**2**	**3**	**4**	**5**
2. I am proud to tell people I am on Facebook.	1	2	3	4	5
3. Facebook has become part of my daily routine.	1	2	3	4	5
4. I feel out of touch when I haven't logged onto Facebook for a while.	1	2	3	4	5
5. I feel I am part of the Facebook community.	1	2	3	4	5
6. I would be sorry if Facebook shut down.	1	2	3	4	5

7. In the past week, on average, approximately how much time PER DAY have you spent actively using Facebook? Please mark next to the most accurate amount.

_____ 1 = 0-14 minutes

_____ 2 = 15-29 minutes

_____ 3 = 30-44 minutes

_____ 4 = 45- 59 minutes

_____ 5 = 1 hour or more

For questions 8 & 9, please use the following scale:

1	2	3	4	5	6
Less than 100	101-200	201-300	301-400	401-500	More than 500

8. Approximately how many Facebook friends do you have?	**1**	**2**	**3**	**4**	**5**	**6**
9. Approximately how many of your TOTAL Facebook friends do you consider actual friends?	1	2	3	4	5	6

APPENDIX J: MOTIVES FOR GOING FACEBOOK OFFICIAL SCALE

Motives for Going Facebook Official

Instructions: The social networking site Facebook offers users the ability to identify oneself as "In a relationship" and actively link one's profile to a romantic partner's, commonly known as going *Facebook official* (FBO). The following statements reflect individuals' motives for going FBO. We are interested in <u>your</u> FBO motives. Please respond to each statement by indicating how much you agree or disagree with the statement as a general reason you update your relationship status to FBO. Circle your answer by using the following rating scale:

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

1. Because they want attention.	**1**	**2**	**3**	**4**	**5**
2. To express their commitment to their romantic partner.	1	2	3	4	5
3. To brag about whom they're in a relationship with.	1	2	3	4	5
4. To let both people in the relationship know that it's serious.	1	2	3	4	5
5. To show others that their partner is taken.	1	2	3	4	5
6. To help define their relationship.	1	2	3	4	5

7. To say, "This person is mine."	1	2	3	4	5
8. Because it's a way to show their partner that they care about them	1	2	3	4	5
9. So that their exes and other people can see they're in a relationship.	1	2	3	4	5
10. To get revenge on others (e.g., exes, jealous people)	1	2	3	4	5
11. Because they need validation of the relationship.	1	2	3	4	5

APPENDIX K: PARKS' RELATIONSHIP DEVELOPMENT SCALE

Parks Relational Development Scale

Instructions: The following statements concern how you feel in developing romantic relationships. We are interested in how you generally develop romantic relationships, not just what is happening in a current relationship. Please respond to each statement by indicating how much you agree or disagree with the statement. Circle your answer by using the following rating scale:

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

1. The two of us depend on one another.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2. Our communication is limited to just a few specific topics.	1	2	3	4	5	6	7
3. I usually tell this person exactly how I feel.	1	2	3	4	5	6	7
4. We have developed the ability to 'read between the lines' of each other's messages to figure out what is really on each other's mind.	1	2	3	4	5	6	7
5. I am very uncertain about what this person is really like.	1	2	3	4	5	6	7
6. I am very committed to maintaining this relationship.	1	2	3	4	5	6	7

7. This person and I do not know any of the same people on Facebook.	1	2	3	4	5	6	7
8. We have introduced (face-to-face or otherwise) each other to each other's work/school associates.	1	2	3	4	5	6	7
9. This person and I have a great deal of effect on each other.	1	2	3	4	5	6	7
10. Our communication ranges over a wide variety of topics.	1	2	3	4	5	6	7
11. I have told this person what I like about her or him.	1	2	3	4	5	6	7
12. The two of us use private signals that communicate in ways outsiders would not understand.	1	2	3	4	5	6	7
13. I can accurately predict how this person will respond to me in most situations.	1	2	3	4	5	6	7
14. This relationship is not very important to me.	1	2	3	4	5	6	7
15. We contact a lot of the same people on Facebook.	1	2	3	4	5	6	7

16. This person and I do not know any of the same people in real-life.	1	2	3	4	5	6	7
17. We often influence each other's feelings toward the issues we're dealing with.	1	2	3	4	5	6	7
18. Once we get started, we move easily from one topic to another.	1	2	3	4	5	6	7
19. I feel I could confide in this person about almost anything.	1	2	3	4	5	6	7
20. We have special nicknames that we just used with each other.	1	2	3	4	5	6	7
21. I can accurately predict what this person's attitudes are.	1	2	3	4	5	6	7
22. I would make a great effort to maintain my relationship with this person.	1	2	3	4	5	6	7
23. We have introduced (face-to-face or otherwise) each other to members of each other's circle of friends and family.	1	2	3	4	5	6	7
24. The two of us have little influence on each other's thoughts.	1	2	3	4	5	6	7
25. I would never tell this person anything intimate or personal about	1	2	3	4	5	6	7

myself.							
26. I can get an idea across to this person with a much shorter message than I would have to use with most people.	1	2	3	4	5	6	7
27. I do not know this person very well.	1	2	3	4	5	6	7
28. I do not expect this relationship to last very long.	1	2	3	4	5	6	7
29. I have told this person things about myself that she or he could not get from any other source.	1	2	3	4	5	6	7

APPENDIX L: ECR-S EMAIL APPROVAL

Wei, Meifen [PSYCH] <wei@iastate.edu>

PLease feel free to use it and post online...

Please see my website for article #20.

http://wei.public.iastate.edu/

From: Renee Sherrell [reneesherrell@knights.ucf.edu]

Sent: Tuesday, June 25, 2013 7:06 AM

To: wei@iastate.edu

Subject: ECR-S

Good morning, Dr. Wei!

I hope this email finds you well. I am writing to ask your permission to use the Experiences in Close Relationships Scale-Short form in my dissertation. I am interested in examining the relationships

between attachment styles, social media usage, and relationship development among college students, and of course I will appropriately cite you and your colleagues.

In addition, if I can use the form, would it be acceptable to you for me to transfer the measure to Qualtrics for ease of distribution? Again, you and your colleagues will be appropriately cited.

Thank you for your time and consideration. Take care!

Renee S. Sherrell, LMHC, NCC

Doctoral Candidate

Counselor Education and Supervision

University of Central Florida

APPENDIX M: MGFBO APPROVAL EMAIL

From: jalisonfox@gmail.com [mailto:jalisonfox@gmail.com] **On Behalf Of** J Fox

Sent: Sunday, June 16, 2013 2:18 PM

To: Renee Sherrell

Subject: Re: Research Question

Hi Renee,

Of course you can use Qualtrics. That's how I originally collected the data--it's so convenient!

Best,

Jesse

On Tue, Jun 11, 2013 at 5:02 PM, Renee Sherrell <reneesherrell@knights.ucf.edu> wrote:

Good afternoon, Dr. Fox-

I hope you are well. I am preparing my dissertation proposal and as of now (it may change slightly) I am looking at examining the relationship between intimate relationship development, Facebook usage, and attachment styles of a sample of a college students (undergraduate). Although it has changed from my previous idea, I would still like to use your Motives for Going Facebook Official scale. I am wondering if it would it be acceptable to you if I transfer the scale to Qualtrex? Of course I will still make the appropriate citation. This would make it easier to send to students, and hopefully increase sample size since I could send it to a larger number of students.

Thanks for your time and consideration. Take care,

Renee

Renee S. Sherrell, LMHC, NCC

Doctoral Candidate

University of Central Florida

Counselor Education & Supervision

APPENDIX N: PRDS APPROVAL EMAIL

From: Malcolm Parks [mailto:macp@u.washington.edu]

Sent: Thursday, June 13, 2013 12:46 PM

To: 'Renee Sherrell'

Subject: RE: Relationship Development survey

I think so – Qualmetrics is simply a platform and, as I understand it, makes no claims on the surveys they host. The survey is still my intellectual property. If that's the case, go ahead.

mp

Malcolm (Mac) Parks

Editor-in-Chief, *Journal of Communication*

Professor of Communication

Department of Communication Box 353740

University of Washington

Seattle, WA 98195

From: Renee Sherrell [mailto:reneesherrell@knights.ucf.edu]

Sent: Thursday, June 13, 2013 8:30 AM

To: Malcolm Parks

Subject: RE: Relationship Development survey

Thank you! I appreciate your fast response, especially over the summer! Is it also approved for me to transfer the scale to Qualtrics?

From: Malcolm Parks [mailto:macp@uw.edu]

Sent: Thursday, June 13, 2013 11:26 AM

To: Renee Sherrell

Subject: Re: Relationship Development survey

Yes, you may use the Parks Relational Development Scale (PRDS), with appreciate attribution. The scale was first published in the 1996 article with Floyd in the reference list. The theory behind it was elaborated in my 2007 book, *Personal Relationships and Personal Networks.*

Sent from my iPad

On Jun 13, 2013, at 6:57 AM, Renee Sherrell <reneesherrell@knights.ucf.edu> wrote:

Good morning, Dr. Parks-

I hope this email finds you well. I am writing to ask for your approval to use your relationship development survey from your article “Making MOO-sic: The development of personal relationships online and a comparison to their offline counterparts”.

I am interested in examining the relationship between students’ Facebook usage, their attachment styles, and their intimate relationship development techniques, and your survey would help me to measure the construct of relationship development. Of course I will share any data I collect on the survey with you, as well as appropriately cite you and Dr. Roberts.

If I am granted your approval, would it be ok with you if I transfer the survey to Qualtrics in order to have students access the survey online (as opposed to paper and pencil)? Again, I will cite you and Dr. Roberts.

I appreciate your consideration, and look forward to hearing from you. Take care,

Renee S. Sherrell, LMHC, NCC

Doctoral Candidate

Counselor Education and Supervision

University of Central Florida

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