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DISSERTATION

EMOTIONAL EXPERIENCE AND ROMANTIC RELATIONSHIP STATUS
IN EMERGING ADULT COLLEGE WOMEN AND MEN

Submitted by

Julie Taylor

Department of Psychology

In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

Colorado State University

Fort Collins, CO

Spring 2009

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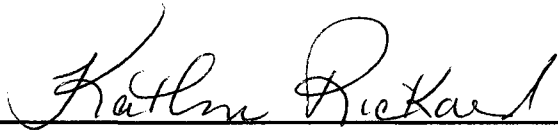
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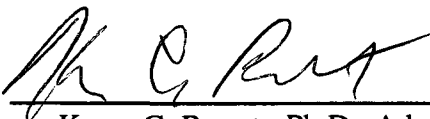
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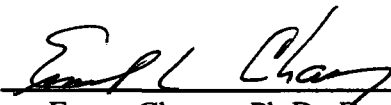
Lise Youngblade, Ph.D.



Silvia Sara Canetto, Ph.D., Co-Adviser



Karen C. Barrett, Ph.D., Adviser



Ernest Chavez, Ph.D., Department Head

ABSTRACT OF DISSERTATION

EMOTIONAL EXPERIENCE AND ROMANTIC RELATIONSHIP STATUS

IN EMERGING ADULT COLLEGE WOMEN AND MEN

The primary goal of the current study was to investigate whether romantic relationship status predicts levels of, and changes in, emerging adults' emotional experience over time. Romantic relationship status has been associated with adolescents' daily emotional experience, in that those in romantic relationships reported more extreme positive and negative emotions. Given that emerging adulthood in contemporary industrialized societies is an emotionally vulnerable time and that romantic relationships become more intimate and important across adolescence through emerging adulthood, it stands to reason that emerging adults' daily emotional experience may be influenced by their romantic relationships as well. There is little research about emerging adults' daily emotional experience, and less about individual-level predictors that may predict its variability. Thus, the current study was designed to address this gap in the literature and do so in a way that provides a thorough description of self-reported daily emotional experience over time: by exploring the experience of individual emotions in addition to overall affect scores, investigating differences in group mean levels, and charting growth trajectories for individual differences in between and within person emotional variability across time. Given extant research findings that females and males report emotional experience differently, sex of respondent was considered as well.

Twenty-six days of the self-reported emotional experience of 25 female and 24 male predominantly White 18 – 20 year olds were analyzed using multi-level modeling. Results reveal that being in a romantic relationship, as compared to not, is associated with a different pattern of growth over time in the individual emotions of contentment and joy, and in the emotion composite of positive affect. Additionally, being in a romantic relationship is associated with higher group mean levels of anger. No mean level differences were found between females and males, regardless of romantic relationship status, in self-reported emotional experience. This study uncovers the complex association between emerging adults' romantic relationship status and emotional experience, revealing the importance of individual differences in understanding the trajectories of various negative and positive emotions over time.

Julie Taylor
Department of Psychology
Colorado State University
Fort Collins, CO 80523
Spring 2009

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I face the conclusion of this dissertation process with ambivalence. I am thrilled to finally be done and to achieve my goal of completing my doctoral degree, yet I also am a bit sad to see my graduate student years come to an end. Before I move on to the next phase of my life, I must acknowledge the influential people who have significantly contributed to my getting to this exciting point.

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CHAPTER I: Introduction

Research findings from real-time reports of emotional experience portray adolescence as a time of emotional variability (Larson, Csikszentmihalyi, & Graef, 1980), a time when extreme negative and positive affect is reported to be experienced (Larson et al.; Larson & Richards, 1994). In such research, heterosexual romantic relationships have been identified as one major contributing factor to adolescents' distinguished emotional patterns (Larson & Asmussen, 1991; Larson, Clore, & Wood, 1999; Richards & Larson, 1990). The present study was designed to extend the research associating adolescents' emotionality with romantic relationships and contribute to understanding emotional experience of youth in the following ways: 1) by investigating the association between daily emotional experience and romantic relationship status in a sample of emerging adult females and males, 2) by investigating the experience of individual emotions in addition to overall affect, and 3) by using advanced statistical methods allowing for a more detailed depiction of emotional variability over time.

Little is known about emerging adults' emotional experience, yet emerging adults are an opportune group in which to explore daily emotions, in particular as associated with whether or not one is in a romantic relationship. Emerging adulthood refers to the demographically and psychosocially distinct period of the late teens and early 20s in industrialized nations today (Arnett, 2006). This period is an eventful time of possibilities and discovery, but also an emotionally vulnerable time given the instability and high degree of uncertainty that characterize the emerging adulthood years in the US. One

aspect of emerging adult life in which that vulnerability may be felt is romantic relationships.

An important developmental task during emerging adulthood is establishing intimate relationships (Adams & Archer, 1994). Although dating typically begins during adolescence, romantic relationships become increasingly salient and close across emerging adulthood (Furman & Buhrmester, 1992). According to the Emotion-in-Relationships Model (ERM; Berscheid & Ammazzalorso, 2004), close relationships are the context that elicits the most intense positive and negative emotions because of the interdependent nature of such relationships. Specifically, the interdependence of romantic relationships makes them a significant and influential part of people's daily lives. Romantic partners become dependent on each other for their well-being and for completing their customary routines and achieving their goals. As such, unexpected changes in partners' interaction patterns or the partner's behavior matter; one partner's behaviors significantly affect the other, providing the fodder for intense emotional experiences. The ability of romantic relationships to elicit strong emotions also can be explained in terms of Functionalist theory, which proposes that emotions are elicited when events are significant to the person and that one important way such significance is established is through relationships with others (Barrett, 1997; Barrett, 1998). Furthermore, the more something matters, the stronger the emotions that would be induced. Thus, based on ERM and Functionalist theory, it can be argued that because romantic relationships are salient, important relationships that matter, the partner's behaviors have greater significance, inducing stronger emotions than would be induced by other social relationships or by not being in a romantic relationship. These concepts

can be applied to close relationships across the lifespan, but are particularly applicable to young people, who are less proficient in regulating emotions, and for whom romantic relationships and relationship-related emotional phenomena still are mysterious territory (Berscheid, 1983). Thus, one contribution of the current study is to examine romantic relationship status as a predictor of emerging adults' emotional experience over time. It was expected that being in a romantic relationship would be associated with the experience of stronger emotions and a more variable pattern of change over time than shown by emerging adults not in relationships.

The second contribution of this study is to provide a higher level of specificity about emotional experience by assessing levels of, and changes in, individual emotions in addition to aggregated scores. Extant investigations into emotional experience typically have run analyses using a score reflecting overall affect or a negative-positive mood continuum. For example, most have aggregated the self-reports of several positive emotions into a positive affect/mood score and negative emotions into a negative affect/mood score. This approach has the advantage of improving psychometric properties, but provides no information about individual emotions, which have been found to differ in important ways (Barrett, 1993; Roseman, Wiest, & Swartz, 1994). In the current study, aggregated negative and positive composites were used; however, in addition, the individual emotions of sadness, anger, contentment, and joy were investigated to determine whether these specific emotions were experienced differently (e.g., different growth patterns or mean levels) from each other and from the negative or positive composites of which they were part. These emotions are not a comprehensive representation of positive and negative emotions, but they are a reasonable starting point

because they are functionally different and are likely to be experienced in the course of a romantic relationship.

A third contribution of the present study is to investigate emotional experience in a way that depicts the nature of emotional variability over time. In emotional experience experience-sampling method (ESM; momentary reports several times daily over a period of time) research, it has been common to operationalize variability as a within-subject standard deviation. Doing so provides a straightforward and simple indicator of magnitude of change, yet confounds intensity with frequency and does not provide information about the rate or pattern of change over time (Eaton & Funder, 2001). For example, a large standard deviation could represent frequent small changes in emotional experience as well as infrequent large ones, leaving unanswered questions about the nature of the change over time. In the current study, multilevel modeling is used to reveal the shape of the growth curve over time both across and within emerging adults as predicted by romantic relationship status. Little is known about patterns of emotional variability, and less about the person-level characteristics that might predict individual differences in the variability over time (Eaton & Funder). Thus, the current research attempts to fill a gap in the literature by investigating not only group mean level differences in emotional intensity, but also by depicting, by means of growth trajectories, the actual pattern of emotional variability over time as predicted by romantic relationship status.

To summarize, the current study builds on previous real-time assessment research associating adolescents' emotional experience with romantic relationship status in order to answer the main question of whether romantic relationship status predicts level of

and/or changes in self-reported daily affect in emerging adulthood. As this is a study of “self-reported” emotional experience, it is important to qualify upfront what that means and how it affects the conclusions that can be drawn. When it comes to studying emotional experience via self-reports, it is important to acknowledge that self-reports of emotions do not measure actual feeling states, but rather they measure how one *reports* what one is feeling, and this may vary across individuals based on a number of factors (Barrett & Campos, 1987).

One important factor that is considered in the current study is sex of respondent. Responses on self-report measures of emotional experience are highly influenced by socialization practices, gender roles, feeling rules, and stereotypes for females and males within a particular culture, community, and historical period. Thus, how females and males respond on self-reports is in part a reflection of beliefs about what is socially and culturally appropriate for them to feel, learned from a young age through gender-differentiated developmental pathways (Wood & Eagly, 2002). In the current historical and cultural context in the US, one sociocultural norm and stereotype is that females are more emotional than males (Leaper & Anderson, 1997). Indeed, research from self-reported emotional experience often has found that females report (although, again, report is not evidence of real differences) higher intensity of both positive and negative emotions (Carstensen, Pasupathi, Mayer, & Nesselroade, 2000; Diener, Sandvik, & Larsen, 1985; Fujita, Diener, & Sandvik, 1991; Lucas & Gohm, 2000), with the possible exception of anger. Research findings have been mixed for anger, which is considered a powerful emotion and often thought to be more characteristic of males (Crawford, 2006). In some studies males reported experiencing more anger (Biaggio, 1980; Doyle &

Biaggio, 1981), whereas no gender differences were found in other studies (Averill, 1983; Wintre, Polivy, & Murray, 1990). Based on the gender-coded nature of self-reported emotional experience, gender or sex of respondent is important to consider; however, gender or sex is important to consider for another reason as well.

Gender divergent socialization pathways foster differences in the way females and males approach relationships and the skills they bring to them. Traditionally in the US, females are socialized to be nurturing and communal, whereas males are socialized to be self-reliant and agentic (Bronstein, 2006). Consequently, these differences may make females more aware of and vulnerable to perturbations in romantic relationships, perhaps leading females to report more intense emotional experiences as compared to males. Accordingly, in this study of romantic relationship status as a predictor of emotional experience, it made sense that differences might be found based on sex of respondent. It was expected that differences would be found in the direction of gender norms and stereotypes, in that females would report higher levels of all emotions except anger, for which no differences would be found.

Although the expectation that there will be gender differences fits with the preponderance of research evidence on self-reported emotional experience, and with social and cultural norms, a contrasting view should be noted. The gender similarities hypothesis proposes that females and males are more similar, than they are different, on most psychological variables (Hyde, 2005). Support for the gender similarities hypothesis comes from a review of 46 meta-analyses, from which it was concluded that gender differences were overstated. For most of the psychological constructs investigated, such as self-esteem and moral reasoning, the magnitude of effect sizes was small. Moreover,

evidence was presented that the magnitude and direction of gender differences varies based on age and context. That being said, self-reported emotional experience was not part of the meta-analysis so there is less support for the gender similarities hypothesis in this area. However, there is some evidence that gender differences are more likely found when retrospective or global self-report measures rather than momentary reports of emotional experience are used, due to a reliance more on gender stereotypes in the former case (LaFrance & Banaji, 1992). Thus, it was expected that differences based on sex of respondent would be greater for a one-time retrospective report of emotional experience as compared to a current report.

The following hypotheses were addressed in the present study. It was hypothesized that participants in romantic relationships, as compared to those not in such relationships, would have higher mean levels of negative and positive affect composites, and the individual emotions of anger, sadness, contentment, and joy. It was hypothesized that participants in romantic relationships, as compared to those who are not, would have a pattern of change over time with greater high points and/or more changes in intensity in negative and positive affect composites, anger, sadness, contentment, and joy. It was hypothesized that females would report higher levels of all of the emotion outcome variables, with the exception of anger. For anger, it was hypothesized that no sex of respondent differences would be found. And, finally, it was hypothesized that sex of respondent differences would be greater for Day 1 data, which represent retrospective reports, than for Day 2 data, which represent current reports.

CHAPTER II: Literature Review

Emerging Adulthood

Emerging adulthood is a relatively new term referring to the period between adolescence and adulthood, and includes the ages of 18 to 25 (Arnett, 2000a). The concept of emerging adulthood was conceived out of a need to recognize the unique tasks and nature of the years of the late teens and early 20s today in industrialized societies. The period of emerging adulthood is not normative for all youth worldwide, but rather is experienced in societies and cultures that allow young people an extended moratorium, and this is particularly the case for those in higher SES groups who have more freedom to delay taking on adult roles. According to the theory, emerging adulthood is characterized by five features: high hopes and a multitude of possibilities for the future; instability in relationships, living arrangements, and employment; a lengthy exploration of identity; a focus on the self in making independent decisions and developing skills in preparation for adult life; and a subjective feeling of being in-between adolescence and adulthood (Arnett, 2004).

The theory is based on the dramatically changed nature of young people's experiences in industrialized nations, which is exemplified by demographic shifts that have taken place over the past half century. In general, as compared to 50 years ago in the US, today's youth are extending educational pursuits, delaying marriage and parenting, and changing jobs and residences frequently. The period of the late teens to early 20s has shifted from a time of stability and taking on adult roles to a time of change, discovery,

and independence. More than ever, emerging adults in the US are exploring their possibilities in work and relationships and taking advantage of having the freedom to make autonomous decisions without the obligations of permanent work and family. Given the lack of enduring commitments, emerging adults indicate that they have yet to reach adult status, but that they are no longer adolescents because of their increased freedom from parental control and their ability to try out different possibilities to a much greater degree. These psychosocial characteristics distinguish the period of emerging adulthood from both adolescence and adulthood (Arnett, 2004).

Moreover, the psychosocial characteristics of emerging adulthood make it “not only an exceptionally stimulating and eventful period of life but also an exceptionally unstable one” (Arnett, 2006, p. 9). Emerging adults typically go from fairly structured contexts, such as high school and living with parents where they receive regular support in their daily lives, to less structured and prescribed contexts (Schulenberg & Zarrett, 2006). For example, for those who choose to attend college, the transition can be a positive experience, but also it can be overwhelming (Schulenberg & Zarrett) as emerging adults adjust to a new environment, new relationships, fewer constraints, more responsibility, and the freedom and pressure that accompany increased self-responsibility. Taken as a whole, the shift in demands and expectations and the life events specific to this period of the lifespan, especially during the early years, may make emerging adults emotionally vulnerable.

In addition to the distinguishing psychosocial characteristics are the cognitive and emotional changes taking place during emerging adulthood that differentiate this period. Although there is a great deal of brain development that occurs during adolescence, the

brain is not yet fully mature by the end of that period of the lifespan. The frontal lobes and cerebellum, which are important for higher order functions, such as problem solving, decision making, and reasoning about emotional experience, continue to develop well into the 20s (Arnett, 2006). Consequently, due to the neurological changes occurring during emerging adulthood, emerging adults generally are more skilled at regulating their emotions and making effective decisions than are adolescents, yet emerging adults' skills are not as advanced as they will be in adulthood (e.g., Arnett; Gross et al., 1997; Labouvie-Vief, Hankim-Larson, DeVoe, & Schoeberlein, 1989). Indeed, it has been proposed that development in adulthood involves the increasing capacity to control and regulate emotions, resulting in less intense emotional experiences (Moneta, Schneider, Csikszentmihalyi, 2001). Evidence to support this comes from cross-sectional lifespan emotional experience research.

Findings from research using US samples of individuals from young through late adulthood indicate that the younger years, as compared to later periods of the lifespan, are a time of heightened emotionality (Gross et al., 1997). Specifically, younger cohorts (including emerging adults) report experiencing more intense positive (Diener et al., 1985; Lawton, Kleban, Rajagopal, & Dean, 1992) and negative emotions (Barrick, Hutchinson, & Deckers, 1989; Diener et al.; Lawton et al.) than older cohorts. There was one exception to this general finding, however. The age-related decline in positive and negative intensity was not significant in a cross-sectional study utilizing ESM with a sample of White and Black 18 – 94 year olds (Carstensen et al., 2000). One possible explanation for the contradictory finding is methodological differences. The former studies assessed affective intensity through scales measuring strength of emotions

experienced (e.g., the Affect Intensity Measure; Diener et al.), whereas the latter used an average of the aggregated ratings of negative emotions experienced over the course of the ESM study timeframe. The ESM study has the advantage over the more traditional self-reports in that it is less artificial (e.g., reflects current feeling states rather than imagining how strongly one usually feels), and reduces recall bias and social desirability influences because responses are based on real-time information. However, it can be argued that the affective intensity scales may be more accurate reflections of affective impulse strength than the *average* rating of emotions, used in the ESM study, which seems to dampen intensity. Regardless, there is some evidence to support the contention that emotional intensity may be higher in young adult cohorts today, including emerging adults, as compared to older cohorts.

There is a caveat, however, that should be considered in regard to the aforementioned studies. The studies were cross-sectional in nature, preventing one from concluding that higher intensity of affect in younger periods of life is due to developmental changes. Cohort effects are another possible explanation. The shared common life experiences, including the sociocultural norms and historical events, of a particular cohort certainly could influence how one experiences emotions. Indeed, the characteristics unique to the emerging adulthood period of life in industrialized nations today may make emerging adults particularly emotionally vulnerable at a time when emotion regulation skills are not yet mature. That being said, only one cohort, emerging adults in the current historical period, is the focus of the present research and comparing their emotional experience to that of other lifespan periods is not a goal of this study.

To conclude, based on the supposition that emerging adulthood is a unique period in the US, understanding the normative developmental processes of this life stage is imperative. Most extant research has grouped emerging adults with adults or used college students with the intention of generalizing to adults, neither of which considers the developmental significance of the emerging adulthood period of the lifespan. Research specifically investigating this age group and that is guided by developmental theory is necessary to increase knowledge about what it is like to be in the late teens and early 20s today in the US. This insight would provide guidance for future thinking, theory, and research about the specific characteristics and needs of emerging adults. Given that contemporary research suggests that emotions are experienced intensely during emerging adulthood in the US, emerging adults are a relevant group in which to study emotional experience. The current research is a step in the direction of increasing understanding about emerging adults' experiences today in the US, specifically about their daily emotions as related to a central developmental aspect of emerging adulthood: romantic relationships (Adams & Archer, 1994).

Romantic Relationships in Emerging Adulthood

It must be mentioned upfront that theory and research about romantic relationships during emerging adulthood have been limited primarily to heterosexual relationships. Sexual orientation and/or sex of the dating partner have been neglected as variables in much of the research, as they were in the referenced studies in the current research, unless otherwise indicated. The tendency has been to assume that the relationships were heterosexual and to perhaps mention the lack of research on same sex relationships as a limitation. Although this is not an ideal approach, it is one that was

used in the current research as well because sexual orientation was unknown for the sample used for this study. This topic will be addressed further in the discussion.

Forming intimate romantic relationships is normative during emerging adulthood (Adams & Archer, 1994). Indeed, romantic relationships are a common part of emerging adults' lives. In a sample of nationally representative adolescents, four fifths of them had a romantic relationship by the age of 18 (Carver, Joyner, & Udry, 2003). Overall rates of experiencing a relationship in the previous 18 months were similar for females and males, but a breakdown by age indicated that females in late adolescence (17 – 18 years old) were slightly more likely than males to have had a relationship. The percentages of those who reported having had a romantic relationship in the previous 18 months were similar for Whites, African Americans, Native Americans, and Hispanics; the exception was Asian adolescents, who had a significantly lower percentage. In another study of White 18 year old females and males, virtually all (97%) had been on a date, with three fourths of them having had at least one steady relationship (Thornton, 1990). It is clear that romantic relationships are a normal part of emerging adult life. In addition, they are an important and time-consuming part.

Time spent with romantic partners and the salience of romantic relationships increase over the adolescence/emerging adulthood timeframe. Between the approximate ages of 10 and 18, the amount of time adolescent females and males spend with the family falls by 60% (Larson, Richards, Moneta, Holmbeck, & Duckett, 1998), whereas the time adolescents spend in cross-sex groups and dyads increases, as do thoughts of the other sex (Richards, Crowe, Larson, & Swarr, 1998). In one study using a sample of 17 – 19 year old females, many females gradually decreased the time spent with their same-

sex friends as the time spent with their heterosexual romantic partner increased (Zimmer-Gembeck, 1999). Furthermore, relative to other relationships, romantic partners are viewed as increasingly important. In the 7th grade, romantic partners were rated 4th when adolescent females and males were asked to list significant others in order of importance. In the 10th grade, romantic partners moved up to 3rd place, but by college, romantic partners were now 1st on the list of significant others (Furman & Buhrmester, 1992). In a sample of female and male college students ($M = 19.38$), romantic partners were chosen over friends and family members as the closest relationship, as measured by the Relationship Closeness Inventory (RCI; Berscheid, Snyder, & Omoto, 1989), which includes the attributes of the amount of time spent together daily, the number of different activities enjoyed together, and the extent of influence partners have over each other. Finally, also using the RCI, closeness with romantic partners increased steadily with age across adolescence into emerging adulthood, and romantic partners surpassed best friends, parents, and siblings on all three of the aforementioned attributes of the RCI (Laursen, 1996).

Furthermore, theory and research on heterosexual romantic experience suggest a developmental progression in the characteristics of romantic relationships from adolescence to emerging adulthood. Romantic relationships in adolescence are characterized more by recreation as their primary function, whereas relationships in emerging adulthood are characterized by intimacy (Brown, 1999; Connolly & Goldberg, 1999; Montgomery, 2005; Roscoe, Diana, & Brooks, 1987). It is not until late adolescence or early emerging adulthood that relationships take on more emotional depth and a level of deep attachment (Furman & Simon, 1999; Hazan & Shaver, 1994). For

example, in a sample of 12 – 24 year olds, emerging adult (18 – 24 year olds) females and males were found to be more passionate than adolescents (Montgomery), which meant they had higher levels of emotional intensity associated with being in love. In addition to changes in emotional intimacy, changes in sexual intimacy occur as well during emerging adulthood. Relationships in emerging adulthood include more sexual intercourse than do adolescent relationships (Lefkowitz & Gillen, 2006). In a nationally representative sample of adolescents and early emerging adults, the percentage of those in romantic relationships engaging in sexual intercourse linearly increased from 14 to 19+ years old (Carver et al., 2003). By 19+, 67.6% of males and 72.5% of females reported having intercourse within the context of their romantic relationship, an increase from 35.3% and 40.3%, respectively, at the age of 16.

Although romantic relationships are significant in the lives of both females and males during emerging adulthood, gender-differentiated socialization pathways influence the way females and males approach romantic relationships and relate to each other. For example, females in the US traditionally are encouraged toward collaborative and caretaking activities and being emotionally expressive. On the other hand, males traditionally are encouraged toward competitive and instrumental activities and being emotionally controlled (Leaper & Anderson, 1997). As such, females develop skills related to cooperation and intimacy-building, and approach relationships more in terms of support and nurturance. Males develop skills related to self-reliance and dominance, and approach relationships in a more dominant manner. Moreover, females' identities are tied more to relationships with others, whereas males' are tied more to work successes. Consequently, females may be more observant of and sensitive to the nuances of

romantic relationships and more in tune to the emotional quality of relationship interactions (Brown & Gilligan, 1993); thus, potentially making females more emotionally vulnerable to romantic relationship-related phenomena. Although the current research is not designed to test the influence of gender ideologies, the context of gender development is relevant to consider in the association between romantic relationship status and emotional experience and why females might be expected to report higher levels of emotional experience.

Taken as a whole, theory and research support the notion that romantic relationships in emerging adulthood are generally close, important, intimate relationships. Emerging adult females and males are exploring the area of romantic relationships in a deeper and more serious way than they did as adolescents. These relationships are significant to their lives, and emerging adults are likely to rely on romantic partners for frequent companionship and to meet their ongoing intimacy needs. As such, it makes sense that being in a romantic relationship would be associated with daily emotional experiences that are different from, and more intense than, the experiences of those not in relationships, and that this may be particularly true for females for whom romantic relationships are more central to identity (Simpson & Tran, 2006). However, the link between romantic relationships and emotional experience is not based on intuition alone. The Emotion-in-Relationships Model (ERM; Berscheid & Ammazzalorso, 2004) can be used to understand why romantic relationship status would be associated with more intense emotional experience.

The Association between Romantic Relationships and Emotional Experience

ERM connects close interpersonal relationships to emotional experience. The premise of ERM is that the interdependence in close relationships makes them the most usual setting for intense and changing emotions (Berscheid & Ammazalorso, 2004). As a relationship develops, partners begin to integrate into and influence each other's activities, and become dependent on each other for the performance of their daily routines and to fulfill their plans and goals. In addition, as a result of getting to know each other – such as each other's behaviors, attitudes, personality, and habits – partners learn what to expect from each other. These expectations and the more general expectations (e.g., relationship schemas that may be based on past relationship experience, role models, and/or cultural expectations) that individuals bring with them to relationships guide interactions and allow partners to coordinate their behavior and plans in a way that protects or enhances their own welfare. As such, when a partner behaves in an unexpected way, expectations are violated and patterns of relating are disrupted, providing the occasion for an emotional experience (Berscheid & Ammazalorso). The emotional experience would be negative if the violation threatens the partner; in other words, one partner's actions jeopardize or interfere with the other's well-being (e.g., by disturbing plans, disappointing partner, and/or not living up to expectations). Alternatively, the emotional experience would be positive if one partner's unexpected behavior enhances the other's well-being (e.g., by facilitating goals, pleasantly surprising partner, and/or exceeding expectations). The nature of close relationships is such that partners typically are in close proximity, as defined as spending time together and/or having frequent interactions (Berscheid & Ammazalorso). This close proximity affords

the opportunity for expectations to be violated frequently; thus, precipitating the experience of both positive and negative emotions on a regular basis.

The aforementioned process explains why there would be emotional experiences regularly, but the interdependence and significance of romantic relationships explain why the emotional experiences would be intense. It is because romantic relationships are such salient and close relationships and romantic partners are dependent on each other for their daily well-being, that the emotions tied to changes in the relationship and partner's behaviors are strong. Simply put, romantic relationships matter, and the more something matters, the more strongly the emotions experienced. This idea is similar to a Functionalist approach to emotions, which proposes that emotions are elicited when an event or experience is significant to the person, and that the more significant, the more strong the emotion (Barrett, 1997; Barrett, 1998). Thus, because romantic relationships matter, one partner's behavior is directly disruptive to, influential on, and consequential for the other in ways that elicit intense emotions, more intense than emotions elicited by other social relationships or if the person did not have a romantic relationship.

In summary, because of the interdependency and significance of partners in close relationships, one partner's unexpected behavior provides the occasion for intense positive or negative emotional experience depending on whether the unexpected behavior benefits or thwarts the other's well-being. Although the current research was not designed to test the ERM model, the central thesis of this model can be used to justify why being in a romantic relationship would be associated with intense and variable emotions over time. Some empirical evidence links romantic relationships to emotional experience as well.

ESM research tracking the daily emotions of adolescents associates romantic relationship status to emotional experience. In one study of female and male youth (9 – 15 year olds) from a Midwestern suburb, information was collected about the domains that elicited more negative emotions during adolescence as compared to preadolescence (Larson & Asmussen, 1991). "Friends" was the only domain that significantly increased from preadolescence to adolescence, and it accounted for more than approximately double the negative emotions for adolescents. A more specific review of the friends domain indicated that the increase in negative emotions could be almost entirely attributed to relationships with an individual of the other sex. Although adolescents experienced more negative than they did positive emotions, the source of positive emotions also was an other-sex friend. In other ESM studies, first year to senior high school female and male students with more variation in their moods were more likely to have a girlfriend or boyfriend and spend more time thinking about romantic relationships (Richards & Larson, 1990).

In an ESM study in which peers and mood in adolescence and early emerging adulthood were investigated, spending time with an other-sex friend was associated with more positive affect. Youth in the suburbs of Chicago reported their daily emotions first at the ages of 10 – 14 years old and then four years later when they were 13 – 18 years old (Richards et al., 1998). Findings indicated that for females and males of all ages, affect was more positive, as measured by a negative-positive mood composite, when spending time alone with an other-sex partner. However, time spent thinking about the other sex was associated with less positive states as adolescents grew older (Richards et al.). Taken as a whole, ESM research with adolescent samples (but some including 18

year olds) suggests that romantic relationship status, or an other-sex friend, is related to positive, negative, and more variable emotional experience. Although daily emotional experience as related to romantic relationship status has not been studied in emerging adults, other lines of research suggest that emerging adults' romantic relationship status and emotional phenomena are associated.

One study points to the significance of romantic relationships over friendships in terms of negative affect for emerging adults. In a sample of Canadian emerging adult female and male college students ($M = 19.90$), both females and males reported feeling more negative emotions in response to imagining a scenario in which their romantic partner responded with neglectful behaviors (e.g., ignoring them, refusing to discuss problem) than a scenario in which a friend was neglectful (Fehr & Harasymchuk, 2005). In two other studies with samples of ethnically diverse female and male emerging adult college students ($M = 23.79$ and $M = 22.58$) from a Midwestern university, romantic relationship quality was positively associated with happiness, as measured by a one-time questionnaire, over and above the effects of personality (Demir, 2008). The results of these studies provide evidence for the significance of romantic relationships to both negative and positive aspects of emerging adults' emotional lives.

Finally, additional evidence for the link between romantic relationship status and affect comes from a line of research relating romantic relationships with depression. In a 1-year longitudinal study using a large nationally representative sample of adolescent females and males who were 12 – 17 years old at Time 1, it was found that becoming romantically involved before the Time 2 measurement 1-year later predicted greater depressive symptoms, and this was especially the case for females (Joyner & Udry,

2002). In another 1-year longitudinal study of ethnically diverse first year undergraduate females and males at a large state college in California, being in a romantic relationship was associated with greater depressive symptoms over time (Davila, Steinberg, Kachadourian, Cobb, & Fincham, 2004). This finding was the case for all emerging adults in the sample. However, this was especially true for emerging adults with a preoccupied relational style, a term the authors used to describe an interpersonal and emotion regulation style that involves desiring intense intimacy and involvement in relationships but also being dependent and clingy. Finally, in a study using an ethnically diverse group of 12 – 18 year old females and males in the San Francisco area, adolescents and early emerging adults who were romantically involved, whether it was defined as being in an exclusive boy/girlfriend relationship or as dating more than once or twice a month, exhibited higher levels of depressive symptoms (Quatman, Sampson, Robinson, & Watson, 2001). One limitation of the aforementioned depression/romantic relationship research is that aspects of positive emotional well-being were not investigated in addition to depressive symptoms; thus, there is no way to know whether romantic relationship status was associated with positive affect while also being associated with depressive symptoms. Considering both positive and negative aspects of emotional phenomena is important in order to provide a more accurate picture of emotional experience.

It should be clarified that although the view that romantic relationships would be associated with both positive and negative emotions may seem contradictory, in reality it fits with the paradoxical nature of romantic relationships. Romantic relationships are “among the most positive, uplifting of life’s experiences” (Perlman, 2007, p. 7) and yet

they can also “ruin your life” (Perlman, p. 13). In brief, research on adult marital relationships illustrates this point. A plethora of research on marital status in US samples has established a positive association between marital status and various aspects of well-being including happiness, physical health, mental health, and longevity (see Coombs, 1991; Diener & McGavran, 2008; Lucas & Dyrenforth, 2006; Perlman; Umberson & Williams, 1999). This general finding is qualified, though, because effect sizes are typically small, the quality of the relationship is a moderator, the degree of benefit of marriage depends on the comparison group (e.g., divorced, widowed, never-married), and some research suggests that the benefits of marriage are greater for males than females (Coombs; Diener & McGavran; Umberson & Williams). Despite these qualifiers, married adults reap many benefits from their relationship (Umberson & Williams). At the same time, marital dissatisfaction and divorce are common occurrences today (Leaper & Anderson, 1997). Approximately half of all marriages in the US end in divorce (US Census Bureau, 2001). Moreover, troubles in a marital relationship are a source of tremendous stress and emotional turmoil, which can lead to various physical or psychological problems for one or both partners (Simpson & Tran, 2006). Indeed, there is evidence for an established relation between marital discord and depression (see Goldfarb, Trudel, Boyer, & Preville, 2007) and for spousal arguments having the largest effect on daily mood (Bolger, DeLongis, Kessler, & Schilling, 1989). Although marital relationships and the various positive and negative outcomes with which they are associated go beyond the scope of this study, the examples were provided to show the paradoxical nature of another form of committed romantic relationship, about which a great deal of research exists. The point is that both intense negative and positive

emotional phenomena over time have been associated with romantic relationships, which, indeed, makes sense given the dynamic and interdependent nature of such relationships.

To summarize, according to ERM, the time spent in close romantic involvements provides opportunity for emotional experiences that are quite different from, and arguably more intense than, those experienced in other social relationships. The dynamic nature of romantic relationships and the inevitable unexpected changes in interaction patterns that occur present partners with ongoing occasions for both positive and negative emotions. Indeed, the empirical evidence reviewed links romantic relationships to various aspects of emotional well-being for adolescents and emerging adults. The current study extends the extant research by investigating romantic relationship status as a predictor of the levels and growth trajectories of emerging adults' daily emotional experience of positive and negative composites in addition to individual emotions over the course of almost a month.

Individual Emotions

One limitation of the extant research previously reviewed is that analyses have focused on negative or positive emotion as a unitary construct (e.g., aggregating multiple negative emotions into one affect score or using a negative-positive mood continuum). Looking at an aggregated or continuum score is reasonable to do when the various emotions are similar to each other, when they are found to co-occur (Seidlitz, Fujita, & Duberstein, 2000), when they are correlated to each other (Watson & Clark, 1992; Watson & Kendall, 1989), and/or because using an aggregated score, rather than one individual emotion, makes it easier to obtain a more reliable measure (Izard & Ackerman,

2000). However, there is good reason to investigate emotions separately as well (Barrett & Campos, 1987).

Combining emotions ignores the important differences among emotions. Individual emotions have been found to differ in many ways, including expression, physiological reaction, functions, action tendencies, causes, and effects (Barrett, 1993; Roseman, Wiest, & Swartz, 1994). For example, an individual negative emotion (e.g., guilt) may influence behavior differently than overall negative affect (Barrett, Youngblade, & Graber, 2008; Izard & Ackerman, 2000). Hence, analyzing emotions separately allows for distinguishing among the numerous emotions; thus, providing a higher level of specificity about emotional experience. The current study addressed this limitation of existing research by investigating emerging adults' experience of four specific emotions – sadness, anger, contentment, and joy – in addition to aggregated overall negative and positive affect composites.

Anger and sadness were chosen because these two negative emotions serve unrelated functions and elicit opposite reactions. Anger inclines one to assert oneself to eliminate obstacles in order to achieve a goal, whereas sadness inclines one to let go of an unattainable goal (Barrett & Campos, 1987). In other words, anger generally promotes action, whereas sadness promotes withdrawal. However, despite the aforementioned differences, anger and sadness are both strongly impacted by interpersonal relationships. Both emotions are elicited by perturbations in a social relationship; for example, a perceived threat to or loss of a relationship (Canary, Spitzberg, & Semic, 1998; Shaver, Schwartz, Kirson, & O'Connor, 2001). In addition, aggressive or hostile responses to anger toward the relationship partner may threaten a relationship. Therefore, anger and

sadness are suitable negative emotions to investigate individually because they are distinguished from each other, but both are likely to be experienced by those in romantic relationships.

Relative to negative emotions, positive emotions appear to be fewer in number and less differentiated (Fredrickson & Branigan, 2001). The lines are blurred among positive emotions; the functions and action tendencies are too vague or general to be used to distinguish positive emotions in the same way that these classifications can be used to distinguish negative emotions (Fredrickson & Branigan). That being said, joy and contentment were chosen as the two individual positive emotions because these two emotions are considered conceptions of happiness yet are at opposite ends of the activation and arousal spectrums (Averill & More, 2000). Specifically, joy is characterized by high arousal and inclines one to continue activity (Barrett, 1998), whereas contentment is characterized by low arousal and inclines one to inactivity (Fredrickson & Branigan). As conceptualizations of happiness, it was conceivable that both joy and contentment as individual emotions would be found in association with romantic relationships. This is because happiness is perceived as one of the most important benefits of being in a romantic relationship (Sedikides, Oliver, & Campbell, 1994) and quality of romantic relationships is positively associated with happiness in emerging adults' lives (Demir, 2008). Thus, contentment and joy are investigated as individual emotions in the present study.

Hypotheses

The current research is designed to provide information that was currently lacking about emerging adults' daily emotional experience of negative and positive affect, as well

as the individual emotions of sadness, anger, contentment, and joy, as predicted by romantic relationship status. The intention was to increase understanding about emotional experience by not only assessing group mean level differences based on romantic relationship status, but also by exploring romantic relationship status as a predictor of across and within participant changes in emotional experience over time and depicting that variability with growth curves. Sex of respondent was considered as a factor as well. Based on the theoretical and empirical evidence reviewed, the following hypotheses were the focus of this study:

Hypothesis 1. Individuals in romantic relationships will have higher levels of both overall negative emotions (an aggregate for each day of all negative emotions reported that day) and overall positive (an aggregate for each day of all positive emotions reported that day) than will those not in romantic relationships (Berscheid & Ammazalorso, 2004).

Hypothesis 2. Individuals in romantic relationships will have a pattern of change over time with greater high points and/or more changes in intensity in both overall negative emotions and overall positive emotions (aggregated as in Hypothesis 1) than will those not in romantic relationships (Berscheid & Ammazalorso, 2004).

Hypothesis 3. Females will report higher levels of both overall negative emotions and overall positive emotions than will males (Carstensen et al., 2000; Diener et al., 1985; Fujita et al., 1991; Lucas & Gohm, 2000).

Hypothesis 4. Individuals in romantic relationships will, in particular, have higher levels of anger, sadness, contentment, and joy than will those not in romantic relationships (Berscheid & Ammazalorso, 2004).

Hypothesis 5. Individuals in romantic relationships will have a pattern of change over time with greater high points and/or more changes in intensity in anger, sadness, contentment, and joy than will those not in romantic relationships (Berscheid & Ammazalorso, 2004).

Hypothesis 6. Females will report higher levels of sadness, contentment, and joy than will males (Carstensen et al., 2000; Diener et al., 1985; Fujita et al., 1991; Lucas & Gohm, 2000).

Hypothesis 7. There will be no difference between females and males in the level of anger reported (Averill, 1983; Biaggio, 1980; Doyle & Biaggio, 1981; Wintre et al., 1990).

Hypothesis 8. The sex of respondent differences expected, that females will report higher levels of all emotions except anger, will be greater for Day 1 data, in which individuals provided retrospective reports for the previous 2 weeks, than for Day 2 data, in which individuals report on their current emotions (LaFrance & Banaji, 1992).

CHAPTER III: Methods

To address the research questions, data from a larger study, Young Adults' Daily Mood and Behavior (Youngblade & Graber, 2006), was used.

Sample

The original sample from the Young Adults' Daily Mood and Behavior study included 58 college students who were recruited through flyers posted on campus at two large public, research universities. Students had to meet two recruitment criteria: having access to the internet and living away from their parents during the school year.

The sample for this study is limited to 49 of the students (25 female and 24 male) who maintained a stable romantic relationship status throughout the study (as discussed below). Fifty-five percent of the sample was from Colorado State University, 45% from the University of Florida. No differences (on mean level variables, such as measures of urgency, invulnerability, sensation seeking, mood during the previous two weeks, assessed on Day 1 of the study) were found between participants from the two sites; thus, participants from the two sites were pooled for all analyses. Ethnic composition was predominately European-American, with 76% of participants self-identifying as White, 8% as Latino or Hispanic, 6% as Black or African American, 2% as Asian, 2% as American Indian or Alaska Native, and 2% as other. The mean age of the sample was 18.71 ($SD = .61$; range 18 – 20). Additional sample descriptive information reported on Day 1 of the study are:

- Eighty-two percent of the sample lived in the dorms, 12% lived in a house off-campus, and 6% in an off-campus apartment.
- Participants were enrolled in an average of 15.31 credits and had a mean GPA of 3.20.
- Thirty-eight percent of the sample reported that they never drink alcohol, 16% drink monthly or less, 38% drink 2 – 4 times per month, 7% drink 2 – 3 times per week, and 1% preferred not to answer.
- Ninety percent of the sample indicated they do not smoke, 8% smoke one cigarette a month or less (but not never), and 2% smoke more than 10 cigarettes a day.
- Twenty-nine percent of those in romantic relationships reported never engaging in sexual intercourse, 7% indicated engaging in sexual intercourse monthly or less, 18% indicated 2 – 4 times a month, 25% indicated 2 – 3 times a week, and 21% indicated 4 or more times a week. For those not in romantic relationships, 90% reported never engaging in sexual intercourse, 5% indicated engaging in sexual intercourse monthly or less, and 5% indicated 2 – 4 times a month.

Procedure

To sample emotional experience and other variables as they occurred naturally in everyday life, data were collected by using interval-contingent sampling. Interval-contingent sampling is a data collection method that falls under the broad umbrella of ESM (Scollon, Kim-Prieto, & Diener, 2003). In this method, participants complete self-reports after a prescribed amount of time or at regular intervals, such as at a specific time daily, over a period of days or weeks (Scollon et al.). In the Young Adults' Daily Mood

and Behavior study, participants were instructed to complete self-report measures between 5 PM and 10 PM, chosen with the assumption that most participants would be home at some point during this timeframe, each day for 26 consecutive days. This resulted in almost a month of responses; thus yielding a representative sample of the emotional lives of participants.

During an initial interview with research assistants prior to beginning the study, participants were informed about the study and provided instructions about how to participate by accessing a designated website. They also completed consent forms at that time and, to protect their privacy, were given a random 6-letter log-in ID to use when logging in to the secure website to complete the daily measures. Participants then proceeded to log their responses each day for 28 consecutive days, answering slightly different questionnaires on Days 1 and 28 than on the other 26 days (the focus of this study). Occasionally over the course of the study, respondents were thanked, via email, for their participation and encouraged to continue their thorough completion of measures. On the day following a missed survey, participants were contacted by phone as a way to encourage their continued involvement in the study; however, they were dropped if they missed surveys on two consecutive days or a total of four surveys across the study timeframe. In addition to an I-Pod Shuffle that was given to participants who completed the study, respondents earned \$10 in gift cards for day 1 and 28 of the survey period and \$5 in gift cards for days 2 through 27. No participants dropped out of the study, but one participant was eliminated from the dataset due to missing at least two consecutive days and another participant was dropped due to choosing the first response for all questions.

Measures

For the Young Adults' Daily Mood and Behavior study, information about a number of variables was collected. The following discussion is limited to the measures that were used in the current research.

Romantic Relationship Status. On the first day of the study (see Appendix I for relevant demographic questions), participants responded yes or no to the question, "Are you currently in a committed romantic relationship?" Fifty-seven percent of participants were in a committed romantic relationship at the start of the study. No information about individual or partner sexual orientation or sex of the dating partner was collected. On days 2 – 27, as part of a life events scale, participants could check whether they "broke up with a romantic partner" or "started a new relationship with a romantic partner" within the prior 24 hours. Romantic relationship status changed at least once across the study period for nine participants. Because the goal was to compare those in committed relationships to those who were not, the nine participants who changed status were eliminated from analyses. This resulted in 28 participants (16 females and 12 males) who were in a romantic relationship and 21 (9 females and 12 males) who were not.

Positive and Negative Affect Schedule (PANAS). On days 2 – 27, a modified version of the PANAS (Watson, Clark, & Tellegen, 1988) was used to assess the extent to which participants were feeling various emotions, such as upset and enthusiastic, in the past 24 hours. The original scale consists of 10 each of descriptors that were conceptualized by the authors as being positive or negative emotions. The positive emotions are aggregated into a positive affect (PA) score and the negative ones into a negative affect score (NA). Alpha scores were found to range from .86 - .90 for PA and

.84 - .87 for NA (Watson et al.). The PANAS also was found to be a valid measure. For example, as expected, PANAS NA was found to have moderate positive correlations (.56 - .58) with the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), a self-report measure of depressive symptomatology, whereas PA had moderate negative correlations (.35 - .36) with the BDI.

For the Young Adults' Daily Mood and Behavior study, to represent some common negative and positive emotions that were not included in the original PANAS, the researchers added the discrete emotions of joyful, happy, content, sad, and angry to the measure; thereby, creating a 25-item measure (see Appendix II). Participants rated, on a 5-point (*very slightly or not at all* to *extremely*) Likert scale, the extent to which they felt each of the 25 discrete emotions, 12 negative and 13 positive, in the previous 24 hours. Alpha scores were .95 for NA and .96 for PA.

In addition to NA and PA, the individual emotions of sadness, anger, contentment, and joy were used as outcome variables. Overall means and standard deviations for the outcome variables can be found in Table 1.

Finally, on Day 1 of the study, participants provided a retrospective report of their emotional experience. Specifically, they were asked to indicate, on a 5-point (*very slightly or not at all* to *extremely*) Likert scale, the extent to which they felt each of the 25 emotions during the past 2 weeks. One-way MANOVAs including Day 1 data of each emotion outcome variable as the dependent variables and sex of respondent as the independent variable were run. Similarly, MANOVAs including Day 2 data of each emotion outcome variable as the dependent variables and sex of respondent as the independent variable were run. These analyses address the final hypothesis regarding

differences based on sex of respondent being magnified in retrospective versus momentary reports.

Table 1

Overall Means and Standard Deviations for Emotion Outcome Variables

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
NA	49	.48	.57
PA	49	1.43	.83
Sadness	49	.50	.88
Anger	49	.34	.72
Contentment	49	1.69	1.14
Joy	49	1.41	1.14

Statistical Analysis

Multilevel Linear Modeling (MLM) was the primary statistical technique used to analyze the data. MLM was chosen because it is an appropriate analytical tool to deal with nested data (Leech, Barrett, & Morgan, 2008), which describes the data of this study. There were approximately 1274 repeated measures for each emotion nested within 49 emerging adults over the 26 days. One challenge of this type of data is dealing with its multiple levels, which include the within-person level (e.g., multiple measurements of emotions over time) and the between-person level (e.g., sex of respondent). Another challenge is serial autocorrelation, which refers to the problem that arises when observations are not independent of each other (Bryk & Raudenbush, 1992). This was the case due to the time-series nature of the observations. Traditional regression models assume that all data are collected on the same level and that observations are independent; therefore, they were not appropriate for data analysis in this study. Rather,

MLM allows for investigation of both individual and group differences and is appropriate for examining multiple observations nested within the same individuals. In addition, MLM enables one to model the shape of the growth curve across the times of measurement both across and within individuals, and to use individual and/or group level measures to predict these growth trajectories as well as the mean level of the outcome variable (intercept). Finally, MLM is more flexible than traditional regression models in terms of accommodating missing data, which is a concern in longitudinal studies.

A two-level MLM model design was used to address the research questions. The first model, the unconditional model, included only the lowest level of data, which was the repeated-measures outcome emotion variable. This unconditional model tested for the significance of mean level differences among individuals and differences among individuals in the shape of linear, quadratic, and cubic growth curves for daily changes in mood (random effects), as well as of linear, quadratic, and cubic growth trends that were consistent across individuals (fixed effects). These effects were examined for the NA and PA composites, in addition to the individual emotions of sadness, anger, contentment, and joy, to determine whether there were significant mean level differences among individuals and/or significant growth trajectories over survey days that could be explained with Level 2 (individual-difference) predictors, such as sex of respondent. If so, conditional models including the person-level (Level 2) predictors of romantic relationship status (RRS) and sex of respondent were examined for each outcome variable to see whether they explained the mean level differences and/or growth curves found at Level 1. Finally, if any predictors were significant in the conditional model, a

chi-square was calculated to determine whether the conditional model explained more variability than the unconditional model.

The unconditional and conditional models tested for linear, quadratic, and cubic changes over time in the various emotion variables. Given the exploratory nature of this study, it made sense to include all three growth curves as a way to discover which trend more accurately described changes in participants' experiences of the various emotions as reported over time. The linear, quadratic, and cubic variables were entered as both fixed and random effects in the unconditional and conditional models. The linear variable was centered on the first day so that linear change was referenced in relation to that first day. RRS and sex of respondent were entered as fixed effects in the conditional model. They were examined as main effects and as two-way interactions with each other. In addition, RRS was examined as a two-way interaction with the linear, quadratic, and cubic variables. Significant interactions between RRS and one of the growth curves indicated that that growth curve was predicted by that factor (i.e., that the growth curve varied based on the level RRS).

Finally, as previously described, one-way MANOVAs were run to address the final hypothesis about sex of respondent differences being greater in retrospective versus current reports. One MANOVA used Day 1 data for each emotion outcome variable as the dependent variables and sex of respondent as the independent variable, and the other MANOVA included Day 2 data for each emotion outcome variable as the dependent variables and sex of respondent as the independent variable.

CHAPTER IV: Results

Hypothesis 1. Individuals in romantic relationships will have higher levels of both overall negative emotions (an aggregate for each day of all negative emotions reported that day) and overall positive (an aggregate for each day of all positive emotions reported that day) than will those not in romantic relationships.

Hypothesis 2. Individuals in romantic relationships will have a pattern of change over time with greater high points and/or more changes in intensity in both overall negative emotions and overall positive emotions (aggregated as in Hypothesis 1) than will those not in romantic relationships.

Hypothesis 3. Females will report higher levels of both overall negative emotions and overall positive emotions than will males.

As revealed in Table 2, in the unconditional model for NA, none of the fixed effects were significant, indicating that there was not a significant pattern of linear, quadratic, or cubic growth, across individuals, in NA level over the 26 days. However, the linear, quadratic, and cubic random effects all were significant, suggesting that the pattern of change over time of NA varied by person, and varied in both linear and curvilinear fashions. Hence, it was worthwhile to examine a conditional model that could potentially explain some of this variability. None of the predictors were significant in the conditional model, however (see Tables 3 and 4). Moreover, as seen in Table 3, the random effects continued to be of similar magnitude and highly significant in the conditional model. RRS and sex of respondent did little to explain the individual

differences in the pattern of growth of NA over time. Consequently, it was unnecessary to calculate a chi square.

Table 2

Unconditional Model for NA

<i>Effect</i>	<i>Estimate</i>	<i>SE</i>	<i><u>95% Confidence Interval</u></i>	
			<i>Lower Bound</i>	<i>Upper Bound</i>
Fixed				
Intercept	.524**	.057	.409	.638
Linear	-.003	.002	-.008	.001
Quadratic	.142	.087	-.033	.316
Cubic	-.070	.092	-.255	.116
Random				
Intercept	.137**	.031	.088	.213
Linear	.0002**	5.0E-005	7.7E-005	.0003
Quadratic	.213**	.075	.107	.423
Cubic	.260**	.088	.133	.505

** $p < .01$

Table 3

Conditional Model Effects of Romantic Relationship Status and Sex of Respondent on NA

<i>Effect</i>	<i>Estimate</i>	<i>SE</i>	<i>95% Confidence Interval</i>	
			<i>Lower Bound</i>	<i>Upper Bound</i>
Fixed				
Intercept	.449**	.131	.186	.711
Linear	-.0003	.004	-.007	.007
Quadratic	.021	.130	-.241	.282
Cubic	.028	.139	-.253	.308
RRS	.153	.163	-.176	.482

Sex of respondent	-.057	.169	-.397	.283
RRS x sex of respondent	.069	.221	-.375	.513
RRS x linear	-.005	.005	-.015	.004
RRS x quadratic	.217	.172	-.129	.562
RRS x cubic	-.175	.184	-.545	.196
Random				
Intercept	.135**	.032	.085	.214
Linear	.0001**	5.1E-005	7.6E-005	.0003
Quadratic	.202**	.073	.099	.412
Cubic	.253**	.088	.129	.500

** $p < .01$

Table 4

Conditional Model Fixed Effects of Romantic Relationship Status and Sex of Respondent on NA

Source	Numerator <i>df</i>	Denominator <i>df</i>	<i>F</i>	Sig.
Intercept	1	48.983	78.951	.000
RRS	1	54.423	2.751	.103
Sex of respondent	1	44.753	.041	.841
RRS x sex of respondent	1	49.466	.097	.757
RRS x linear	1	51.110	1.351	.250
RRS x quadratic	1	49.438	1.591	.213
RRS x cubic	1	46.441	.901	.348

In the unconditional model for PA, as seen in Table 5, the linear fixed effect was significant. This linear fixed effect finding indicated that there was a systematic negative

linear pattern of growth, across individuals, in PA level over the 26 days. In addition, the linear and quadratic random effects were significant. These random effects suggested that the pattern of change over time in PA varied by person, and varied in both linear and curvilinear fashions. Hence, it was worthwhile to examine a conditional model that could potentially explain some of this variability.

As indicated in Tables 6 and 7, in the conditional model, the RRS x quadratic growth curve interaction was a significant predictor of the variability of PA. This finding suggested that individual differences in the quadratic pattern of growth of PA over time were associated with whether the participant was in a relationship or not. The line graph in Figure 1 shows the actual data as well as the best fit lines for the quadratic growth pattern of PA. A review of the graph reveals that the quadratic trend for those in romantic relationships was concave, whereas it was convex for those not in relationships. For those in romantic relationships, the trend was to decline over the first half of the study before increasing over the second half of the study. For those not in relationships, the opposite trend was found: increase over the first half of the study, decline over the last half. However, participants in romantic relationships had higher levels of PA during the entire study period.

A comparison of Tables 5 and 6 reveals a substantial reduction in the variance associated with the quadratic random effect (.383 versus .501). The results signify that RRS explained some of the variability across individuals in the quadratic growth of PA over time, but that significant variability remained to be explained. A chi square ($X^2 = 1.544$, $df = 6$, $p = .96$) was calculated, but it was not significant, indicating that the conditional model with RRS and sex of respondent did not explain significantly more

variance than the unconditional model without predictors. This indicates that although the reparameterization of the model to include RRS and sex of respondent did not improve the fit of the model to the data; whether or not participants were involved in a romantic relationship did have a notable impact on the pattern of change in their overall positive affect over time, suggesting that RRS is a useful variable for helping to understand the individual differences in these growth curves.

Table 5

Unconditional Model for PA

<i>Effect</i>	<i>Estimate</i>	<i>SE</i>	<i>95% Confidence Interval</i>	
			<i>Lower Bound</i>	<i>Upper Bound</i>
Fixed				
Intercept	1.547**	.090	1.367	1.727
Linear	-.009**	.003	-.016	-.003
Quadratic	.161	.127	-.095	.417
Cubic	.109	.082	-.055	.273
Random				
Intercept	.352**	.078	.228	.544
Linear	.0003**	.0001	.0002	.0006
Quadratic	.501**	.162	.266	.946
Cubic	.027	.068	.0002	3.452

* $p < .05$ ** $p < .01$

Table 6

Conditional Model Effects of Romantic Relationship Status and Sex of Respondent on PA

<i>Effect</i>	<i>Estimate</i>	<i>SE</i>	<i>95% Confidence Interval</i>	
			<i>Lower Bound</i>	<i>Upper Bound</i>
Fixed				
Intercept	1.703**	.212	1.276	2.129

Linear	-.012*	.005	-.022	-.002
Quadratic	-.278	.179	-.638	.081
Cubic	.230	.125	-.023	.482
RRS	-.256	.265	-.790	.278
Sex of respondent	-.142	.274	-.693	.409
RRS x sex of respondent	.246	.355	-.468	.959
RRS x linear	-.005	.007	-.009	.018
RRS x quadratic	.768**	.236	.293	1.243
RRS x cubic	-.217	.167	-.552	.118
Random				
Intercept	.368**	.084	.235	.577
Linear	.0003**	.0001	.0002	.0006
Quadratic	.383**	.141	.187	.788
Cubic	.034	.070	.0006	1.859

* $p < .05$ ** $p < .01$

Table 7

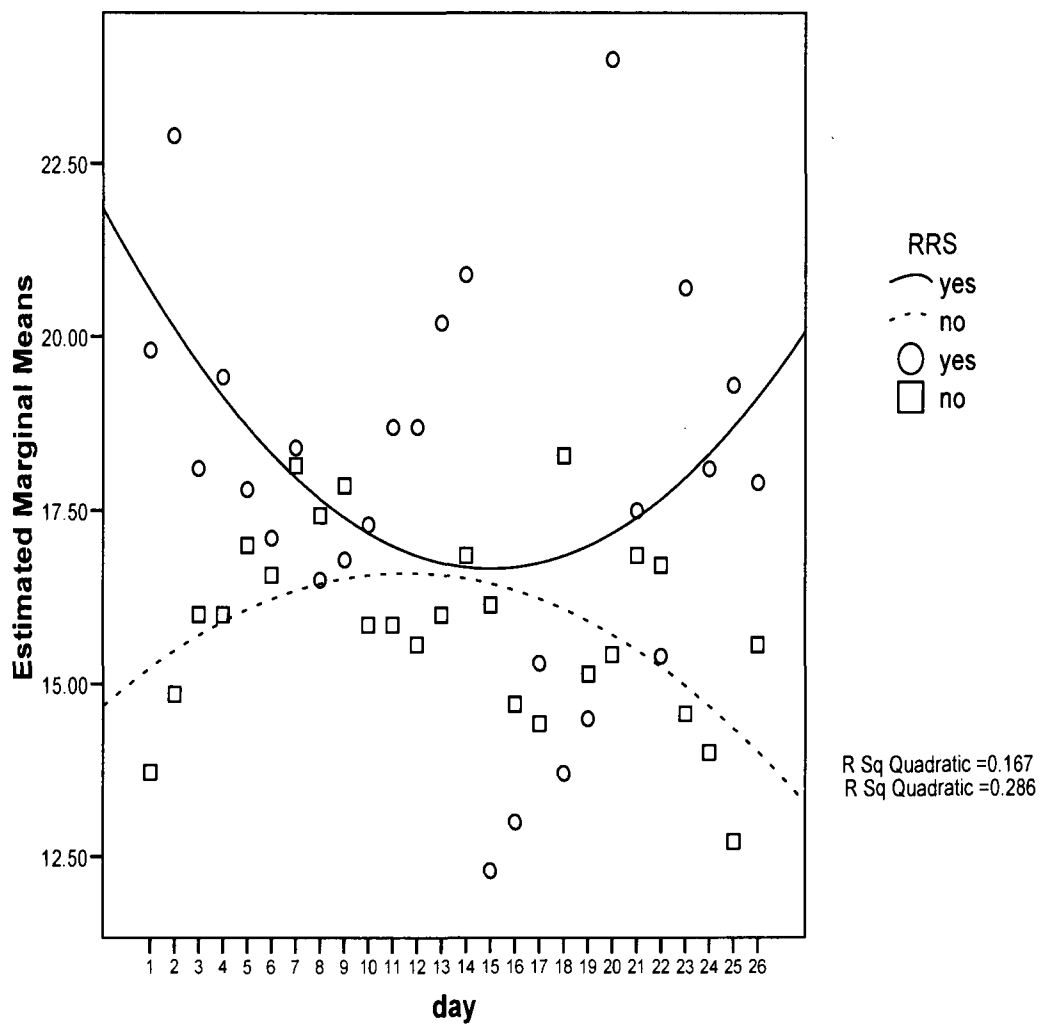
Conditional Model Fixed Effects of Romantic Relationship Status and Sex of Respondent, on PA

Source	Numerator <i>df</i>	Denominator <i>df</i>	<i>F</i>	Sig.
Intercept	1	47.432	280.591	.000
RRS	1	55.168	.545	.463
Sex of respondent	1	44.737	.011	.918
RRS x sex of respondent	1	51.793	.478	.493
RRS x linear	1	49.595	.478	.493
RRS x quadratic	1	48.293	10.565	.002

RRS x cubic	1	47.278	1.703	.198
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Figure 1

Line Graph of Significant RRS x Quadratic Effect Interaction for PA



Hypothesis 4. Individuals in romantic relationships will, in particular, have higher levels of anger, sadness, contentment, and joy than will those not in romantic relationships.

Hypothesis 5. Individuals in romantic relationships will have a pattern of change over time with greater high points and/or more changes in intensity in anger, sadness, contentment, and joy than will those not in romantic relationships.

Hypothesis 6. Females will report higher levels of sadness, contentment, and joy than will males.

Hypothesis 7. There will be no difference between females and males in the level of anger reported.

The individual emotions of sadness, anger, contentment, and joy will be discussed in turn.

As revealed in Table 8, in the unconditional model for sadness, none of the fixed effects were significant. The lack of significant fixed effects suggested that there was not a consistent pattern of linear, quadratic, or cubic growth, across individuals, in sadness level over 26 days. However, the linear and cubic random effects were significant, indicating that the pattern of change over time of sadness varied by person, and varied in both linear and curvilinear fashions. Hence, it was worthwhile to examine a conditional model that could potentially explain some of this variability. As indicated in Tables 9 and 10, in the conditional model, none of the predictors were significant. Moreover, the linear and cubic random effects continued to significant in the conditional model (see Table 9). RRS and sex of respondent did little to explain the individual differences in the pattern of growth of sadness over time. Consequently, a chi square was not calculated.

Table 8

Unconditional Model for Sadness

<i>Effect</i>	<i>Estimate</i>	<i>SE</i>	<i>95% Confidence Interval</i>	
			<i>Lower Bound</i>	<i>Upper Bound</i>
Fixed				
Intercept	.572**	.084	.405	.740
Linear	-.006	.004	-.013	.002
Quadratic	.138	.121	-.105	.382
Cubic	-.285	.153	-.592	.023
Random				
Intercept	.271**	.065	.170	.432
Linear	.0003*	.0001	.0001	.0006
Quadratic	.232	.146	.067	.798
Cubic	.647**	.234	.318	1.316

* $p < .05$ ** $p < .01$

Table 9

Conditional Model Effects of Romantic Relationship Status and Sex of Respondent on Sadness

<i>Effect</i>	<i>Estimate</i>	<i>SE</i>	<i>95% Confidence Interval</i>	
			<i>Lower Bound</i>	<i>Upper Bound</i>
Fixed				
Intercept	.495*	.194	.104	.885
Linear	-.007	.005	-.018	.004
Quadratic	.229	.187	-.146	.604
Cubic	-.067	.243	-.530	.395
RRS	.206	.243	-.282	.695
Sex of respondent	.038	.250	-.465	.541

RRS x sex of respondent	-.239	.328	-.898	.420
RRS x linear	.002	.007	-.012	.016
RRS x quadratic	-.158	.247	-.653	.337
RRS x cubic	-.381	.304	-.993	.230
Random				
Intercept	.283**	.070	.175	.458
Linear	.0003*	.0001	.0001	.0006
Quadratic	.242	.150	.072	.814
Cubic	.629**	.232	.305	1.298

* $p < .05$ ** $p < .01$

Table 10

Conditional Model Fixed Effects of Romantic Relationship Status and Sex of Respondent on Sadness

Source	Numerator <i>df</i>	Denominator <i>df</i>	<i>F</i>	Sig.
Intercept	1	51.938	41.183	.000
RRS	1	56.526	.259	.613
Sex of respondent	1	42.777	.242	.625
RRS x sex of respondent	1	46.146	.534	.469
RRS x linear	1	54.685	.077	.782
RRS x quadratic	1	49.536	.411	.524
RRS x cubic	1	49.405	1.570	.216

In the unconditional model for anger, as shown in Table 11, none of the fixed effects were significant, indicating that there was not a systematic pattern of linear, quadratic, or cubic growth, across participants, in anger level over time. Moreover, none

of the random effects were significant. The lack of significant random effects indicated that the growth curves of anger across the 26 days did not vary significantly by participants. However, given the significant fixed intercept, a conditional model was pursued in order to attempt to explain some of the variability in the mean level of anger.

As indicated in Tables 12 and 13, in the conditional model, RRS was the only significant predictor, although the RRS x linear effect interaction closely approached significance ($p = .052$). The significant RRS finding suggested that the average level of anger over 26 days, across participants, was predicted by whether or not the participant was in a romantic relationship. A review of the means and standard deviations in Table 14 reveals that the average level of anger was higher for those in romantic relationships as compared to those not in relationships.

Although the RRS x linear effect interaction did not quite reach conventional levels of significance, this interaction was graphed for descriptive purposes, to see how the slope of the linear growth curve over time, across participants, for anger differed depending on whether the participant was in a relationship or not. Figure 2 shows the actual data, as well as the fit lines for the linear effect. A review of the graph reveals that those in romantic relationships, as compared to those not, had higher levels of anger at the beginning of the study, which decreased until the end of the study, whereas those who were not in relationships had a steadier level of anger that began at a lower level than that of those in relationships, but increased a bit during the study and ended at a higher level than that of those in relationships. Thus, those in relationships did have higher anger at the beginning of the study, but their anger level declined over time, such that they

actually had slightly lower anger at the end of the study than did those who were not in relationships. However, again, this effect only approached significance.

A comparison of Tables 11 and 12 reveals that there was a substantial reduction in the variance associated with the fixed intercept (.294 versus .391), suggesting that RRS explained some of the individual differences in the *level* of anger, although significant variability remained to be explained. A chi square ($X^2 = 9.496$, $df = 6$, $p = .15$) was calculated, but it was not significant, indicating that the conditional model with RRS and sex of respondent did not explain more variance than the unconditional model without predictors. This indicates that although the reparameterization of the model to include RRS and sex of respondent did not improve the fit of the model to the data; whether or not participants were involved in a romantic relationship did have a notable impact on the level of anger, suggesting that RRS is a useful variable for helping to understand anger as a fixed effect.

Table 11

Unconditional Model for Anger

<i>Effect</i>	<i>Estimate</i>	<i>SE</i>	<i>95% Confidence Interval</i>	
			<i>Lower Bound</i>	<i>Upper Bound</i>
Fixed				
Intercept	.391**	.059	.273	.510
Linear	-.004	.003	-.010	.0009
Quadratic	.024	.104	-.186	.234
Cubic	-.005	.113	-.233	.223
Random				
Intercept	.113**	.028	.070	.183
Linear	4.8E-005	5.4E-005	5.4E-006	.0004

Quadratic	.121	.111	.020	.727
Cubic	.207	.129	.061	.704

** $p < .01$

Table 12

Conditional Model Effects of Romantic Relationship Status and Sex of Respondent on Anger

<i>Effect</i>	<i>Estimate</i>	<i>SE</i>	<i>95% Confidence Interval</i>	
			<i>Lower Bound</i>	<i>Upper Bound</i>
Fixed				
Intercept	.294*	.131	.032	.556
Linear	.002	.004	-.006	.010
Quadratic	-.119	.157	-.434	.196
Cubic	.084	.172	-.263	.431
RRS	.168*	.165	-.161	.498
Sex of respondent	-.069	.163	-.397	.259
RRS x sex of respondent	.150	.214	-.282	.581
RRS x linear	-.011	.005	-.021	8.6E-005
RRS x quadratic	.256	.207	-.161	.673
RRS x cubic	-.162	.229	-.621	.298
Random				
Intercept	.115**	.030	.070	.190
Linear	5.2E-005	5.7E-005	6.2E-006	.0004
Quadratic	.105	.108	.014	.792
Cubic	.212	.131	.063	.713

* $p < .05$

** $p < .01$

Table 13

Conditional Model Fixed Effects of Romantic Relationship Status and Sex of Respondent on Anger

Source	Numerator <i>df</i>	Denominator <i>df</i>	<i>F</i>	Sig.
Intercept	1	69.204	39.139	.000
RRS	1	73.397	4.065	.047
Sex of respondent	1	44.980	.003	.955
RRS x sex of respondent	1	47.048	.488	.488
RRS x linear	1	69.929	3.913	.052
RRS x quadratic	1	47.697	1.525	.223
RRS x cubic	1	48.421	.499	.484

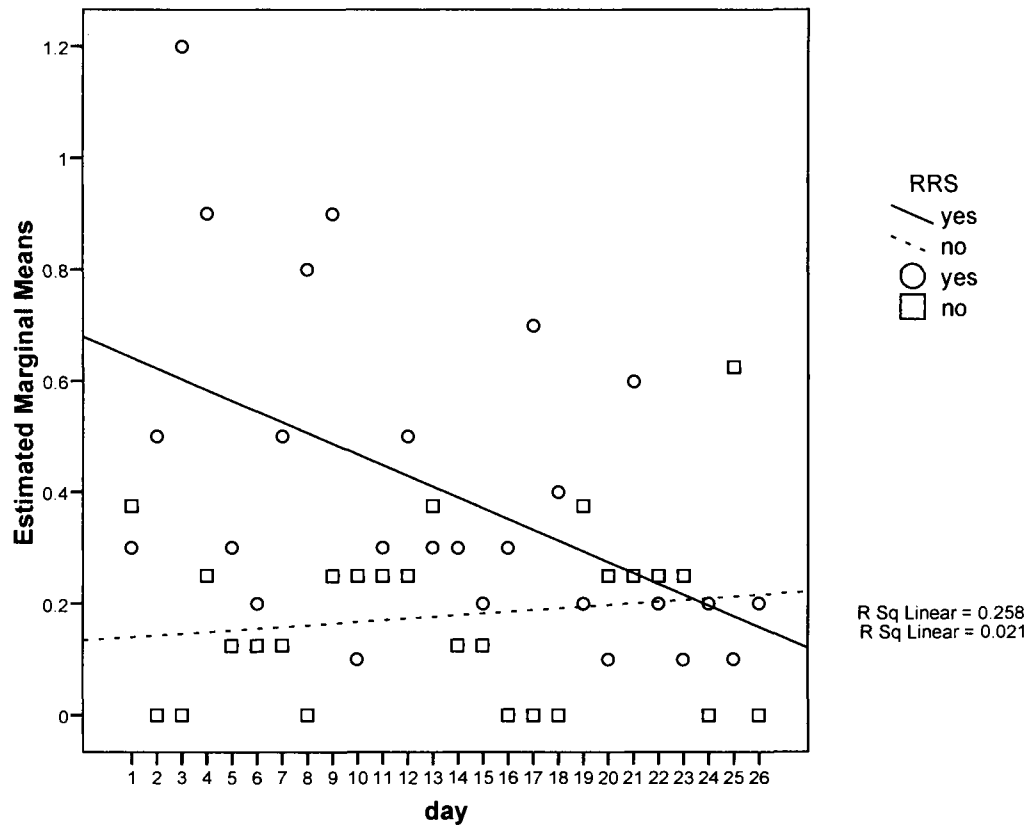
Table 14

Means and Standard Deviations for Anger as a Function of RRS

Effect	<u>Anger</u>		
	<i>n</i>	<i>M</i>	<i>SD</i>
Yes RRS	28	.39	.75
No RRS	21	.27	.66

Figure 2

Line Graph of Nonsignificant RRS x Linear Effect Interaction for Anger



In the unconditional model for contentment (see Table 15), the linear fixed effect was significant. In addition, the quadratic random effect was significant. Respectively, this suggests that there was a significant pattern of linear growth, across individuals, in contentment level over time, and that the pattern of change over time varied in a curvilinear fashion by person. Based on these findings, it was worthwhile to examine a conditional model that could potentially explain some of this variability.

As indicated in Tables 16 and 17, the conditional model, the RRS x quadratic interaction was the only significant predictor of the variability, suggesting that the quadratic growth curve of contentment across 26 days was predicted by whether or not the participant was in a relationship. Figure 3 depicts the actual data as well as the fit lines for the quadratic effect. A review of the graph reveals that the quadratic trend for those in romantic relationships was concave, whereas it was convex for those not in relationships. For those in romantic relationships, the trend was to decline over the first half of the study before increasing over the second half of the study. For those not in relationships, the opposite trend was found: increase over the first half of the study, decline over the last half. Participants in romantic relationships had higher levels of contentment during the first week and last few days of the study. In the middle of the study, those not in relationships reported more contentment.

A review of Tables 15 and 16 reveals a substantial reduction in the variance associated with the quadratic random effect (.450 versus .575). The results suggest that RRS explained part of the between individual differences in the shape of the quadratic growth curve over time for contentment, although variability remained to be explained. A chi square ($X^2 = 2.5$, $df = 6$, $p = .87$) was calculated, but it was not significant, indicating that the conditional model with RRS and sex of respondent did not explain more variance than the unconditional model without predictors. This indicates that although the reparameterization of the model to include RRS and sex of respondent did not improve the fit of the model to the data; whether or not participants were involved in a romantic relationship did have a notable impact on the pattern of change in their experience of

contentment over time, suggesting that RRS is a useful variable for helping to understand the individual differences in these growth curves.

Table 15

Unconditional Model for Contentment

<i>Effect</i>	<i>Estimate</i>	<i>SE</i>	<i><u>95% Confidence Interval</u></i>	
			<i>Lower Bound</i>	<i>Upper Bound</i>
Fixed				
Intercept	1.818**	.116	1.585	2.051
Linear	-.011**	.004	-.018	-.003
Quadratic	.155	.162	-.171	.481
Cubic	.120	.138	-.159	.398
Random				
Intercept	.558**	.125	.360	.866
Linear	.0003	.0001	8.4E-005	.0008
Quadratic	.575*	.262	.235	1.406
Cubic	.210	.192	.035	1.258

* $p < .05$

** $p < .01$

Table 16

Conditional Model Effects of Romantic Relationship Status and Sex of Respondent on Contentment

<i>Effect</i>	<i>Estimate</i>	<i>SE</i>	<i>95% Confidence Interval</i>	
			<i>Lower Bound</i>	<i>Upper Bound</i>
Fixed				
Intercept	1.827**	.271	1.282	2.372
Linear	-.012	.006	-.024	.0007
Quadratic	-.323	.235	-.795	.149
Cubic	.268	.213	-.161	.697

RRS	-.163	.339	-.845	.519
Sex of respondent	.042	.348	-.659	.743
RRS x sex of respondent	.264	.455	-.650	1.177
RRS x linear	.001	.008	-.015	.017
RRS x quadratic	.838*	.311	-.214	1.462
RRS x cubic	-.265	.283	-.834	.304
Random				
Intercept	.584**	.135	.371	.920
Linear	.0003	.0002	9.6E-005	.0008
Quadratic	.450	.240	.158	1.281
Cubic	.237	.200	.045	1.244

* $p < .05$ ** $p < .01$

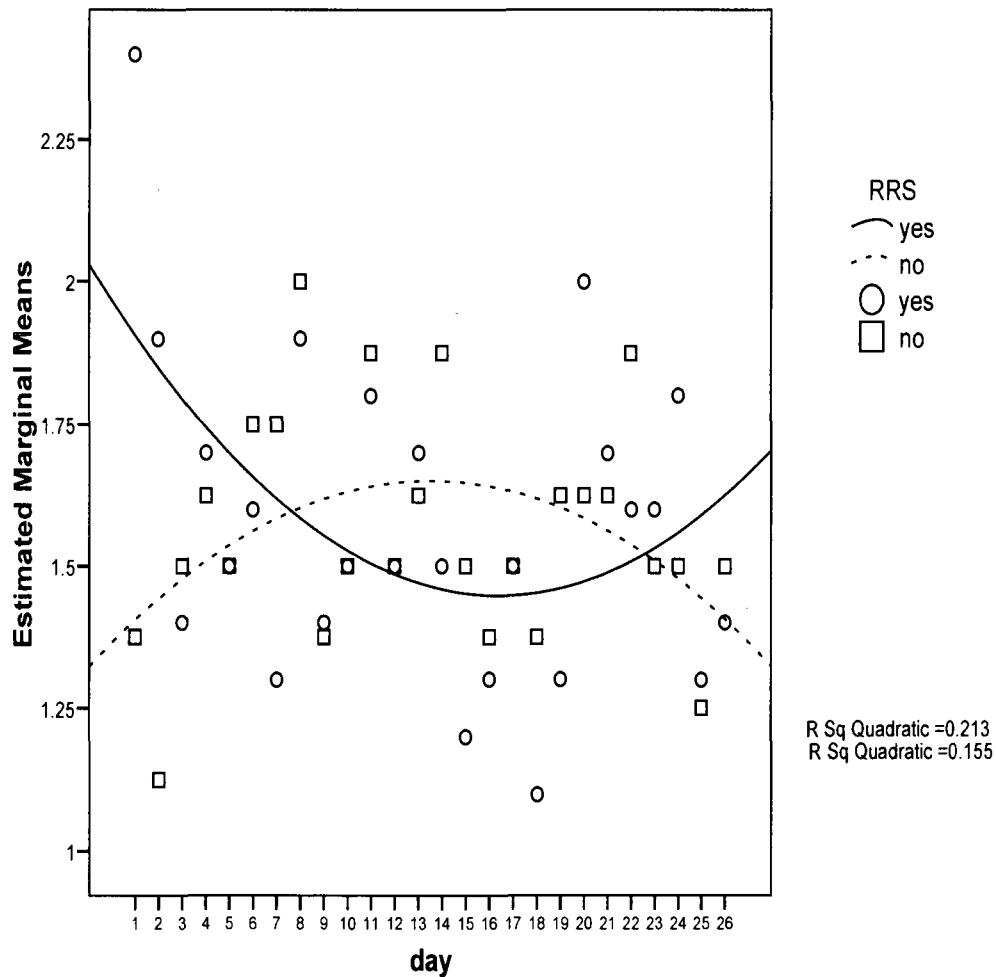
Table 17

Conditional Model Fixed Effects of Romantic Relationship Status and Sex of Respondent on Contentment

Source	Numerator <i>df</i>	Denominator <i>df</i>	<i>F</i>	Sig.
Intercept	1	51.620	229.815	.000
RRS	1	57.959	.018	.895
Sex of respondent	1	44.717	.557	.459
RRS x sex of respondent	1	49.758	.336	.565
RRS x linear	1	52.974	.029	.866
RRS x quadratic	1	48.813	7.287	.010
RRS x cubic	1	48.015	.879	.353

Figure 3

Line Graph of Significant RRS x Quadratic Effect Interaction for Contentment



As revealed in Table 18, in the unconditional model for joy, the linear fixed effect was significant, indicating that there was a systematic pattern of linear growth, across participants, in joy level over time. In addition, the quadratic random effect was significant, suggesting that the pattern of change over time of joy varied in a quadratic fashion by person. A conditional model that could potentially explain some of the variability found at Level 1 was pursued.

As indicated in Tables 19 and 20, in the conditional model, the RRS x quadratic effect interaction was the only significant predictor of the variability. This suggests that individual differences in the curvilinear pattern of growth of joy across 26 days were predicted by whether the participant was in a relationship or not. The line graph in Figure 4 shows the actual data and the fit lines for the growth pattern of joy level by RRS across 26 days. A review of the graph reveals that the quadratic trend for those in romantic relationships was concave, whereas it was convex for those not in relationships. For those in romantic relationships, the trend was to decline over the first half of the study before then increasing over the second half of the study. For those not in relationships, the opposite trend was found: increase over the first half of the study, decline over the last half. Participants in romantic relationships, as compared to those not, had higher levels of joy during the first few days and last few days of the study. In the middle of the study, those not in relationships had higher levels of joy.

A review of Tables 18 and 19 reveals a substantial reduction in the variance associated with the quadratic random effect (.311 versus .566). The results signify that RRS explained part of the between individual differences in the shape of the quadratic growth curve over time for joy, although variability remained to be explained. A chi square ($X^2 = 7.729$, $df = 6$, $p = .26$) was calculated, but it was not significant, indicating that the conditional model with RRS and sex of respondent did not explain more variance than the unconditional model without predictors. This indicates that although the reparameterization of the model to include RRS and sex of respondent did not improve the fit of the model to the data; whether or not participants were involved in a romantic relationship did have a notable impact on the pattern of change in their experience of joy

over time, suggesting that RRS is a useful variable for helping to understand the individual differences in these growth curves.

Table 18

Unconditional Model for Joy

<i>Effect</i>	<i>Estimate</i>	<i>SE</i>	<i><u>95% Confidence Interval</u></i>	
			<i>Lower Bound</i>	<i>Upper Bound</i>
Fixed				
Intercept	1.524**	.120	1.283	1.764
Linear	-.009*	.004	-.016	-.002
Quadratic	.0003	.160	-.322	.323
Cubic	-.014	.132	-.251	.280
Random				
Intercept	.603**	.133	.392	.929
Linear	.0002	.0001	4.8E-005	.0007
Quadratic	.566*	.259	.230	1.389
Cubic	.149	.172	.015	1.438

* $p < .05$ ** $p < .01$

Table 19

Conditional Model Effects of Romantic Relationship Status, Sex of Respondent, and Age on Joy

<i>Effect</i>	<i>Estimate</i>	<i>SE</i>	<i>95% Confidence Interval</i>	
			<i>Lower Bound</i>	<i>Upper Bound</i>
Fixed				
Intercept	1.636**	.279	1.076	2.196
Linear	-.005	.006	-.016	.007
Quadratic	-.634**	.218	-1.063	-.185
Cubic	-.283	.201	-.121	.687

RRS	-.222	.349	-.923	.479
Sex of respondent	-.237	.357	-.956	.482
RRS x sex of respondent	.538	.465	-.397	1.473
RRS x linear	-.008	.007	-.003	.007
RRS x quadratic	1.101**	.289	.520	1.681
RRS x cubic	-.479	.267	-1.013	.059
Random				
Intercept	.628**	.142	.402	.979
Linear	.0002	.0001	4.7E-005	.0007
Quadratic	.311	.209	.084	1.159
Cubic	.153	.175	.016	1.437

** $p < .01$

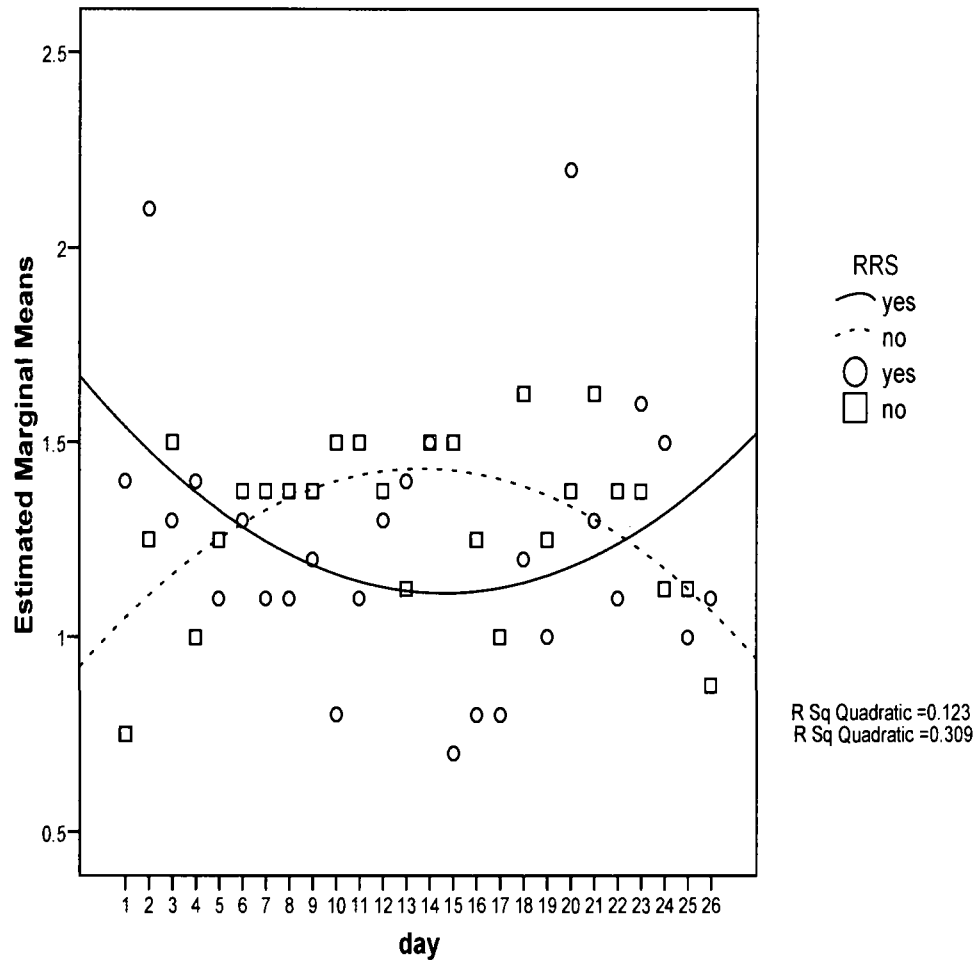
Table 20

Conditional Model Fixed Effects of Romantic Relationship Status and Sex of Respondent on Joy

Source	Numerator <i>df</i>	Denominator <i>df</i>	<i>F</i>	Sig.
Intercept	1	52.283	153.481	.000
RRS	1	59.404	.038	.846
Sex of respondent	1	44.453	.018	.894
RRS x sex of respondent	1	49.956	1.337	.253
RRS x linear	1	54.503	1.055	.309
RRS x quadratic	1	48.243	14.537	.000
RRS x cubic	1	49.914	3.190	.080

Figure 4

Line Graph of Significant RRS x Quadratic Effect Interaction for Joy



Hypothesis 10. The sex of respondent differences expected, that females will report higher levels of all emotions except anger, will be greater for Day 1 data, in which individuals provided retrospective reports for the previous 2 weeks, than for Day 2 data, in which individuals report on their current emotions.

MANOVAs comparing females and males on Day 1 (Wilks $\Lambda = .911$, $F(6, 42) = .687$, $p = .661$) and Day 2 (Wilks $\Lambda = .818$, $F(6, 41) = 1.523$, $p = .195$) reports for the

outcome emotion variables were not significant. No differences between females and males were found on the Day 1 retrospective reports or Day 2 current reports of NA, PA, sadness, anger, contentment, and joy.

CHAPTER V: Discussion

Summary of Findings

This study was designed to explore romantic relationship status as a predictor of negative and positive emotional experience over time in an emerging adult sample. Sex of respondent also was considered as a factor in analyses. A strength of this study was the methodology, including the longitudinal interval-contingent design and the use of MLM. The design resulted in 26 days of self-reported emotional experience for a sample of 25 female and 24 male emerging adults. This provided a window into real-time emotions across time, and painted, arguably, a more valid picture of emotional experience as compared to a retrospective report or global measure (Shrier, Shih, & Beardslee, 2005). Using MLM to analyze the repeated-measures of emotions was advantageous because it allowed for testing for group mean differences as well as for both across and within participant patterns of change, which is not possible with traditional regression programs. Moreover, this method allowed for depicting emotional variability over time by means of growth curves, which provides a detailed view of how emotions change over time. Thus, this study provided an in depth view of the dynamic nature of emotional experience as related to being in a romantic relationship or not.

Based on ERM and Functionalist theory, significant relationships are the fodder for frequent intense emotional experiences because the partner's behavior matters to the other (Barrett, 1997; Berscheid & Ammazalorso, 2004). Thus, it was expected that those in romantic relationships, as compared to those not, would evidence higher levels over

time of negative (NA, anger, sadness) and positive (PA, contentment, joy) emotions. In addition, it was expected that being in a romantic relationship would predict a pattern of change over time with greater high points and/or more changes in intensity in the various emotions. The findings show that romantic relationship status played a role in predicting the variability of all of the emotion variables but NA and sadness. That being said, the differences between the two romantic relationship groups were not consistent and the hypotheses were only partially supported. Moreover, although romantic relationship status was a significant predictor of the experience of anger, PA, contentment, and joy, the models including the predictors of romantic relationship status and sex of respondent did not explain more variance than the models without predictors. Thus, romantic relationship status did not play a powerful role in explaining the variability of the various emotion outcome variables.

For the positive emotion outcome variables of PA, contentment, and joy, there were no differences in the group means for those in romantic relationships and those not in such relationships. Thus, the hypotheses indicating that those in romantic relationships would have higher overall levels of these emotions were not confirmed. However, romantic relationship status interacted with the quadratic growth curves for each of these emotion variables, indicating that those in romantic relationships had a different pattern of growth over time than those not in such relationships. For all three positive emotion outcome variables, the growth curves were opposite in direction for those in romantic relationships as compared to those not in such relationships: concave for the romantic relationship group and convex for the nonromantic relationship group. Those in romantic relationships started and ended higher in contentment and joy, but spent more time at

lower levels in the middle of the study than those not in relationships. Perhaps those in romantic relationships started out higher because they were feeling contentment and joy upon reuniting with their romantic partner at the start of the semester, when data collection began, but then showed a decline in positive affect as “the honeymoon period” passed and day-to-day life took its toll. Unfortunately, data that bear upon this speculation do not exist in the present dataset. It will be important in future studies to try to obtain contextual information to enable better understanding of the emotion reports. For PA, the growth trajectories of those in romantic relationships were at higher levels for the entire study period as compared to those who were not in relationships. Nevertheless, the apparent difference between romantic relationship groups in PA was not significant, probably because some of those in romantic relationships reported quite low levels of PA during the middle part of the study. Overall, the findings do not converge to suggest that those in romantic relationships, as compared to those who are not, report more intense positive emotions on average or consistently over time. However, the different growth curves based on romantic relationship status found for the positive emotions warrant further investigation aimed at better determining influences on these trajectories during the first month of a semester of college.

The results for anger were the most clear-cut. The hypothesis that those in romantic relationships would have higher levels than those who were not in such relationships was supported. Those in romantic relationships experienced a higher level of anger, as indicated by the significant main effect of romantic relationship status. Although popular belief might suggest that a romantic relationship would be associated with higher levels of positive emotion and lower levels of negative emotion, such as

anger, this finding was expected given the opportunity for intense anger that a romantic partner's unexpected disruptive or disappointing behavior might afford.

Romantic relationship status did not predict the variability over time in any of the negative emotion variables, or difference in group mean levels of NA or sadness. Sadness is a negative emotion expected to be elicited by loss or irremediable difficulties in a relationship, so even though it often is prompted by a serious relationship difficulty or disruption, it could be that there were few violations of relationship expectations that elicited sadness over the course of the study, and no more than found in those not in a long-term committed relationship. Recall that we excluded from the dataset any participants whose relationship status changed during the course of the study. By doing so, we eliminated the most important relationship-based elicitor of sadness. However, because we do not have information about emotion-elicitors in the present database, the proposition that this is an important reason for the absence of group differences in this study can be only a speculation.

In terms of the overall NA composite, although it was expected that those in romantic relationships would experience more intense negative emotions than those not in relationships, the composition of the NA composite could have contributed to the lack of significant differences. NA included internal states such as jittery and nervous, and emotions such as scared and afraid, which were less obviously associated with romantic relationship status. There is not a strong empirical basis for predicting that these particular negative states, two of which (jittery and nervous) are better characterized as physiological arousal states than "emotions," would be associated more with being in a romantic relationship versus not. Similarly, although shame and guilt may occur in the

course of a romantic relationship (such as due to a sexual indiscretion) it might be that overall, these emotions are less likely to occur in romantic relationships than in other relationships, such as those between parent and child, that do not distinguish romantic relationship groups. Thus, the aggregated negative emotion composite may not have been a representation of negative emotions most likely to distinguish emotional experience based on romantic relationship status. Regardless, the differing findings for anger and NA speak to the important information gained by looking at individual emotions in addition to overall emotion composites, a topic that will be discussed further below.

Another factor that was investigated in this study was sex of respondent, in order to determine whether females and males evidenced different levels of emotional experience. Traditional gender divergent socialization pathways and norms in the US equip females with more relationship skills and make it more acceptable for females to report expressing emotion (Leaper & Anderson, 1997). It was predicted that females would report higher levels of all of the emotions, except anger. No differences were expected for anger, which is considered to be more characteristic of males, but for which less consistent gender differences have been found in extant research. Finally, it was expected that sex of respondent differences would be greater on retrospective reports than on current reports, given research findings that suggest that retrospective reports are more highly influenced by gender stereotypes (Shields, 2002).

There was no support for the sex of respondent related hypotheses. Rather, the results indicate that females and males were more similar than different in reported emotional experience in this study. No differences were found between females and males on the mean level of self-reported emotions or when sex of respondent interacted

with romantic relationship status. Furthermore, there were no differences found on Day 1 retrospective reports or Day 2 current reports. The findings provide support for the gender similarities hypothesis, which proposes that females and males are more similar than they are different, on most psychological variables (Hyde, 2005). It is likely that context influences whether and to what extent gender differences are found in self-reported emotional experience. In this particular context of private self-reports of current experienced emotion, females and males may be less likely to be influenced by stereotypes that serve to exaggerate gender differences on retrospective or global emotional experience self-report methods. It is important to note that even the retrospective report of the prior 2 weeks of emotion was not characterized by sex-of-responder differences, however, suggesting that the anonymous, online responses may have been more important than the less retrospective nature of the report. Nevertheless, considering context is important in future inquiries about females and males' emotional experience.

Conclusions

Making sense of the findings is challenging due to the complexity of the analyses performed and the subsequent results, which do not lend themselves to a discussion of clear-cut differences between those in romantic relationships and those who were not. That being said, there are several important conclusions that can be drawn. One conclusion is that romantic relationship status is associated with individual differences in emerging adults' emotional variability. Emerging adults' individual patterns of change over time for a number of different emotions was different for those in romantic relationships as compared to those who were not. However, the variability of the various

emotions did not follow a straightforward or uniform pattern allowing for generalizations about emotional experience based on romantic relationship status. The results indicate that the association between emotional experience and romantic relationships is not as simple as that those in romantic relationships have higher levels over time of both negative and positive emotions, as would fit with the basic premise of ERM. Rather, the results support the notion that every person's trajectory of emotions over time is different and that how emotions are experienced over time reflects, at least to some extent, differences associated with being in a committed romantic relationship versus not being in one.

There was an association between romantic relationship status and reported emotional experience, but the results suggest that this association may be better understood with further investigations into individual differences. The importance of individual differences also was highlighted by the fact that random effects of the growth curves, which indicate differences between individuals in patterns of growth, were more common than fixed effects, which pertain to across-individual patterns. It is common in ESM emotional experience research to investigate fixed effects, such that, for example, affect is averaged across all participants. Yet doing so misses important information about the uniqueness of emotional experience over time, which can be reflected in individual trajectories. One of the benefits of using MLM is that individual growth curves can be examined, providing information about how emotional experience may be different for different people. Given that each relationship is different and that, within a relationship, each day may be filled with different romantic experiences and interactions, it makes sense that patterns of growth would vary between individuals. Future research

using MLM is needed to understand more about individual differences in emotional experience and the factors, such as relationship quality, length of relationship, and daily interactions, that influence the individual trajectories of emotions as a function of being in a relationship versus not being in one.

Another conclusion that can be drawn from the current research is that understanding emotional experience over time is advanced with the use of growth trajectories. Results from this study suggest that mean level differences are only part of the story when investigating emotional experience over time as related to romantic relationship status. Mean level differences only were found for anger, yet differences in the pattern of growth of emotions were found for the three positive emotion variables. This suggests that positive and negative emotional experience is not static over time and is best represented by a measure that can characterize that variability. The findings suggest the importance of including growth curves in analyses in order to understand variability over time.

The final conclusion is that it is important to investigate individual emotions in order to understand emerging adults' emotional experience as it relates to romantic relationships. The results provide evidence that individual emotions and emotion composites are experienced differently in relation to romantic relationship status. For example, anger was experienced differently from sadness and NA, of which anger was part. In addition, although there were some similar concave patterns, there also were differences in how PA, contentment, and joy (with contentment and joy being components of PA) were experienced over time. Moreover, the results suggest that it is not simply that romantic relationship status predicted more positive and less negative

emotions (or vice versa). Thus, it is not reasonable to think of negative and positive emotions as a continuum. Information about individual emotions is lost in most extant emotional experience research in which only overall affect is investigated. Future research would benefit from making finer distinctions among negative and positive emotions.

Limitations and Directions for Research

Although this research was the first to investigate the association between two central aspects of emerging adult life, daily emotional experience and romantic relationships, there are some limitations that should be acknowledged. One is that, in terms of understanding the variability of emotional experience, romantic relationship status did not contribute a great deal. The models including the predictors of romantic relationship status and sex of respondent did not explain more variance than the models without predictors. Perhaps one reason for this was that romantic relationship status was measured only as a dichotomous condition that was present or absent. No information about the quality of the relationship over time, or about conflicts and/or positive experiences in the relationship over time, were obtained. Hence, although romantic relationship status was related to emerging adults' emotional experience in this sample, if it had been studied in greater depth, it might have better explained the variability of the various emotions. Given the exploratory nature of this study, more research is needed to understand if and how romantic relationships contribute to emotional experience.

Another limitation is that emotional experience was measured only at one point in time daily. In a traditional ESM design, participants are signaled randomly several times during each day over the course of days or weeks. This allows for a random

representation of participants' daily experiences (Larson, 1989). Only having one daily response during the same timeframe each day might create a biased picture of emotional experience and begs the question of what was missed at other points during the day. However, the interval-contingent sampling method still allowed for a broad representation, and a more valid representation as compared to traditional retrospective self-reports and global measures, of participants' emotional experience over time. Future research would benefit from sampling emotions more frequently each day, and capturing information about emotion elicitors, including relationship-related information. Capturing emotion elicitors would be particularly helpful in understanding whether, to what extent, and how romantic relationships are associated with more intense emotional experience, and to understand between-individual differences in patterns of growth.

Another data collection limitation that could have confounded the results is timing of data collection. Data collection began at the beginning of a college semester, so, as mentioned previously, the return to school could play a role in daily emotional experience in general and as related to romantic relationship status (e.g., if partners were reunited after being separated over the break). Future research would benefit from varying the timing of data collection and/or trying to control for this type of issue, perhaps by collecting information about emotional experiences related to the transition back to school.

In addition to the timing of data collection, the timeframe of data collection is a limitation as well. The data used for this study was collected over the course of 28 days. Almost a month appears to be a reasonable amount of time to represent individuals' average lives and likely provides more variability than would a week, but the 28 days

reflected only one snapshot in time. Had data been collected over the course of a different 28 days or for a longer or shorter timeframe, it is very likely that the findings would look different.

Another limitation is that the data were gathered through self-report. As such, how one *reports* what one is feeling was measured rather than actual feeling states, and these reports may vary across participants based on a number of factors such as sensitivity to feeling states and ability to label feeling states (Barrett, 1997), as well as gender and cultural norms (Shields, 2002). Consequently, it is difficult to be confident that emerging adults' responses represent their true emotions rather than what they perceive to be as more favorable or socially acceptable responses, or that they even are able to accurately identify and label what they are feeling. Although there is no way to verify participants' actual emotional states and validity is a concern, collecting emotions experienced in real time over almost a month provides some confidence in the ecological validity of the responses, especially relative to a retrospective or global self-report. Retrospective reports and global measures of emotional experience are more subject to distortions due to impression management, poor memory (Larson et al., 1980), and the use of stereotypes as heuristic devices (Shields). Thus, the daily reports used in this study are more likely to represent what participants believed they were currently feeling and less likely to be distorted in the ways a retrospective or global self-report would be.

Another limitation is that the sample was restricted to college students and to young emerging adults (18 – 20 year olds). Sixty percent of graduating high school seniors in recent years has enrolled in a 2- or 4-year college (Johnston, O'Malley, Bachman, & Schulenberg, 2004). College delays the entry into adult roles and facilitates

further explorations (Tanner, 2006), and according to a well-known model of college student development, the college context supports development in managing emotions, creating mature interpersonal relationships, and developing competence, among other things (Chickering & Reisser, 1993). Therefore, emerging adults in college certainly are a relevant group in which to study daily emotional experience as related to romantic relationship status. However, focusing only on college students does not provide any insight into the lives of nonstudents and limits generalizability.

In terms of age, the sample being limited to 18 – 20 years olds is restrictive in understanding the course of emotional experience across emerging adulthood. But, the first two years of college are arguably the most vulnerable time of emerging adulthood because the transition to college brings a host of changes – such as moving, changing friends, leaving family, and starting new academic and extracurricular activities – all of which may trigger emotional changes (Chaplin, 2006; Ross, Neibling, & Heckert, 1999). In addition, college students tend to experience significant psychological adjustment to college (e.g., Upcraft & Gardner, 1989) and have the greatest change in ego development (Weathersby, 1997) in the first two years. Thus, in spite of the limitations the sample poses, there was justification to concentrate attention on young college students for the research questions in this study. However, future research would benefit from including a wider age range of participants. Including participants from early adolescence through late emerging adulthood, and even beyond, and following them longitudinally would allow for the assessment of cross-sectional comparisons and developmental trends in the association between emotional experience and romantic relationship status.

An additional limitation is that the operationalization of the romantic relationship variable was broad and nonspecific. The question asked whether participants were currently in a committed romantic relationship, but “committed romantic relationship” could mean different things to different people. The ambiguity of the variable makes the validity of the findings more questionable. Future research would benefit from defining romantic relationships for participants and from collecting more information about romantic experiences, such as about exclusivity and length of relationship. Future research also would benefit from including information about the quality (e.g., intimacy, conflict) of the relationship, preferably by means of a daily interaction record of romantic partners. Although some extant research has linked quality of relationships to aspects of young people’s well-being, such as happiness (Demir, 2008), depression (LaGreca & Harrison, 2005), and delinquency/aggressive behavior (van Dulmen, Gony, Haydon, & Collins, 2008), quality of relationships has not been linked to daily emotional experience nor has a daily romantic partner interaction log been used as a way to measure aspects of relationship quality. Furthermore, collecting information about daily emotional experience and interaction patterns and emotional elicitors of other social relationships in addition to romantic relationships would allow for more directly testing ERM. This type of information also would increase understanding about individual differences in patterns of growth, which, as mentioned, is an important direction for future research.

Another limitation is that no information about previous relationship history, current relationship quality, or about sexual orientation or the sex of the romantic partner was collected. Past romantic experiences shape future ones in that individuals come to relationships with expectations based on their previous relationships (Berscheid &

Ammazzalorso, 2004; Furman & Wehner, 1994). Therefore, previous romantic history would be a relevant variable to include in future research. As mentioned earlier, information about the quality of the relationship and current relationship characteristics would help in interpreting growth curve data. In terms of sexual orientation, findings from a large nationally representative group of adolescents ages 12 – 18 in the US indicate that same-sex relationships in youth are rare (Carver et al., 2003). Only 3.5% of females and 2.2% of males reported having a same-sex relationship in the previous 18 months. It is unclear whether same-sex relationships become more prevalent during emerging adulthood. Regardless, it stands to reason that same-sex romantic relationships during emerging adulthood potentially could predict more emotionality, in particular negative affect, than heterosexual relationships because of the unique challenges faced by same-sex youth. For example, same-sex youth face the difficulties of discrimination, harassment, stigma, family and peer rejection, and partner selection given many same-sex youngsters may not be open about their sexuality (Diamond, 2003; Savin-Williams, 1996). Hence, future research should include sexual orientation as a variable.

Another limitation is that the small sample size and high number of analyses lead to concerns about the validity of results. The sample (49 emerging adults) may have been too small to detect meaningful differences that existed between those in the romantic relationship group and those in the nonrelationship group, and/or between males and females. Yet, another issue is the high number of analyses performed, which could lead to capitalizing on chance. Thus, the results should be interpreted with caution, especially given the exploratory nature of this study.

Finally, there are a few qualifiers that need to be mentioned about the generalizability of the results. Given emerging adults were recruited through a convenience sampling method (self-selecting to partake in this study), the generalizability of the findings is limited. The generalizability of the findings also is limited to European American emerging adults. The large majority (76%) of participants in this study self-selected the European American population category on the demographic questionnaire. The homogeneity of the sample and the small sample size prevented the investigation of how race/ethnicity may influence the self-reporting of emotional experience. On a similar note, because emerging adulthood, romantic relationships, and emotional experience are all culturally bound (e.g., Barrett & Campos, 1987; Cole & Tan, 2007; Collins & Steinberg, 2006), the findings of this study are limited to emerging adults in the present historical and cultural context in the US and findings should not be generalized to emerging adults from other cultural contexts or cohorts.

To conclude, typical emerging adults are involved in romantic relationships and potentially dealing with emotions that are more variable. The results of this study suggest that these two aspects of emerging adults' lives are related. Future studies are warranted to extend these findings and increase understanding about the mechanisms underlying the association between romantic relationships and the variability of emotional experience over time.

CHAPTER VI: References

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Appendix I

Demographic Questions

A. Demographics (Day 1 survey only)

Please answer the following questions about yourself.

- Sex: ☐ Male ☐ Female

- Are you currently in a committed romantic relationship? ☐ Yes ☐ No

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