A DYNAMIC SYSTEMS ANALYSIS OF ADULT ATTACHMENT STYLES, AFFECT, FLEXIBLITY, AND REAL TIME MARITAL INTERACTION

By

Dustin Williams

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Thesis Approved:

Brandt C. Gardner
Thesis Adviser

Glade Topham

Laura Hubbs Tait

A. Gordon Emslie
Dean of the Graduate College

TABLE OF CONTENTS

LIST OF TABLES

Table Page

LIST OF FIGURES

Figure Page

CHAPTER I

INTRODUCTION

Studying Marital Interaction

For some time, researchers and clinicians have been intrigued by the dynamic complexity observed in marital interaction (Gottman, 1979). Researchers have concluded that marital interaction is influenced by patterned processes (Gottman & Levenson, 1999a). In time, researchers have recognized these patterns as "diagnostic instruments" serving to predict marital outcomes (Gottman, 1979, 1994; Gottman & Levenson, 2000, 2002; Revenstorf, Hahlweg, Schindler, & Vogel, 1984). In addition, the predictive nature of these patterns has helped researchers identify the etiological sources of marital distress (Markman, 1984). By identifying etiological sources of distress, researchers have more clearly understood the factors that create and maintain marital distress.

Influences on Marital Distress

Communication is one of the many factors that have been considered a predictor of marital distress (Margolin & Wampold, 1981). Margolin and Wampold noted that distressed and non-distressed couples used markedly different communication patterns while interacting. They specifically stated that non-distressed couples used more proactive problem solving styles of communication, along with more positive verbal and non-verbal behaviors. In addition, Gottman, Markman, and Notarius (1977) stated that the differentiating factor between distressed and non-distressed couples was the use of

negative affect in communication patterns in marital interaction. The results from both of these studies have suggested that specific communication styles and negative affect are strong predictors of distress in married couples. In addition, Gottman and Krokoff (1989) suggested that the use of ineffective communication and negative affect pointed to lower satisfaction in married couples. When considering these results, communication, affect, and satisfaction all serve as strong predictors of relationship distress and eventual relationship dissolution.

Influences of Negative Affect

Research has established negative affect as a variable that influences marital interaction and can predict levels of distress in couples (Gottman, 1980; Gottman & Levenson, 1999a, 1999b, 2003). While positive affect does influence marital interaction (Langhinrichsen-Rohling, Smutzler, & Vivian, 1994), Gottman (1994) argued that negative affect was more predictive of marital outcomes, and Schapp (1984) considered nonverbal negative affect to be the "best discriminator" between distressed and non-distressed couples (p. 154). Indeed, negative affect has been linked to the stability of marital interaction patterns (Gottman & Levenson, 1999a), declines in marital satisfaction (Levenson & Gottman, 1985), and marital dissolution (Gottman & Levenson, 2002).

While both distressed and nondistressed couples experience and express negative affect, Gottman et al. (1977) noted that distressed couples became rigidly entrenched in negative affect influencing the couple's ability to employ positive affect in interaction. Raush, Barry, Hertel, and Swaim (1974) and Gottman (1994) both noted this lack of flexibility in unhappy couples' marital interaction. Gottman introduced the concept of *absorbing states* as a means of describing flexibility, or the lack thereof. Absorbing states

are interactive sequences where couples tend to get "stuck," and experience great difficulty when trying to exit these states. The affective or behavioral flexibility or "stuck-ness" in couple interaction are thought to be influenced by the perceptions and expectations of the partners. Indeed, Weiss (1984) argued that expectancies in marital interaction should be a great focus of researchers when trying to predict affective interaction. One way to assess the implicit expectations of partners is through attachment theory.

Influence of Adult Attachment and Dynamic Systems

Attachment theory has been applied to the study of adult romantic relationships and marital interactions (Hazan & Shaver, 1987; Paley et al., 2005; Shaver, Schachner, & Mikulincer, 2005; Simpson, 1990). The application of this theory to adult romantic relationships has been responsible for a burgeoning body of literature that has sought to document the influence an individual's attachment style has on negative affect in marital interaction. Feundeling (1998) stated that "there are broad differences in affect regulation across adult attachment styles" (p. 292), and noted that the use of negative affect in marital interaction would most likely be an artifact of insecure attachment. Fuendeling argued that an insecure working model would constrain the interpretation and expression of positive affect. The adult attachment perspective on negative affect has exposed an area of marital interaction research that needs further exploration. While attachment theory may assist in explaining the presence of negative affect in marital interaction, it does not explain the affective processes within those interactions. Rather, processual explanations are better accomplished via dynamic systems theory.

Social scientists have utilized theoretical and methodological applications of dynamic systems theory to explore behavioral and affective processes in dyadic interaction (Granic & Lamey, 2002; Hollenstein, Granic, Stoolmiller, & Snyder, 2004; Lewis, Lamey, & Douglas, 1999). These methods provide a fitting context for the investigation of negative affect and affective flexibility in marital interaction.

Purpose

The purpose of this study is to examine the influence that adult attachment has on negative affect and flexibility during marital interaction utilizing a dynamic systems methodology called the state space grid analysis. I will compare secure and insecure couples' affective flexibility and negativity during a marital interaction episode in which partners are asked to transition from a negative to a positive discussion topic. I hypothesize that attachment style will influence the frequency and duration of negative affect, and couples' ability to transition from negative affect during marital interaction.

CHAPTER II

REVIEW OF LITERATURE

Theoretical Frameworks

Dynamic systems theory. In recent years, Dynamic Systems (DS) theory has generated new conceptual and methodological approaches to the study of developmental and relational systems (Granic & Hollenstein, 2003; Lewis et al., 1999). For example, Lewis et al. reported that DS has been used to study motor development, cognitive development, and communicative development. This review of literature is aimed at bridging the gap between research using DS methods and theory and literature focused on affect within the context of adult attachment.

A growing concern among social science researchers is the "lack of fit" between traditional models of development and relationships which are primarily linear, whereas there is growing acceptance that such systems exhibit nonlinear qualities and behaviors (Granic & Hollenstein, 2003). Thus, there is a need for conceptual and methodological advances that allow social scientists the ability to accurately model such characteristics. Dynamic systems theory has been used in a variety of fields to overcome these challenges (Lewis et al., 1999). Below is a brief introduction to DS concepts and tenets.

Specific dynamic systems constructs and concepts. DS is utilized to explain and predict the structured patterns and cycles of behavior observed in complex systems (Gardner, Burr & Weidower, 2006; van Geert & Lichtwarck-Aschoff, 2005). By understanding these patterns and influences, researchers are able to better predict the recurrence of organized patterns and cycles observed in complex systems. In addition, this predictive ability enables researchers to identify ways to influence a desired change in a complex system. Recent conceptual and empirical work has characterized couple and family relationships as complex systems (Granic & Hollenstein, 2003).

The structured patterns and cycles observed in complex systems are greatly influenced by *attractors* in the *state space* of a system. The state space of a system is defined as the entire range of possible attractors in which a system could engage. Attractors can be defined as specific cognitive, affective, and behavioral actions within the state space of the system. For instance, in a romantic relationship the range of possible behavioral states that a particular couple might engage in could range from physical displays of affection all the way to physical violence. However, while that range may exist for this particular couple (and for all couples), we typically see couples settle into a much more narrow or constricted range of behavior. These more narrow ranges of behavior are known as attractors, and are preferred over others.

Indeed, it is possible for complex systems to have multiple attractors. Movement between these attractors only occurs when the system is perturbed. These *perturbations* are considered the forces that influence systems to stabilize around new attractors. Granic and Hollenstein (2003) described perturbations as anything that can instantly drive a system from one stable pattern of behavior to another behavioral repertoire. Perturbations

influence change in the structured patterns and cycles that have become stable in the interactions of a complex system.

Within DS, two concepts reflect the process of change a system can experience after a perturbation. These two concepts are *phase transitions* and *self-organization*. Granic and Hollenstein (2003) considered a phase transition as the process in which a system will shift to the repeated use of a new attractor. In addition, the process of phase transitions influences the self-organization of a complex system. Self-organization is the process by which new behaviors or patterns emerge within systems over time as a result of repeated interactions between elements of the system.

Adult attachment theory. John Bowlby saw his theory as a way to frame the drive of "human beings to make strong affectional bonds to particular others and of explaining the many forms of emotional distress and personality disturbance, including anxiety, anger, depression, and emotional detachment, to which unwilling separation and loss", are believed to have influenced changes in affect and behavior (1979, p. 127). Bowlby also considered environmental influences to be of great importance for understanding human development. From Bowlby's viewpoint, a fitting context for the development of his theory was found in parent child interaction. However, he also believed that there was a "strong causal relationship between an individual's experiences with his parents and his later capacity to make affectional bonds" (1979, p. 135). According to Bowlby (1979) the adult's need for an attachment figure in western society is often overlooked.

Before researchers began applying Bowlby's theory to adult relationships, Mary Ainsworth furthered the theories development with her three-category typology of child attachment representations. Through the observational data she collected, Ainsworth

concluded that infants could be divided into three categories based on the way they had interacted with their caregivers in the strange situation experiment (Ainsworth, Blehar, Waters & Wall, 1978). The three categories developed were secure, anxious, and avoidant. These three categories would later serve as a foundational typology for the first self-report adult attachment measure. Together, Bowlby and Ainsworth have laid a rich foundation with attachment theory for adult romantic relationships to be conceptualized.

Specific adult attachment concepts and constructs. The literature concerning adult attachment has acknowledged several crucial concepts within this theoretical framework. *Working models* of attachment are defined as "conscious and/ or unconscious rules for the organization of information that is relevant to attachment and for obtaining or limiting access to that information" (Main, Kaplan, & Cassidy, 1985, pp. 66-67). Collins (1996) emphasized that working models are intrapsychic representations developed of the self, significant others, and the world where an individual has existed. Main et al. stated that working models are influenced by cognitive and affective components of existing behavioral systems that have a "propensity for stabilization." Collins and Read (1990) also explained that working models are influenced by perceptions an individual has held concerning the worthiness of self and availability of others. They also stated that these models are likely to transfer into subsequent relationships throughout the life span. These definitions represent the cognitive, behavioral, affective and interpersonal influences involved in the processes that have stimulated the formation of working models.

Bowlby (1979) believed that attachment bonds were formed by the reciprocal exchange of behaviors that are performed to gain proximity to an attachment figure. Adult attachment theory has stated that behaviors between romantic partners serve the

function of establishing, maintaining, and even terminating attachment bonds. Feeney and Noller (1996) reported that as in infant attachment, adult attachment behavior is driven by the behavioral goals of proximity maintenance and security. Ainsworth (1989) implied that attachment behavior is influenced by intrapsychic perceptions which have influenced outward behavior. Ainsworth's belief supported the ideology that an interconnected relationship exists between attachment behaviors and working models of attachment relationships. In addition, Ainsworth's belief reflected the reciprocal interplay between attachment behaviors and working models. Furthermore, affect has been recognized as an important concept in adult attachment.

Research and theory emphasized that emotion and affect are crucial to developing an understanding of adult attachment. Emotion and affect, just like physical behavior, are used by individuals to regulate their felt perception concerning security and proximity to an attachment figure in romantic relationships. Fuendeling (1998) described affect as an, "innate, bio-socially determined process that guides adaptive behavior," which is considered interdependent, but distinct from cognition (p. 296). Adult attachment theory is one theory that has specified emotion as a concept that is critical for understanding how adults have expressed, experienced, and adjusted to romantic relationships. Thus, affect has been considered an integral component that has worked congruently with attachment behaviors and working models to influence individual attachment styles.

Attachment Style (AS) is an empirically validated concept aimed at categorizing individuals based on reports of affect, behavior and perceptions of relationships. Attachment style is a term used to understand the degree to which a person fits within a secure or more complex style of attachment. Ainsworth (1978) first developed a three-

category typology of attachment representations, with specific categories of secure, anxious, and avoidant. Since then, researchers have validated this typology to the measurement of adult attachment (Hazan & Shaver, 1987). Each of the above concepts has been discussed to establish a general understanding of the theory of adult attachment. The author will now discuss the reciprocal relationship observed between dynamic systems and adult attachment theories.

Dynamic Systems and Adult Attachment: A Marriage of Two Theories

Current purpose and application of theories. Both dynamic systems and adult attachment theories have been driven by a desire to understand development, change, and patterned organization in relationships (Ainsworth et al., 1978; Alford et al., 2006; Bowlby, 1979; Cox & Paley, 1997; Granic & Hollenstein, 2003; Hollenstein & Lewis, 2006; Hazan & Shaver, 1987; Lewis et al., 1999). DS theory has provided an overarching theoretical and methodological lens for viewing dyadic interaction within systems. Researchers used DS to observe parent-child interaction (Granic & Lamey, 2002; Hollenstein et al., 2004; Hollenstein & Lewis, 2006; Lewis et al., 1999) and child-child interaction (Steenbeck & van Geert, 2005). However, DS has not been widely applied to the study of romantic relationships.

Adult attachment theory has provided a rich framework that has been applied to the study of adult romantic relationships (Collins & Read, 1990; Hazan & Shaver, 1987; Simpson, 1990). Social scientists have applied attachment theory to studies focused on the quality of marital interaction and satisfaction (Banse, 2004; Gallo & Smith, 2001; Monteolivia & Garcia- Martinez, 2005; Tucker & Anders, 1999), conflict and conflict resolution strategies (Corcoran & Mallinckrodt, 2000; Simpson, Rholes, & Phillips,

1996), specific communication patterns in romantic relationships (Sinclair & McCluskey, 1996), and the regulation of affect within romantic relationships (Alford, Lyddon, & Schreiber, 2006; Collins, 1996; Gentzler & Kerns, 2006). However, Hazan and Shaver have argued that adult attachment research has relied on correlational data that lacks the statistical significance to quantify the evolving nature of attachment in romantic relationships. A theoretical and methodological justification for the use of these theories in this study will now be discussed.

Rationalization for use of two theories. Several authors have argued for the use of DS theory and methods in infant attachment research (Coleman & Watson, 2000; Fogel, 2000). Coleman and Watson encouraged attachment researchers to broaden their "theoretical models pertaining to both the nature of the attachment system and the developmental processes leading to the emergence of attachment behaviors" (2000, p. 296). Coleman and Watson criticized attachment research for failing to consider dyadic interaction characteristics for their influence on the development of attachment. They argued for attachment researchers to conceptualize the attachment process as an open and complex system that has been influenced by social, cognitive, and behavioral influences. Coleman and Watson also supported the idea that infant attachment works to establish working models that are evident throughout the life cycle. While these authors argued for the theoretical marriage of DS and infant attachment research, this argument has implications for adult attachment research.

Laible and Thompson (2000) outlined the significant similarities between DS and attachment theory. First, they discussed the dynamic interpersonal process that influenced the formation of attachment bonds. Without two people, there would not be a dynamic

system or an attachment bond. They compare the interactions involved between two people as the reorganization of self-organization within DS. Second, Laible and Thompson stated that since two people create systemic interaction, a married couple, "lends itself well to dynamic system analysis" (2000, p. 306). Third, Laible and Thompson considered the behavioral patterns aimed at maintaining security and proximity as synonymous with the development and purposes of self-organization within DS. Lastly, Laible and Thompson conceptualized specific attachment styles as resulting from distinct behavioral patterns, which are congruent with attractor patterns in DS. Laible and Thompson presented several other interchangeable concepts and constructs between the two theories while having discussed areas where DS could enhance research focused on adult attachment.

Dynamic systems theory has also provided a fitting means for examining and predicting affect, emotions, and flexibility within the context of dyadic interaction. Hollenstein and Lewis (2006) addressed these issues with the dynamic systems method of state space grid analyses. Hollenstein and Lewis conducted a controlled experiment between adolescent daughters and their mothers where negative affect was manipulated in order to graph the dyadic interaction in state space grid analyses. The authors argued that the state space grid analysis provided a means of measurement outside the "naturalistic study of flexibility [which has been] hindered by measurement difficulties" (Hollenstein & Lewis, 2006, p. 657). Hollenstein and Lewis (2006) adapted Thompson's (1990) approach to the study of the flexibility of emotions in relationships. While these means have allowed for unconventional measurement of flexibility, the authors also argued that this method would provide researchers with additional support for predicting

dyadic interaction patterns that influence specific outcomes. This information has buttressed the inclusion of dynamic systems theory and methods in the study of the influence of attachment on negative affect and flexibility in marital interaction.

Dynamic systems support of attachment theory. Laible and Thompson (2000) addressed attachment theory's lack of a conceptualization concerning the organization of behaviors geared toward accomplishing attachment goals. The authors emphasized the systemic and reciprocal interchanges between two or more individuals in a dynamic system. While these individuals function within the system, attachment behaviors are thought to become more complex as individual working models becomes more complex. As these patterns become more complex, the working model evolves into a more specific pattern reflected in a person's specific attachment style. This is an example of self-organization. Furthermore, within DS an individual's specific attachment style should not be conceptualized outside the context of the system. Rather, DS seeks to understand the influence attachment styles have on the whole of a system's interactions. Indeed, Banse (2005) considered specific attachment configurations within dyads as influencing the relational functioning and satisfaction of the relationship.

Theoretical and methodological benefits of two theories. Laible and Thompson (2000) stated that DS provides a fitting conceptualization of the formation of attachment behavior patterns that are influenced by working models. During the DS process of self-organization, specific attachment behaviors are predicted to have become stable attractors within the state space of the system. Factors that influenced the formation of the behaviors are considered in DS. For example, the attachment style of both individuals, and context-related events are conceptualized as having influenced the available

attractors within the state space of a system. Consequently, DS held that attachment styles are not deterministic explanations of behavior, rather attachment styles have been considered flexible adaptations of typical system behaviors that can and most likely will change as the system grows more complex.

The stability of attachment or attractor patterns was also addressed by Laible and Thompson (2000). These authors asserted that working models or self-organization have become unstable during phase transitions in the system. The instability of these attractors or attachment behaviors is reflected in the systems ability to have continued to self-organize in light of perturbations. In addition, phase transitions have provided researchers with a context to understand the patterns associated with specific attachment styles. More specifically, this context has given researchers a glimpse into the influence that real and developmental time have had over the self-organization of specific attachment styles. This component, has addressed the DS belief that systems will not remain stable, DS have continued to change throughout time. Therefore, DS has provided a context to understand how affect has influenced the changing patterns of attachment behavior within DS.

Review of Adult Attachment Literature

Research focused on infant-caregiver attachment developed an extensive body of literature that has supported the theoretical assertions of Bowlby and Ainsworth. However, until as recently as 1985, researchers failed to link romantic love to the attachment framework Hazan and Shaver (1987) were the first to have produced substantial empirical work applying the attachment framework to romantic relationships. They developed a measure based on Ainsworth's three-category typology of secure,

anxious and avoidant. Within their study, they developed a forced-choice measure aimed at capturing information relevant to a person's attachment style, working model, and experience of emotions in close relationships. They applied their measure in two different studies: the first recruited subjects from a newspaper study and the second sample was randomly selected from a college class. These studies produced results that instigated new research concerning adult romantic relationships.

Concerning attachment style, Hazan and Shaver (1987) discovered that both samples fit the common disbursement of specific attachment styles established in studies with infants. Specifically, results from the measure categorized the samples as 56% secure, 24% avoidant, and 20% were anxious/ ambivalent. In addition, the study revealed that respondents experienced, "a unique constellation of emotions for each of the three attachment categories" (1987, p. 521). Concerning working models, the study produced results that indicated similar working models present similar cognitions focused on romantic relationships. While Hazan and Shaver's work validated the application of attachment concepts to romantic relationships, their study also identified limitations concerning the measurement of adult attachment.

The measurement and categorization of adult attachment has been a controversial subject. Collins and Read (1990) acknowledged and expounded on the limitations of Hazan and Shaver's measure. In particular, they identified that the forced-choice measure limited respondents to three distinct categories which did not reflect a respondents feelings on all three descriptions. In addition, they challenged the assumption that there were three distinct styles of adult attachment. Their work sought to develop a measure that would capture dimensions underlying attachment styles, working models, and that

would measure the influence attachment styles would have on dating relationships. Their study provided much needed information for research conducted from an adult attachment perspective with the development of the Adult Attachment Scale (AAS).

Collins and Read (1990) found that their AAS captured a more sensitive and rich description of an individual's attachment style. Their results revealed and supported a need for a dimensional analysis of adult attachment as opposed to the forced-choice categorization developed by Hazan and Shaver. Collins and Read expressed several advantages to dimensional analysis of attachment in the AAS. First, a dimensional analysis provided a clearer perception of dimensions underlying specific attachment styles. Factor analysis of their 21-item scale revealed that three dimensions were found to differentiate the three attachment styles. The three dimensions consisted of comfort with closeness, perception of others concerning their dependability, and feelings of anxiety concerning abandonment and a person feeling unlovable. These dimensions have been reflected and reported throughout Bowlby and Ainsworth's work as being fundamental for developing an attachment bond.

Collins and Read (1990) extended the work of Hazan and Shaver (1987) concerning working models. By providing a more developed list of ideas concerning romantic partners, they were able to identify specific cognitions that were identifiable with specific attachment dimensions. From their results, they suggested that working models have shown to be very complex and needed to be more thoroughly researched. Collins and Read asserted that the three-category typology, on which Hazan and Shaver based their work, was too limited to capture dimensional adult attachment. This assertion

influenced the way adult attachment researchers perceived the concept of attachment styles.

Bartholomew and Horowitz (1991) agreed with Collins and Read (1990) and offered a four-category typology of adult attachment styles. Bartholomew and Horowitz designed a four-category grid composed of two continuums that intersect. These continuums represent an individual's perception of the self and others. The specific attachment styles identified in this typology are secure, preoccupied, dismissive-avoidant, and fearful-avoidant. Their study used a number of attachment measures that ranged from; self-report measure, attachment interviews, peer reports of an individual's attachment, and reports of attachment relationships with family members. Their results identified that a four-category typology of attachment styles represented the dimensional measurement of adult attachment. Concerning attachment styles, Bartholomew and Horowitz identified these categories as secure, dismissing, preoccupied, and fearful. The difference in this model, as compared to the three-category typology, emerges from comparisons of dismissive and fearful individuals.

In previous models (Ainsworth et al., 1978; Collins & Read, 1990; Hazan & Shaver, 1987), the avoidant category was used to describe both dismissive and fearful attachment styles. Bartholomew and Horowitz observed a fundamental difference in respondents who were classified in the avoidant category. The difference was found when measuring an individual's willingness to pursue intimacy in relationships. For example, fearful individuals had a negative model of self and others which prevented any attempts at intimacy. In contrast, dismissive individuals have a positive model of self and a negative model of others, this stance confirmed the individual's working model that

others need not be relied upon instead focusing on the self. Bartholomew and Horowitz's work served to reconfigure how researchers classify and measure attachment in adults with the four-category typology.

Explosion of adult attachment research. The work of Hazan and Shaver, (1987), Collins and Read (1990), and Bartholomew and Horowitz (1991) left us with a rich conceptualization of adult attachment styles and the methodological means needed to conduct research. These authors' work has allowed the theory of attachment to be applied to many facets of adult romantic and non-romantic relationships. For example, researchers have used the construct of attachment styles to understand therapeutic processes between client and therapist (Eames & Roth, 2000; Horowitz et al., 1993; Parish & Eagle, 2003; Riggs, Jacobvitz & Hazen, 2002), and researchers have developed methodological means to measure the attachment relationship between the therapist and client (Mallinckrodt, Coble, & Gantt, 1995). In addition, attachment constructs have been used to identify relationships between insecure attachment and sexual experiences (Gentzler & Kerns, 2004), and the attachment styles of stalkers (Tonin, 2004). For the purpose of this literature review, the literature focused on attachment styles, affect, and conflict resolution as they have been related to adult romantic relationships will now be discussed.

Attachment styles. The secure style of adult attachment has been defined as a person having a high sense of security in interpersonal relationships, high levels of trust in the self and others, high levels of comfort with closeness, satisfaction, and an ability to maintain interconnectedness in relationships while maintaining personal autonomy (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987; Mikulincer, Shaver, & Pereg,

2003; Simpson, 1990). The secure attachment style has been linked to longer lasting relationships (Gaines, Work, Johnson, Youn & Lai, 2000; Jang, Smith, & Levine, 2002; Monteolivia & Garcia- Martinez, 2005), higher marital satisfaction (Gallo & Smith, 2001; Monteolivia & Garcia- Martinez; Simpson 1990; Tucker & Anders, 1999), and the secure attachment style has been associated with a conflict style that does not avoid communication (Corcoran & Mallinckrodt, 2000).

The literature has established the positive influences that have surrounded secure attachment. For example, Banse (2004) found that the effect of insecure attachment was compensated by different combinations of attachment styles in dyadic configuration. Banse stated that "the negative main effects of insecure attachment on marital satisfaction were at least partially compensated by positive effects of specific combinations" of attachment styles (Banse, 2004, p. 280). However, the literature has not addressed the degree to which secure attachment has positively influenced relationships in real-time intervals. Banse believed this lack of research has supported the application of attachment theory concepts and DS methodologies to measure the moment to moment influences of secure attachment in dyadic interaction.

An extensive body of literature has established the concept or category of the preoccupied attachment style. The preoccupied adult attachment style has been defined as adults who "are high in anxiety and low in avoidance; they have an exaggerated desire for closeness and dependence, coupled with a heightened concern about being rejected" (Collins & Feeney, 2000, p. 1054). The preoccupied attachment style has been considered to be the closest in definition and operation to the secure style of attachment. The

difference exists in the perception of the self, with the preoccupied attachment style having a negative view of the self (Bartholomew & Horowitz, 1991).

The preoccupied attachment style was linked with a greater need for dependence (Bartholomew & Horowitz, 1991; Feeney & Noller, 1990), however this dependence was not always considered a negative trait. Moteliova and Garcia-Martinez (2005) observed that preoccupied individuals were more likely to report positive attitudes toward sharing intimate aspects of their relationships as compared to avoidant individuals. In contrast, Banse (2004) reported that preoccupied attachment style predicted less marital satisfaction. The positive aspects of the preoccupied attachment style must still be compared to the deleterious aspects of this attachment style. Higher anxiety scores, or a preoccupied attachment style, have pointed to negative attributions toward; partner behaviors, communications, emotions, and ineffective care giving behaviors (Collins & Feeney, 2000; Gallo & Smith, 2001; Simpson et al., 1996; Tucker & Anders, 1999). Dismissive-avoidant attachment styles were found to be the direct opposite of the preoccupied attachment style.

The dismissive-avoidant attachment style has been characterized as a positive view of the self and a negative view of others (Bartholomew & Horowitz, 1991; Collins & Feeney, 2000). The high self-esteem is supported by the rejection of the need for important attachment figures or relationships. In contrast, the dismissing individual's rejection of significant others is influenced by their perception that a rejection of the self would be inevitable. This attachment style was shown to be difficult to measure due to individuals having dismissed the need or importance of attachment relationships. However, research has documented unique characteristics for this attachment style.

Dismissive attachment style has been linked to lower perceived levels of conflict (Gallo & Smith, 2001). This finding could be explained by Bartholomew and Horowitz's findings that dismissive individuals lacked assertiveness in social settings. Simpson reported that dismissing individuals reported lower levels of commitment, trust, and satisfaction in relationships (1990), which has been supported by the assertion that dismissing individuals have been found as compulsively self-reliant by (Mickulincer et al., 2003). The last attachment style that has been discussed is the fearful-avoidant attachment style.

The fearful-avoidant attachment style has been conceptualized as a combination of the negative aspects of both the dismissing and preoccupied styles of adult attachment. Fearful-avoidant individuals have developed a negative view of the self, in addition to a negative view of others (Bartholomew & Horowitz, 1991; Collins & Feeney, 2000). Bartholomew and Horowitz were the first researchers to conceptualize this specific style of attachment. The fearful avoidant group was associated with higher levels of relationship dissolution (Monteliova & Garcia- Martinez, 2005), negatively correlated with good relationship functioning (Bartholomew & Horowitz, 1991; Gallo & Smith, 2001; Monteliova & Garcia- Martinez), and had lower levels of perceived security and support in romantic relationship (Simpson, 1990; Tucker & Anders, 1999). The author has chosen to keep this discussion of attachment styles brief. However, the author has discussed how each attachment style is related to variables such as conflict resolution and affect in this literature review.

Adult Attachment and Conflict Resolution. Conflict resolution and problem solving have been critically vital to the stability and satisfaction of romantic

relationships. Adult attachment researchers have spent a great deal of time and effort to understand how attachment styles, working models, and affect influence conflict resolution. Several studies have documented that secure attachment has served as a positive mediating variable for the resolution of conflicts (Corcoran & Mallinckrodt, 2000; Gaines et al., 2000; Shi, 2003; Simpson et al., 1996). Specifically the secure attachment style has been associated with integrating and compromising conflict resolution styles (Corcoran & Mallinckrodt), less stress and hostility toward partners (Simpson et al.), less likely to display exit responses in conflicts (Gaines et al.), and more active in problem solving efforts (Shi). However, the body of literature focused on conflict resolution does not address the degree or influence that secure attachment has had in dyads where one partner is insecure during conflict resolution.

Distinct characteristics and patterns for conflict resolution have been documented concerning insecure attachment styles. Simpson et al. (1996) observed that anxious-ambivalent individuals expressed more stress and anger during and after a forced discussion. The stress and anger of these individuals might be explained by an obliging conflict style identified, in ambivalent individuals, by Corcoran and Mallinckrodt (2000). These individuals might have placed the approval of others over their own satisfaction in conflict. In contrast to Corcoran and Mallinckrodt, Shi (2003) presented the idea that anxious individuals might have employed a dominant style of conflict resolution to gain proximity to the attachment figure. If the dominant strategy did not help the individual attain the attachment related goal, then they still would have expressed the stress and anger associated with Simpson et al. results. The dominant style of attachment has also been documented in avoidant individuals.

Corcoran and Mallinckrodt (2000) recognized that avoidant individuals employed a dominating style of conflict resolution to evade potential arguments. The avoidance of conflict in avoidant individuals was aimed at avoiding potential rejection and the acceptance of need for attachment figures (Shi, 2003). For example, Simpson et al. (1996) remarked that avoidant individuals did not experience stress and anger after conflict resolution discussions. These results suggested that avoidant individuals have denounced potential conflict to avoid anxiety provoking situations. In addition, the avoidance of conflict became an unconscious behavior, reflected by the individual's negative working model of others. Shi identified that men were more avoidant of conflict in general, although attachment style was a stronger predictor of avoidance in conflict resolution. This research documented that specific attachment styles have been characterized by unique conflict resolution strategies. Affect is another component of conflict resolution strategies that have been employed by individuals in order to attain their attachment goals.

Adult attachment and affect. Russell (2003) defined affect as the, "neurophysiological state consciously accessible as the simplest raw feelings evident in moods and emotions" (p. 148). Attachment theory has provided a crucial theory for understanding the experience of emotion, and the centrality of emotion in development (Alford et al., 2006; Wei et al., 2005). Amini et al. (1996) stated that affect is the dialect through which inherent cognitions of attachment relationships have been communicated. Amini et al. emphasized that early memories or working models are the "enduring neural structure that influences both emotional self-regulation and behavior" in adult attachment relationships (1996, p. 213). Collins (1996) also acknowledged that emotion is a strong

component of working models that has influenced behavioral and cognitive strategies associated with specific attachment styles. Research identified specific affective strategies associated with particular attachment styles.

Fuendeling (1998) stated that adult attachment literature has developed enough that, "it is safe to say we know there are broad differences in affect regulation across adult attachment styles" (p. 292). The secure attachment style has been associated with high levels of positive affect (Alford et al., 2006), lack of emotional reactivity or emotional cutoff (Wei et al., 2005), and the ability to recall positive emotions concerning memories (Gentzler & Kerns, 2006). In addition, a unique characteristic of affect for secure individuals was their ability to recall affect related to self-enhancement, and social connectedness (Alford et al.). Adult attachment literature outlined distinct differences concerning affect for insecurely attached individuals

Dismissive and fearfully avoidant individuals have been found to express higher levels of negative affect (Alford et al., 2006). While preoccupied individuals have expressed high levels of positive affect in order to maintain attachment proximity. Avoidance has been associated with emotional cutoff as a distinct affective regulation process, and anxiety has been associated with emotional reactivity (Wei et al. 2005). While anxious attachment has been associated with emotional reactivity, Gentzler and Kerns (2006) found that negative emotions of memories declined for individuals who were highly anxious and lower in avoidance. Although insecure attachment has been associated with negative affect, these individuals have experienced and dealt with positive affect.

For example, anxiously attached individuals underestimated the degree of positive affect recalled from past memories (Gentzler & Kerns, 2006), which supports a constant need for positive affect to maintain a stable sense of security for these individuals (Mikulincer et al., 2003). The need for positive affect in anxiously attached individuals is evidenced by the use of hyperactivating affective strategies that intensify and heighten negative emotion and cognition (Mikulincer et al.). The hyperactivation strategy, stated above, is similar to the emotional reactivity discussed by Wei et al. (2005). Avoidant attachment style pointed to the minimization of positive affect from memory, and inversely the intensity of negative affect reported from immediate reactions. Avoidantly attached individuals have learned to utilize deactivating strategies which have kept, "the attachment system deactivated so as to avoid frustration and further distress by attachment-figure unavailability" (Mikulincer et al., 2003, p. 85). While both positive and negative affect have been disregarded by avoidantly-attached individuals (Mikulincer et al.), these individuals have had to access and dismiss the positive affect from a partner to have achieved self-organization and maintained their working models. Affect has been asserted to be a crucial component of adult attachment theory, due to the influences affect has had over cognition.

In particular, affective strategies employed by securely or insecurely attached individuals have had cognitive consequences, which influence behavioral outcomes in relationships. Mikulincer et al. (2003) considered the negative consequences of negative affect to be heightened negative mood, negative views of relationships partners, fears of rejection and abandonment. The consequences allowed for the continued activation of the attachment system. Mikulincer et al. argued that attachment style moderates the

relationships between negative affect and cognition. Mikulincer et al. emphasized that positive affect has influenced outcomes for positive cognition. They argued that creative problem solving, and the ability to step back from a conflict were observed when individual employed positive affect. However, these results were found only in individuals who scored low on attachment anxiety and avoidance.

Review of Negative Affect Literature

Social scientists have established an immense body of literature concerning negative affect in marital interaction outside the boundaries of adult attachment research. Raush, Barry, Hertel, and Swaim (1974) explored the stability of patterns in marital interaction during major transitions in marriage such as the introduction of a new child. While the statistical analyses represented in this study were not exhaustive, the study did highlight the stability of patterns in marital interaction. In addition, Raush et al. pointed to the affective influences that maintained that stability of patterns. Gottman and Levenson (1999a) expounded upon the work of Raush et al. concerning the stability of affect in marital interaction. Gottman and Levenson (1999a) supported the idea that affective patterns, both negative and positive, remain stable throughout the life course of a marriage. Gottman and colleagues have also provided an immense exploration of the influence of negative affect in marital interaction that precedes the 1999 study.

As early as 1977, Gottman, Markman, and Notarius explored the relationship that negative affect had on marital interaction. Gottman et al. (1977) established a clear difference between distressed and nondistressed couples concerning negative affect. Their results suggested that negative affect was the most prominent discriminator of distress between clinic and non-clinic couples. Furthermore, this study highlighted the

idea of reciprocity of affect in marital interaction. Of all of the important results in this study, the representation of coded data concerning affect, and the differentiation of distressed from nondistressed couples has served as a hallmark for research concerning the influence of negative affect in marital interaction.

Gottman and Krokoff (1989) explored the influence of negative affect in a longitudinal study focused on marital interaction and satisfaction. Gottman and Krokoff presented the idea that certain types of conflict were representative of patterns that would result in a decline of marital happiness and satisfaction. In each of these patterns, a negative affect component was identified to influence the negative aspects of the patterns. Levenson and Gottman (1985) also explored that influence of negative affect on changes in marital satisfaction. The results of this study were rather significant in reference to negative affect influencing changes in marital satisfaction. This study consistently represented that negative affect had the greatest influence on physiological reactivity and the decline of marital satisfaction. Negative affect has also been associated with variables linked to process level outcomes in marital interaction.

Levenson and Gottman (1985) further supported their research linking affect, physiology, and marital satisfaction. In addition, this study also supported the differentiation of distressed and nondistressed couples based on negative affect patterns in interaction. By using self report affect measures, Levenson and Gottman involved couples in the process of capturing the real-time influence of negative affect in marital interaction. The results further established the physiological link between negative affect and marital dissatisfaction. Gottman and Levenson (2002) also linked negative affect to the predictability of divorce. In this study the authors identified that negative and neutral

affect influenced greater predictability of divorce in couples. In addition, this study further established the link between affective patterns and the influence that negative affect has on marital interaction.

Review of Affect Pattern and Flexibility Literature

In recent years, researchers have given the patterns and processes associated with negative affect more attention in an effort to explore the process of flexibility in marital interaction (Burman, Margolin, & John, 1993; Forgatch, 1989; Margolin & Wampold, 1981; Pasch & Bradbury, 1998). These authors have argued and agreed that the influence of negative affect has a greater effect on the processes of flexibility and the use of affective strategies in marital interaction than on specific outcomes. Burman et al. (1993) highlighted that negative affect typically received a reciprocal response of negative affect within the marital interactions observed in their study. Burman et al. argued that negative affect has a greater long-term influence on marital interaction processes, than on immediate marital interaction outcomes. However, the deleterious influences of negative affect will pose serious long-term risks to healthy marital interaction. Even though these authors have highlighted the influence of negative affect, few studies have explored the specific patterns associated with affect and flexibility.

Griffin (2003) studied affect patterns and the association that affective patterns have with making distinction between distressed and nondistressed couples. Griffin postulated that "behaviors and emotions" could not be punctuated unto themselves since together these concepts reflects the quality of interaction within relationships (2003, p. 140). Griffin goes on to argue that the affective patterns or states within relationships are not possessed by the individuals, rather "the affective state is possessed by their

relationship" (2003, p. 142). Since Griffin considered affective patterns to be defining aspects of relationship quality, he acknowledged that "distressed couples would use and remain in states of negative affect with longer cycles of negative reciprocity" (2003, p. 143). In line with these results, Pasch and Bradbury (1998) have argued that the use and perpetual states of negative affect will influence an individual's ability to perceive social support from marital partners. These results have pointed to the toxicity produced from inflexible negative affect patterns in marital interaction. Since researchers have established that negative affect influences both short-term and long-term marital interaction, social scientists have sought to define and explore the outcomes of these affective patterns. Several variables have been identified as outcomes of continual use of negative affect in marital interaction. Reciprocity and flexibility are thought to be variables that intensify the impact of negative affect in marital interaction (Gottman, 1994; Thompson, 1990). Gottman (1994,1998) presented the idea that continued use of reciprocal negative affective patterns created inflexible "absorbing states" of negative affect for couples. These absorbing states are thought to be metatheoretical places where couples become stuck and are unable to return to states of positive affect. Gottman goes on to argue that absorbing states increase the psychological, behavioral, and physiological repercussions of negative affect in marital interaction. This increase in reactivity disables any attempt to repair or fix the negative affect associated with specific arguments. When couples continually employ the same affective strategies absorbing states are created, and as the couples spends more time in this absorbing state each individual becomes less flexible in their attempt to repair the situation. Unfortunately, Gottman discovered that the repetitive nature of these absorbing states creates extremely

predictable and inflexible patterns within a couple's marital interaction. More specifically, Gottman's study indicated that distressed couples became inflexible in their absorbed states of negative affect, while nondistressed couples remain unpredictable in their affective interaction.

Thompson (1990) provided new insight into the measurement and conceptualization of affective flexibility in interpersonal relationships. Thompson specifically argued that while emotion and affect have been found to influence interpersonal interaction, little attention has been given to the regulation of emotion, flexibility of emotional regulation, and the influence of emotions in social relationships. Thompson argued that new methodological approaches were necessary to capture the dynamic processes evident in emotional flexibility. Thompson's purposed arguments were geared to increase the "insight into developmental changes in cognition/ emotion interrelationships" (1990, p. 374). Thompson considered attachment relationships as a fitting context to examine emotional flexibility by examining the specific emotional experience of individual's with secure and insecure classifications of attachment.

Review of State Space Grid Literature

Defining state space grids. As stated earlier, DS researchers have developed a unique methodological advancement concerning researched focused on dyadic interaction. Lewis, Lamey, and Douglas (1999) pioneered the use of the State Space Grid (SSG) analysis in their study of early socioemotional development. SSGs are a new method relying on standard statistical procedures to capture and analyze the structure of intra-individual and dyadic interaction at a systemic level (Lewis et al., 2004). SSGs are comprised of a grid where one individual's (e.g., husband) behavior is coded on the *x*

axis, and another individual's (e.g., wife) behavior is coded on the *y* axis (See Figure 1). For the purposes of this study, a 5X5 grid has been developed to represent our findings. SSGs represent a "two-event sequence or a simultaneously coded," dyadic event (Granic & Hollenstein, 2003, p. 658). For example, a hypothetical SSG representing a husband and wife's interaction has been provided in Figure 1. These grids represent the state space of a particular system. Each cell within the grid represents a specific attractor within the dyad's state space (See Figure 1). Behavioral trajectories are graphed and charted as a dyad, "moves from cell to cell, stopping for long durations in some cells and briefly or not at all in others" (Lewis et al., 2004, p. 58). With SSG analyses researchers are able to observe a system's specific attractor patterns. Furthermore, if dyads tend to stay in a specific cell for a length of time, the SSGs is able to plot and collect data concerning this specific behavioral or affective event which is considered to be an attractor. SSGs have provided researchers with many methodological advances that have enhanced empirical endeavors.

Advantages of state space grids. Many advantages have been associated with the methodology of SSG analyses. For example, researchers have argued that SSGs have proven useful in assessing and analyzing the structure, not content, of dyadic behavior (Granic, Hollenstein, Dishion, & Patterson, 2003; Lewis et al., 1999; Lewis et al., 2004). These authors have used SSGs to statistically represent and track the structural changes in behavior associated with dyadic interaction. In addition, SSGs represent moment-to-moment interaction, which are not typically addressed in most dyadic research. Furthermore, SSGs "provide an intuitively appealing way to view complex, interactional behavior… useful for exploratory analysis" (Granic & Hollenstein, 2003, p. 659). SSGs

have also been converted into variables for common statistical analyses. The advantage of using SSGs has enabled researchers to analyze data from two perspectives.

Granic and Hollenstein (2003) argued that SSGs allow researchers to view data from the perspective of specific attractors within the state space. Indeed, Granic and Hollenstein argued that the SSG analyses enable researchers to study the entire range of attractors associated with specific dyads. They go on to propose the idea that a SSG allows for the analysis of specific dyads rates of dispersion, the total number of cells the dyad visited within the SSG analysis. This statistical advantage has pointed to the flexibility or inflexibility associated with the structure and content of attractor patterns within dyadic interaction. Granic and Hollenstein also presented the idea that SSGs have allowed researchers to analyze the number of transitions between cell, again pointing to the flexibility or inflexibility of a specific dyad. Lastly, these authors proposed that SSGs have enabled researchers to capture the stability of the number of events in a specific cell on the grid. While these authors have used SSGs to analyze the flexibility of interaction, other authors have argued that SSGs are valuable for studying attachment related patterns (Coleman & Watson, 2000), and the intensity of emotion experienced in dyadic interaction (Lewis et al., 1999).

SSGs have also been applied to the specific study of negative emotions and reductions in behavioral flexibility in parent-child dyads (Hollenstein & Lewis, 2006). Hollenstein and Lewis specifically chose the SSG analyses to address the "measurement difficulties" associated with the study of negative emotion and emotional and behavioral flexibility. Hollenstein and Lewis argued that the use of the SSG provided a more systemic analysis of the dyadic unit, the ability to examine both the structure (flexibility)

and the content (negative emotion) can be empirically analyzed, and the ability to capture the overall patterns associated with behavioral and emotional flexibility (2006, p. 657). This study alone immensely influenced the decision to use DS and SSGs within this empirical endeavor. Hollenstein and Lewis presented an insightful conceptualization of negative emotions and flexibility within dyadic structures, supporting the use of DS and SSGs within the context of adult attachment and marital interaction research.

Conclusions from Review of Literature

Adult attachment research has outlined clear patterns surrounding the concepts of attachment styles, dyadic configuration, conflict resolution strategies, and the use and maintenance of affective strategies in marital interaction. Concerning attachment styles, research has acknowledged specific characteristics and interactional outcomes associated with secure and insecure attachment styles (Bartholomew & Horowitz, 1991; Collins & Feeney, 2000; Gallo & Smith, 2001; Simpson, 1990; Tucker & Anders, 1999). Research has also demonstrated that secure and insecure attachment styles influenced the use and degree of specific conflict resolution strategies in dyadic interaction (Corcoran & Mallinckrodt, 2000; Gaines et al., 2000; Shi, 2003). In addition, specific affective processes and regulation have been related to secure and insecure attachment styles observed in marital interaction (Alford et al., 2006; Gentzler & Kerns, 2006; Wei et al., 2005). In summary, secure and insecure attachment styles have been well documented to influence the processes of marital interaction.

Concerning negative affect and flexibility, research has demonstrated the noxious influence that negative affect has on flexibility in marital interaction. Griffin (2003) argued and supported the conceptualization of specific patterns associated with individual

relationships. Griffin also argued that relational affect should be the point of punctuation when assessing distressed and nondistressed couples. He made this argument based on the assertions that affect represents the interactive nature of relationships most clearly. Gottman (1998) supported Griffin's work by presenting the idea that negative affect can create absorbing states for distressed couples. In addition, Gottman reinforced his belief that absorbing states restrict a couple's ability to remain flexible when attempting to resolve conflict and exit negative affective states.

These conclusions have been made from an extensive body of literature concerned with the influence that adult attachment, negative affect, and flexibility have in marital interaction. This literature has also supported the overarching purpose of this study. The literature has supported the hypothesized relationships between adult attachment, negative affect, and flexibility in marital interaction. Furthermore, the conclusion of this literature review has supported the theoretical marriage of attachment theory and dynamic systems theory in the analyses of these constructs. Indeed, the literature has also supported the use and methodological strength of the SSG analyses for examining the influence of adult attachment on negative affect and flexibility in marital interaction.

Hypotheses

My hypotheses are designed to predict the affective flexibility and negativity of secure couples—couples where both partners are identified as having a secure attachment—with insecure couples—couples where at least one partner is identified as having an insecure attachment—during a marital interaction episode in which the couples are invited to transition from a conversation about recent hurts and offenses (pre) to a

conversation about when they felt cared-for and supported by one another (post). For a more in depth explanation of the variables tested in these hypotheses please see Table I.

Flexibility Hypotheses:

Hypothesis 1: Secure couples will have lower mean durations-per-event in the pre discussion, and higher mean durations-per-event in the post discussions than insecure couples.

Hypothesis 2: Secure couples will have higher dispersion during the pre perturbation discussion and lower dispersion in the post perturbations discussion than insecure couples.

Hypothesis 3: Secure couples will have higher transitions-per-minute in the pre perturbation discussion, and lower transitions-per-minute in the post perturbation discussion than insecure couples.

Negativity Hypotheses:

Hypothesis 1: Secure couples will have lower negative durations than insecure couples during both the pre and post perturbation discussions.

Hypothesis 2: Secure couples will have fewer visits to negative affect than insecure couples during both the pre and post perturbation discussions.

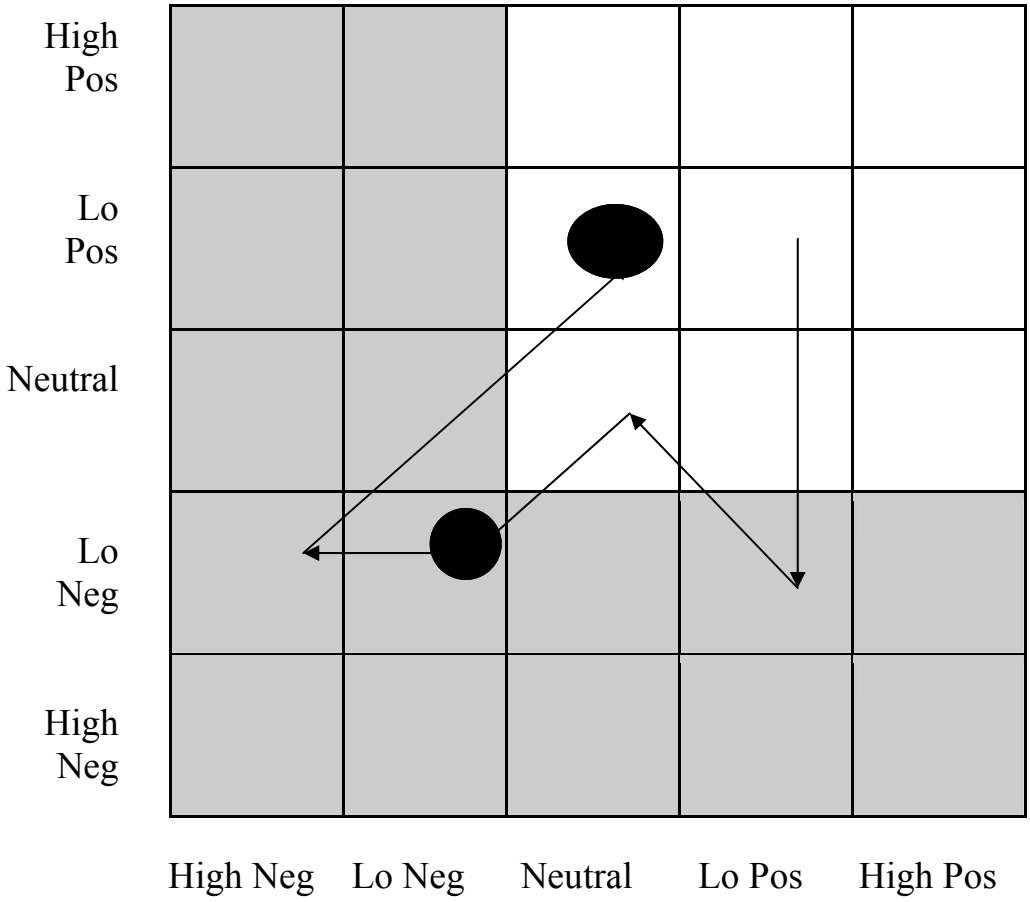
Table I

Hypotheses and Definition of Variables

Hypotheses	Variable	Definition
Flexibility Hypotheses		
Hypothesis 1: Secure couples lower MD pre/ higher MD in post than insecure couples	Mean durations-per-event (MD)	Persistence of each joint affective experience on SSG
Hypothesis 2: Secure couples higher DN pre/ lower DN post than insecure couples	Dispersion (DN)	Range of different affective experiences on the SSG
Hypothesis 3: Secure couples higher TPM pre/ lower TPM post than insecure couples	Transition-Per-Minute (TPM)	Number of transitions between affective states on SSG
Negativity Hypotheses:		
Hypothesis 1: Secure couples lower ND during pre and post than insecure couples	Negative Duration (ND)	Amount of time spent in negative affect region
Hypothesis 2: Secure couples fewer NV than insecure couples during pre and post discussions	Negative Visits (NV)	Number of visits to negative affect region

Figure 1

State Space Grid Representing Interaction in Negative & Positive Affect Regions



Note: The gray or shaded region represents the negative affect region. The white or unshaded region represents the positive affect region. In addition, affect state labels have been provided to illustrate the specific affective states on the state space grid.

CHAPTER III

METHODOLOGY

The purpose of this study is to examine the influence that adult attachment has on negative affect and interactional flexibility during marital interaction. The study will consist of a dynamic systems perturbation experiment where couples are asked to transition from a negative to a positive conversation about their relationship. Affect data were collected using a continuous response measure (Biocca, David, & West, 1994) during a video recall procedure, where couples watched the video tape of their interaction and provided a moment-to-moment rating of their affective state.

Sample

The sample consisted of 23 non-clinic couples recruited for this study from undergraduate classes at Texas Tech University and from religious organizations within Lubbock, Texas. Participating couples had to have been married for no less than six months time. This sample was collected on a convenience basis.

The ethnic demographics of the sample were Caucasian (82.6%), Mexican-American (6.5%), African-American (4.3%), Asian (4.3%), and Puerto Rican (2.2%). Since participants in this study were recruited from various religious organizations, the demographics concerning religious preference have been included. Sample respondents

reported being affiliated with the Latter-day Saints (Mormon; 65.2%), Protestant (26.1%), Hindu (4.3%), Catholic (2.2%), and Non-denominational (2.2%). Regarding education a robust number of participants had received an undergraduate degree (32.6%), completed some graduate coursework (10.9%), and several had received graduate degrees at the Master's level (21.7%), and at the Doctoral level (8.7%). Sample participants also reported that they had completed high school (4.3%), and some had completed some undergraduate coursework (21.7%). The number of years reported being spent in some type of educational setting ranged from 10 to 25 years, with a mean of 16.6 years (*SD* = 2.89).

Respondents reported being employed fulltime (52.2%), full time students (21.7%), full-time homemakers (13%), employed part-time (10.9%), and part-time students (2.2%). Regarding the socioeconomic demographics, 53.3% reported a collective income equal to or greater than $34,000. The rest of the sample reported income levels of $30,000- $33,999 at 8.9%, and the $25,999- $22,000 family income level came to 11.1%. Age was also taken into consideration in this study. The range in age in the participants was 22- 57 years, with a mean age of 31.7 years (*SD* = 8.95). Regarding number of marriages all participants except one indicated that they were in their first marriage. The breakdown of number of years that the couples had been married was 21- 30 years (13%), 11-20 years (13%), 6-10 years (26.1%), 3-5 years (21.7%), 1-2 years (13%), and 7- 11 months (13%). The participants also provided demographic information concerning the number of children in each home with 30.4% having had no children, 47.8% reported having had 1-2 children, 17.4% reported having had 3-4 children, 4.3% of the sample reported having had 5 or more children.

Measures

Marital Satisfaction. The Marital Adjustment Test (MAT; Locke & Wallace, 1959) is a valid measure that assesses an individual's global perception of the marital relationship. The measure is comprised of 15 items that assess an individual's perception of satisfaction in the relationship, latent areas of conflict, cohesion in the relationship, compatibility, and communication. Scores on the MAT can range from 2 to 158 with higher scores meaning higher relationship satisfaction. In addition, a score of 100 on the MAT is the differentiation between distressed and nondistressed couples. The MAT is still considered a valid tool for assessing the marital satisfaction and adjustment of couples (Crane, Allgood, Larson, & Griffin, 1990).

Self-reported continuous affect. A continuous-response measure (Biocca, David, & West, 1994) was utilized in conjunction with a video recall procedure to obtain continuous self-report data on individuals' affective experience. Partners rated how positively or negatively they felt at each moment during the interaction as they watched the videotape of their conversation. This rating was made on a computer which displayed a colored, 9-point vertical scale. Each point on the scale was identified by a small box that changed color when highlighted. The upper four boxes, which became progressively wider in width as they moved higher, were colored blue when highlighted, and labeled "positive." The lower four boxes, which became progressively wider as they moved lower, were colored red when highlighted, and labeled "negative." The middle box on the scale was the most narrow in width, was colored grey when highlighted, and represented "neutral."

The mouse was used to provide the appropriate rating along the scale, which was recorded at each hundredth of a second. Such ratings have been shown to be extremely reliable and valid measures of how one feels during an interaction episode (Gottman & Levenson, 1985). Indeed, Gottman and Levenson (1985) found that rather than just "recalling" the interaction, partners tended to physiologically "re-experience" the interaction, with physiological readings of skin conductance and heart rate taken during the recall procedure closely paralleling those readings obtained during the actual interaction itself, even after one week had elapsed. Furthermore, recent research employing this "mouse paradigm" has suggested that individuals are capable of tracking their own affect and making meaningful changes or corrections to their reported affect state at increments less than one-tenth of a second, and that these reports are highly correlated with more traditional paper-and-pencil measures of affect (Brenner & Smeets, 2003; Schuldberg & Gottlieb, 2002).

Flexibility. Thompson (1990) introduced concepts for measuring dynamic emotional experience. These include *range of emotional responses*, *lability* or changes in emotional reaction, and persistence of specific emotional response. Couples' continuous affect data will be entered into a State Space Grid (SSG) using the GridWare software (Lewis, Lamey, & Douglas, 1999). I will develop measures of each of these emotional experiences from the SSGs, both before the perturbation (pre) and afterwards (post). For the range of emotional responses I will use dispersion, which is a measure of how widely dispersed throughout the grid couples' affective responses are. The formula for dispersion is $[(n\Sigma (di/D)^{1}) - 1] / n - 1$. For lability I will calculate the number of affect transitions per

minute. For persistence I will calculate the mean duration per affect event. These measures will be compared between secure and insecure couples.

Negativity. I will use two measures of negativity, again derived from the SSGs of participant couples. In order to calculate these measures, a "negative region" will be created on each SSG which accounts for any report of negativity by either partner. The first measure will be the number of times each couple visits this negative region (negative visits). The second measure will be the amount of time each couple spends in the negative affect region (negative duration). These measures will be calculated both pre-perturbation and post-perturbation for each couple, and secure couples' measures will be compared with insecure couples' measures.

Adult attachment measure. As documented in the literature review, a number of self-report measures have been developed in an attempt to capture and assess adult attachment. Hazan and Shaver (1987) were the first to develop such a measure; however, Brennan et al. (1998) have combined most known self-report adult attachment measures into one measure. Initially the measure was 482-item measure that has been narrowed down to a 36-item measure. The 36 items are divided into two 18-item scales, one scale was designed to assess avoidance and the other scale was designed to assess anxiety. Each item has a seven point fully anchored, Likert-type scale (1 = disagree strongly, 4 = neutral/mixed, 7 = agree strongly). Brennan et al. reported that their subscales were largely orthogonal (r = .11) and that internal reliability (Cronbachs alpha) was .91 and .94 for the avoidance and anxiety subscales. Brennan et al. also emphasized that evidence of validity was provided when the ECRQ has significant correlation in expected directions with other measures of adult attachment.

Procedures

Participants traveled to the Human Sciences building on the Campus of Texas Tech University, where they were welcomed and then escorted to the lab area waiting room. Each couple was informed that they could end their participation in this research project at any time; the couples were then given a brief description of the purpose of the research project. Each couple was informed that they would be participating in a married couples' emotional experience while discussing a difficult topic or issues surrounding the relationship. Each couple was given a $20 gift card to Wal-Mart and a written consent form. Upon filling out the consent form, the couples were handed an assessment packet with the demographic questionnaire, the Experiences in Close Relationships Questionnaire (ECRQ; Brennan, Clark, & Shaver, 1998), and the Marital Adjustment Test (MAT; Locke & Wallace, 1959). Partners completed the assessment packet in separate rooms.

Upon completion of the assessment packet, each partner was interviewed separately. The interview was based on a protocol developed in another couple interaction study (Waldinger, Moore, & Schulz, 2003). The individual partners were asked to: *"Think about a recent time when your partner hurt, angered, or offended you – an incident that you still have feelings about."* When an incident had been selected each partner was asked to describe the incident in brief detail, describe the situation, and how she/he felt during the incident. The individuals were then asked if they would discuss the incident with their partner. All of the participants agreed to discuss the specific incident that they discussed. After consenting to discuss the incident, the partners were instructed to try to come to a satisfying conclusion regarding the incident in the time they had been

allotted. Individuals were then briefed concerning the remainder of the procedure including the use of the computer to rate their affect following the interaction.

After both partners were interviewed, the couple was then seated in a small room designed to videotape a couple's interaction. Each partner was given an envelope containing a small piece of paper with written instructions concerning the experiment. A slight knock on the door signaled the couple to begin their discussion addressing the issues they had previously chosen for discussion. Each partner would typically divulge the issue they had chosen to discuss, and then the couples would spend a brief amount of time deciding which issue to discuss first. After 10 minutes had elapsed in the discussion, another knock came at the door, and couples opened the envelope they had each been given before the beginning of the discussion.

The instructions in both partners' envelopes were: "*Please share with your partner a time when you felt cared-for and supported by her/him and discuss how you think such experiences affect your relationship."* Partners were not told the nature of the message in the envelope; rather, they were asked to open the envelope and follow the instructions. This served as the perturbation designed to push the couple into a phase transition, and possibly into a different experience of affect. This discussion continued for seven more minutes before the final knock indicated the end of the conversation. After the end of the discussion the couples were brought back to the room where the initial interview took place and seated at their own computer, with their backs to one another.

Partners then rewatched the videotape of their conversation and used the computer and rating software to provide a continuous rating of how she/he felt during each moment of the conversation. Partners were instructed beforehand to move the

mouse so that the mouse reflected the way they felt at that particular moment. Partners were unable to view one another's ratings, and used headphones for audio.

Data Analysis Plan

Primary data analyses will seek to compare secure versus insecure couples on the measures of flexibility and negativity. These measures will be derived from the SSGs using GridWare (Hollenstein, 2004), a software program designed to facilitate dynamic systems investigation of time-series data. Two SSGs will be developed for each couple (one pre, one post) and measures of flexibility and negativity obtained for each. These measures will then be analyzed via analysis of variance (ANOVA), analysis of covariance (ANCOVA), and the repeated measures analysis of variance (RM-ANOVA).

The main form of data analysis that I used was the SSG analysis employed by dynamic systems researchers (Granic & Hollenstein, 2003; Hollenstein, 2005; Hollenstein & Lewis, 2006). I took my cue for this study from Hollenstein (2006), and strived to replicate the methods of Hollenstein and Lewis (2006) with my own additions. These authors have stressed the importance of SSGs in dynamic systems research due to their capability to capture the movement of dynamic systems in real-time interactions.

CHAPTER IV

RESULTS

Introduction

The purpose of this study was to explore the influence that adult attachment has on affect and flexibility during marital interaction. As such, I compared couples in which both partners were scored as "secure" with couples in which at least one partner was scored as "insecure" on multiple measures of affective flexibility and negativity during a marital interaction episode in which the couples were invited to transition from a conversation about recent hurts and offenses (referred to hereafter as "pre") to a conversation about when they felt cared-for and supported by one another (referred to hereafter as "post"). I employed a DS methodology known as state space grid (SSG) analyses that allows for the derivation of specific time-series measures.

Utilizing Thompson's (1990) conceptual ideas about emotional flexibility and Hollenstein and Lewis' (2006) approach to investigating such ideas, I derived three specific measures of affective flexibility. *Mean duration per affective event*- designed to measure, in seconds, the duration of specific affective events the couples reported experiencing through the self-report continuous affect data. For example, each time a couple reported a change in affect, this change in affect represented a transition into a new affective event. The SSG provided the means to graph and represent the many

affective events reported by a couple during the marital interaction episode (See Figure 1).

This measure provided the ability to measure and compare secure and insecure couples concerning the time spent in specific affective states. *Dispersion*- is defined as the range of different affective experiences reported by a couple. For example, if a couple tended to remain in a negative affect state, without making many transitions, their dispersion would be low. This dispersion calculation would represent that the couple were inflexible in their affective interaction. In contrast, if a couple were able to make a great deal of transitions between affective states, then their dispersion would be high. This dispersion calculation would represent that this couple were flexible in their affective interactions. *Transitions per minute*- is defined as the number of changes in affective experience reported by the couples during one minute. In the case that a couple makes a high number of transitions per minute, this would note the couple's affective flexibility. In contrast, if a couple did not make many transitions per minute, this too would note the couple's affective inflexibility. Each measure of flexibility was obtained during the pre and post-perturbation phases of the marital interaction episode.

I also derived two specific measures of negativity from couples' SSGs. *Negative duration*- is defined as the amount of time, in minutes, a couple reported experiencing a state of negative affect during the marital interaction episodes. This measure provides the means to compare the amount of time spent in negative affect between secure and insecure couples. *Negative visits*- are defined as the actual number of visits a couple made to a negative affect state on the SSG. This measure provides the capability of

comparing the number of visits to a state of negative affect between secure and insecure couples.

Preliminary Analyses

Due to the potential interrelatedness of attachment style and relationship satisfaction, I first conducted a one-way ANOVA comparing secure versus insecure couples on their mean marital satisfaction score, obtained via the marital adjustment test (MAT). As can be seen in Table II, there was a significant difference between these two groups in their relationship satisfaction, F (1, 21) = 4.49; p = .046. Thus, for each hypothesis I will run the analyses with and without marital satisfaction included as a covariate.

In addition, in order to test the influence of the perturbation on both secure and insecure couples I conducted a repeated measures analysis of variance (RM-ANOVA) between the pre and post-perturbation phases of the marital interaction episode. I conducted these analyses in order to determine if secure or insecure couples changed on a particular variable from the pre to the post-perturbation phase of the experiment.

Flexibility Hypothesis

Hypothesis 1: Secure couples will have lower mean durations-per-event in the pre discussion, and higher mean durations-per-event in the post discussion than insecure couples.

In order to test this hypothesis, data were analyzed from the SSG using a between subjects ANOVA comparing secure and insecure couples' with both the pre and post mean durations per event as the dependent variable. While there were differences in both

the means and standard deviations between secure and insecure couples, the data did not indicate a significant statistical difference between secure and insecure couples with mean duration per event as the dependent variable (See Table III & Figure 4). In addition, the analysis of covariance (ANCOVA) with data collected from the SSG and the MAT did not reveal statistically significant differences between secure and insecure couples concerning pre or post mean durations-per-event (See Table IV). Furthermore, the repeated measure analysis of variance RM-ANOVA for both secure and insecure couples concerning the pre and post mean duration-per-event did not reveal significant differences (See Table V). These results signify that hypothesis 1 was not confirmed. Secure couples did not have lower mean durations-per-event in the pre discussion, and did not have higher mean durations-per-event in the post discussion than insecure couples.

Hypothesis 2: Secure couples will have higher dispersion during the pre perturbation discussion and lower dispersion in the post perturbations discussion than insecure couples.

To test this hypothesis, I conducted a between subjects ANOVA with pre and post dispersion as the dependent variables. The results of the analysis did not reveal statistically significant differences between secure and insecure couples for the measure of pre-perturbation dispersion (See Table III & Figure 5). However there was a trend toward significance concerning the post dispersion scores between secure and insecure couples, $F(1, 21) = 3.56$, $p = .07$. Moreover, the ANCOVA controlling for satisfaction data did not indicate a statistically significant difference for either the pre or post dispersion scores between secure and insecure couples (See Table VI). Significant results

were indicated in the RM-ANOVA (See Table V), with pre and post dispersion as the dependent variables, for both secure couples, $F(1, 10) = 16.37$, $p < .01$, and insecure couples, $F(1, 11) = 16.25$, $p < .01$. While there were significant differences for both secure and insecure couples pre and post dispersion, these data alone do not provide sufficient results concerning the confirmation of this hypothesis. The data from the ANOVA and ANCOVA provide sufficient indication that Hypothesis 2 should be rejected. Secure couples did not have higher dispersion during the pre perturbation discussion and did not have lower dispersion in the post perturbations discussion than insecure couples.

Hypothesis 3: Secure couples will have higher transitions-per-minute in the pre perturbation discussion, and lower transitions-per-minute in the post perturbation discussion than insecure couples.

To test this hypothesis, I conducted a between subjects ANOVA with data from the SSG analyses, between secure and insecure couples with transitions-per-minute as the dependent variable. Additionally, I conducted a between subjects ANCOVA with data from the SSG analyses and the MAT, between secure and insecure couples with transitions-per-minute as the dependent variable controlling for marital satisfaction. Neither of these analyses indicated significant differences between secure and insecure couples concerning the affective transitions-per-minute during for the pre or post phases of the marital interaction episode (See Tables III & VII; See Figure 6). Moreover, the RM-ANOVA for pre and post transitions-per-minute did not indicate a significant difference for secure or insecure couples (See Table V). Indeed, the data from the ANOVA and the ANCOVA suggest that hypothesis 3 was not accepted. Secure couples

did not have higher transitions-per-minute in the pre perturbation discussion, and did not have lower transitions-per-minute in the post perturbation discussion than insecure couples.

Negativity Hypotheses

Hypothesis 1: Secure couples will have lower negative durations than insecure couples during both the pre and post perturbation discussions.

In order to test this hypothesis, data obtained from the SSG analysis were analyzed using a between subjects ANOVA with negative duration pre, as the dependent variable. As evidenced in table VIII, the data indicated a statistically significant difference between secure and insecure couples concerning their duration in the negative affect region of the SSG during the pre phase of the discussion, $F(1, 21) = 8.02$, $p < .01$ (See Figure 7). Furthermore, the ANOVA regarding the differences between secure and insecure couples with negative duration during the post phase of the discussion revealed significant results, $F(1, 21) = 4.75$, $p < .05$ (See Figure 7). In addition, the ANCOVA controlling for satisfaction produced significant results regarding the levels of pre and post negative duration (See Table IX). The between subjects ANCOVA for the pre negative duration indicated that attachment orientation influenced the interaction with dependent variable, $F(1, 21) = 7.22$, $p < .05$. Furthermore, the between subjects ANCOVA for the post negative duration specified that marital satisfaction influenced the duration in negative affect, $F(1, 21) = 5.10$, $p < .05$.

The RM-ANOVA, with pre and post negative duration as the dependent variable, also exposed significant differences for both secure and insecure couples (See Table X). Secure couples had a significantly lower duration of negative affect between the pre and

post phases of the discussion, F (1, 10) = 8.40, $p < .05$. Insecure couples had a significantly lower duration of negative affect between the pre and post phases of the discussion, F (1, 11) = 9.25, $p < .05$. Given that both secure and insecure couples were able to influence their duration in negative affect between the pre and post phases of the discussion, and the reader should note the dramatic differences in the means and standard deviations in relation to the duration of negative affect (See Table X). Given the interesting results indicated in the RM-ANOVA, the data from the first two analyses indicates that hypothesis 1 was confirmed. Secure couples have lower durations in negative affect during both the pre and post perturbation phases of the discussion.

Hypothesis 2: Secure couples will have fewer visits to negative affect than insecure couples during both the pre and post perturbation discussions.

To test this hypothesis, I conducted a between subjects ANOVA from data obtained from the SSG analyses, with pre and post visits to the negative affect region as the dependent variables. As indicated in table VIII, no significant results were specified for visits to the negative affect region during the pre phase of the discussion between secure and insecure couples. However, significant results were implicated concerning the post phase visits to negative affect between secure and insecure couples, $F(1, 21) = 6.87$, $p < .05$ (See Figure 8). To further test this hypothesis, I conducted a between subjects ANCOVA from data obtained from the SSG and the MAT, with pre and post visits to the negative affect region as the dependent variable controlling for marital satisfaction. The results for this analysis are indicated in table XI. The results for the ANCOVA with pre visits to the negative affect region did not indicate a statistically significant difference between secure and insecure couples concerning marital satisfaction or attachment style.

However, the results for the post phase of the discussion did reveal statistically significant results, F (1, 21) = 5.77, $p < .05$.

The RMANOVA, with pre and post visits to negative affect as the dependent variable, also exposed significant differences for secure couples (See Table X). There was a significant difference for secure couples in their visits to negative affect between the pre and post phases of the discussion, F (1, 10) = 13.63, $p < .01$. This means that secure couples made fewer visits to the negative affect region of the SSG in the post phase of the discussion. In contrast, insecure couples were not able to significantly influence the number of visits to negative affect between the pre and post phases of the discussion (See Table X). While the results of the RMANOVA were indeed interesting, the data from the between subjects ANOVA and the between subjects ANCOVA controlling for marital satisfaction suggest that hypothesis 2 was partially confirmed. Secure couples had significantly fewer visits to the negative affect region of the SSG during only the post-perturbation phase of the discussion.

Table II

Tests of Between Subjects Effect for Marital Satisfaction and Attachment Orientation

Source	df	SS	MS	F
Between Groups	1	1536.04	1536.04	4.49*
Within Groups	21	7169.86	341.42	
Total	22	8705.91		

* $p < .05$

Table III

Tests of Between Subjects Effects for Flexibility Measures and Attachment Orientation

	Secure		Insecure		ANOVA	
Flexibility Measures	*M*	*SD*	*M*	*SD*	F	p
Mean Duration Pre	53.37	17.06	45.18	10.85	1.91	.18
Mean Duration Post	66.57	49.22	44.55	20.60	2.02	.17
Dispersion Pre	.85	.05	.84	.06	.322	.57
Dispersion Post	.62	.19	.75	.11	3.56	.07
Trans. Per Minute Pre	8.22	5.14	6.60	3.40	.805	.38
Trans. Per Minute Post	6.75	8.90	6.40	5.33	.014	.90

* $p < .05$

Figure 4

Mean Duration Per Affective Event Between Secure and Insecure Couples

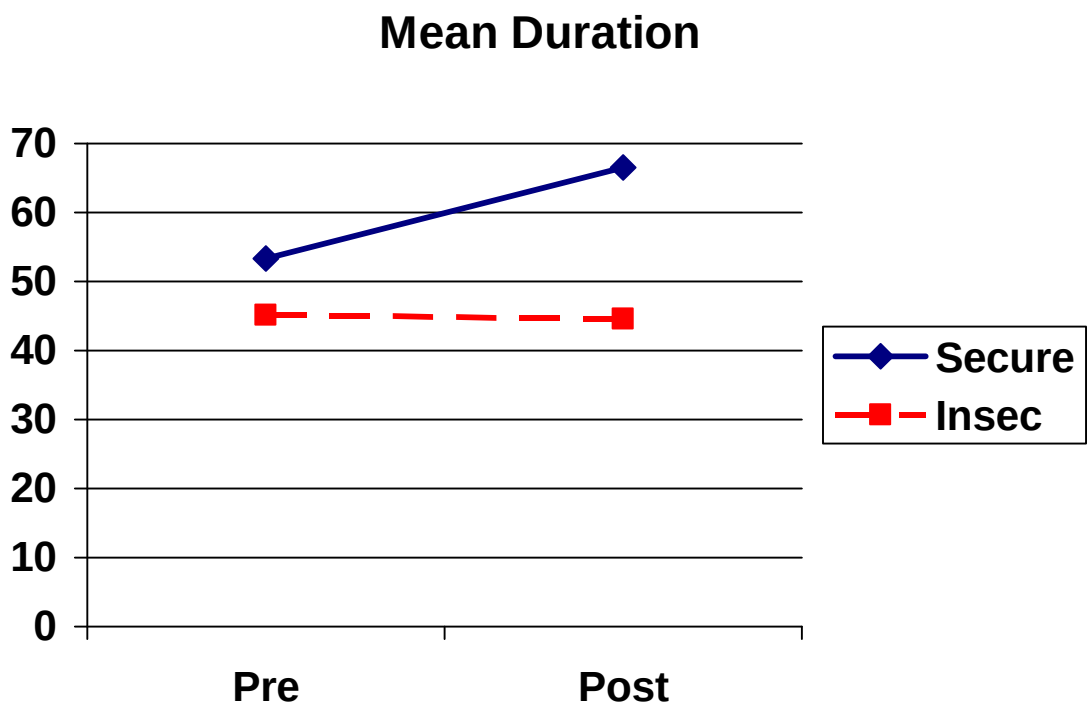


Table IV

Tests of Between Subjects Effects for Mean Duration Pre & Post, Attachment Orientation, and Marital Satisfaction as Covariate

Source	df	SS	MS	F
Mean Duration Pre				
Intercept	1	6562.40	6562.40	31.56
Satisfaction	1	51.43	51.43	.247
Attachment	1	308.06	308.06	1.48
Error	20	4158.13	207.90	
Total	23	60042.60		
Mean Duration Post				
Intercept	1	7096.91	7096.91	4.91
Satisfaction	1	.370	.370	.000
Attachment	1	2632.93	2632.93	1.82
Error	20	28904.20	1445.21	
Total	23	101476.24		

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

Table V

Tests of Within Subject Differences for Repeated Flexibility Measures and Attachment Orientation

	Pre-perturbation		Post-perturbation		RM-ANOVA	
Flexibility Measures	*M*	*SD*	*M*	*SD*	F	p
Secure Couples						
Mean Duration	53.37	17.06	66.57	49.22	1.10	.31
Dispersion	.85	.05	.62	.19	16.37	.002**
Transition Per Minute	8.22	5.14	6.75	8.90	.30	.59
Insecure Couples						
Mean Duration	45.18	10.85	44.55	20.60	.01	.91
Dispersion	.84	.06	.75	.11	16.25	.002**
Transitions Per Minute	6.60	3.40	6.40	5.33	.05	.82

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

Table VI

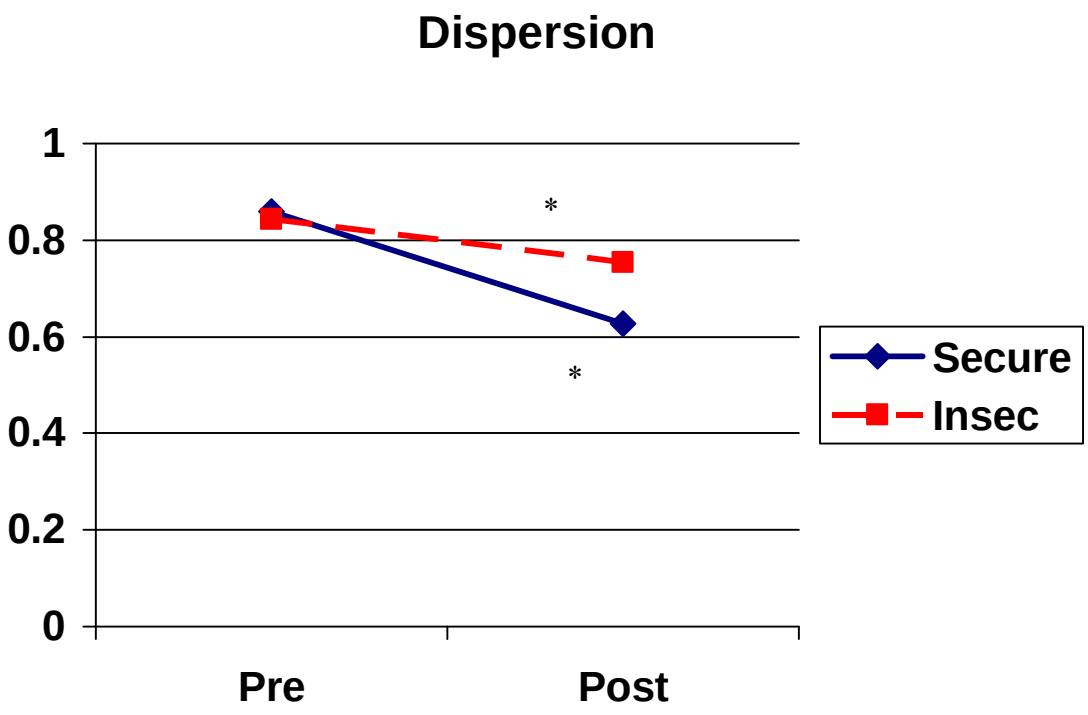
Tests of Between Subjects Effects for Dispersion Pre & Post, Attachment Orientation, and Marital Satisfaction

Source	df	SS	MS	F
Dispersion Pre				
Intercept	1	1.66	1.66	386.91
Satisfaction	1	8.60	8.60	.02
Attachment	1	1.12	1.12	.26
Error	20	8.61	4.30	
Total	23	8.75		
Dispersion Post				
Intercept	1	.978	.978	36.33
Satisfaction	1	2.79	2.79	.10
Attachment	1	8.06	8.06	2.99
Error	20	.539	2.69	
Total	23	11.67		

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

Figure 5

Dispersion Between Secure and Insecure Couples



Note: * $p < .05$, Significant change from pre to post phase of discussion

Table VII

Tests of Between Subjects Effects for Transitions-Per-Minute Pre & Post, Attachment Orientation, and Marital Satisfaction

Source	df	SS	MS	F
Transitions-Per-Minute Pre				
Intercept	1	81.05	81.05	4.18
Satisfaction	1	5.20	5.20	.26
Attachment	1	18.36	18.36	.94
Error	20	387.08	19.35	
Total	23	1660.90		
Transitions-Per-Minute Post				
Intercept	1	298.59	298.59	5.71
Satisfaction	1	60.25	60.25	1.15
Attachment	1	.771	.771	.01
Error	20	1045.62	52.28	
Total	23	2100.70		

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

Figure 6

Transitions Per Minute Between Secure and Insecure Couples

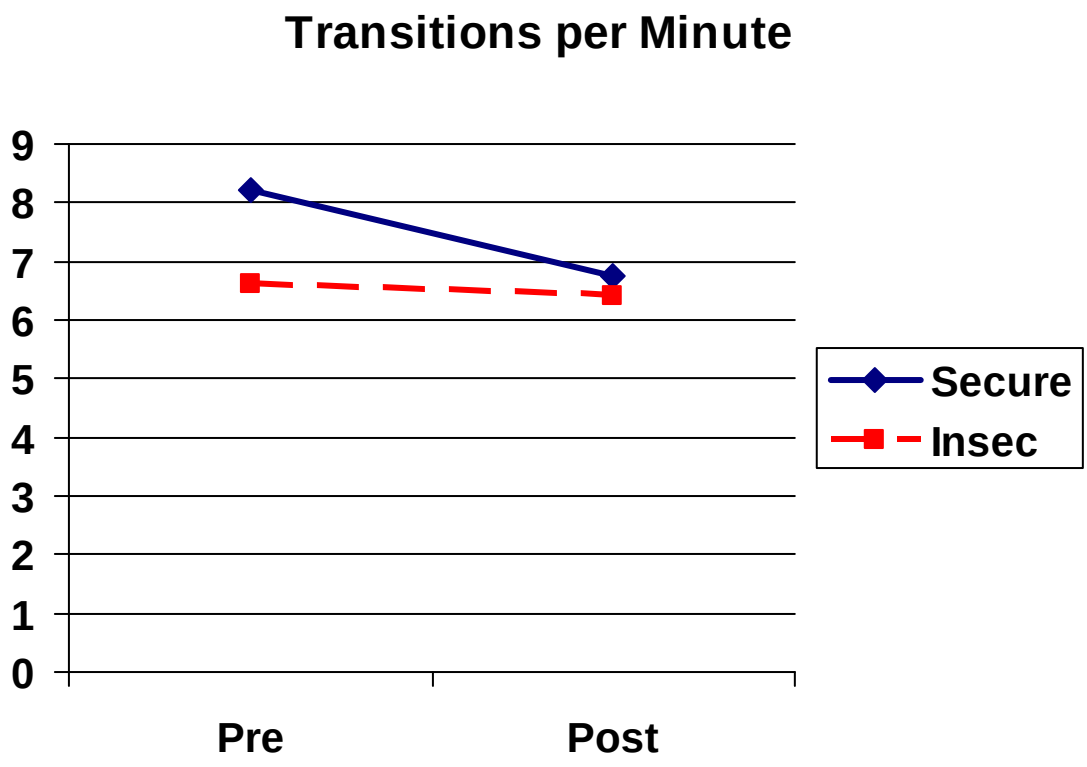


Table VIII

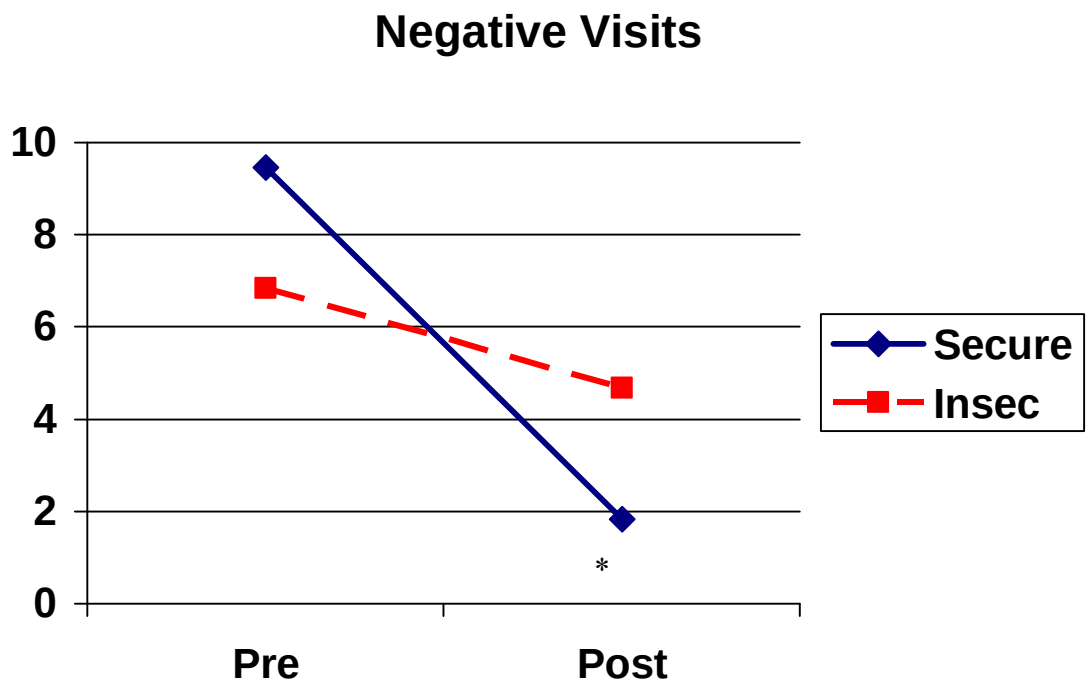
Tests of Between Subjects Effects for Negativity Measures and Attachment Orientation

	Secure		Insecure		ANOVA	
Negativity Measures	*M*	*SD*	*M*	*SD*	F	p
Negative Duration Pre	15.43	8.13	31.07	16.54	8.02	.01**
Negative Duration Post	4.89	9.48	14.02	10.49	4.75	.04*
Negative Visits Pre	9.45	7.17	6.83	2.75	1.38	.25
Negative Visits Post	1.81	2.18	4.66	2.93	6.87	.016*

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

Figure 7

Negative Visits Between Secure and Insecure Couples



Note: * $p < .05$, Significant change from pre to post phase of discussion

Table IX

Tests of Between Subjects Effects for Negative Duration Pre & Post, Attachment Orientation, and Marital Satisfaction

Source	df	SS	MS	F
Negative Duration Pre				
Intercept	1	1190.10	1190.10	6.47
Satisfaction	1	.291	.291	.002
Attachment	1	1327.45	1327.45	7.22*
Error	20	3673.89	183.69	
Total	23	17877.88		
Negative Duration Post				
Intercept	1	29.35	29.35	.349
Satisfaction	1	428.95	428.95	5.10*
Attachment	1	281.13	281.13	3.34
Error	20	1680.70	84.03	
Total	23	4732.37		

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

Table X

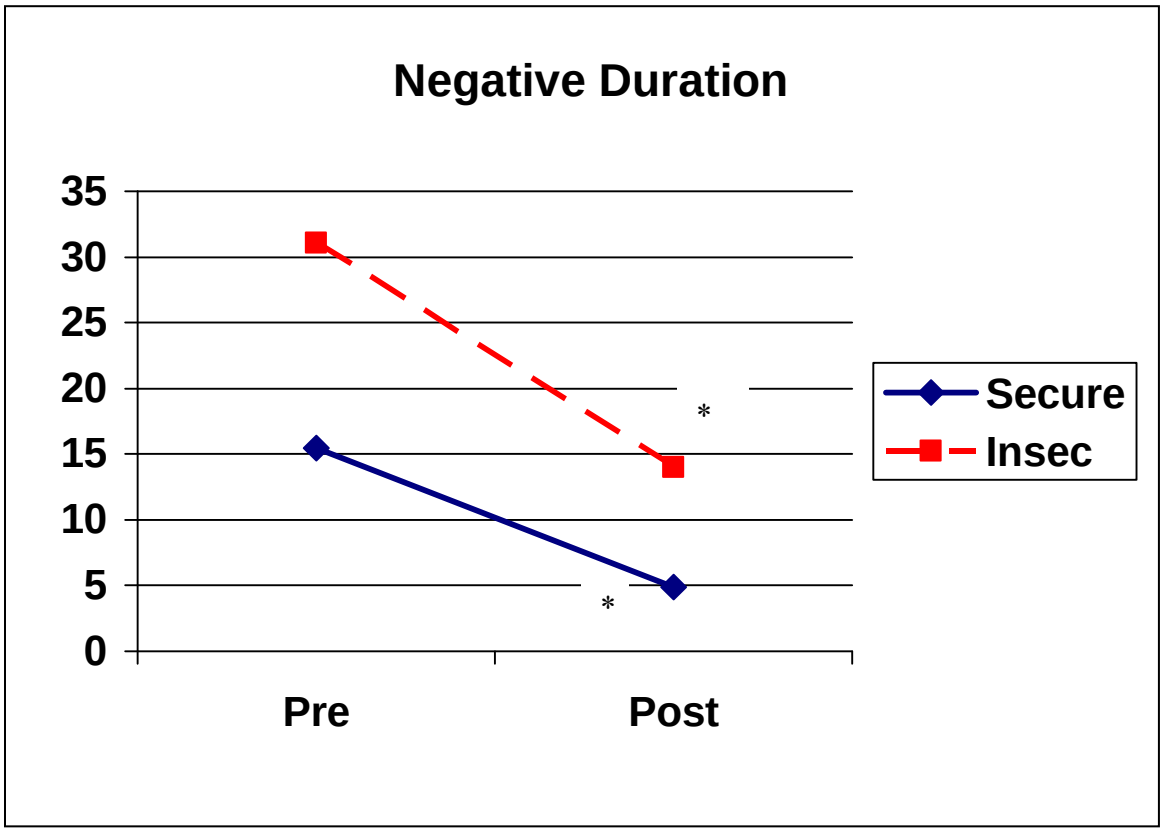
Tests of Within Subjects Differences for Repeated Measures of Negativity and Attachment Orientation

	Pre-perturbation		Post-perturbation		RM-ANOVA	
Negativity Measures	*M*	*SD*	*M*	*SD*	F	p
Secure Couples						
Negative Duration	15.43	8.13	4.89	9.48	8.40	.01*
Negative Visits	9.45	7.17	1.81	2.18	13.63	.004**
Insecure Couples						
Negative Duration	31.07	16.54	14.02	10.49	9.25	.01*
Negative Visits	6.83	2.75	4.66	2.93	4.03	.07

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

Figure 8

Negative Duration Between Secure and Insecure Couples



Note: * $p < .05$, Significant change from pre to post phase of discussion

Table XI

Tests of Between Subjects Effects for Negative Visits Pre & Post, Attachment Orientation, and Marital Satisfaction

Source	df	SS	MS	F
Negative Visits Pre				
Intercept	1	7.72	7.72	.310
Satisfaction	1	99.80	99.80	4.00
Attachment	1	69.23	69.23	2.77
Error	20	498.58	24.92	
Total	23	2142.00		
Negative Visits Post				
Intercept	1	13.24	13.24	1.88
Satisfaction	1	1.71	1.71	.244
Attachment	1	40.57	40.57	5.77*
Error	20	140.58	7.02	
Total	23	440.00		

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

CHAPTER V

DISCUSSION

Summation and Limitations of Study

Summation. In summation, this study explored the influence of adult attachment on negative affect and flexibility during marital interaction. The study was designed to measure the influence of attachment through a dynamic systems perturbation experiment. The perturbation experiment consisted of two conversations: one where the couple discussed a time in their relationship where they felt hurt or offended (pre), then the perturbation where couples were instructed to discuss a time when they felt cared for or supported (post) in the relationship. The sample consisted of 23 couples, with 11 couples categorized as secure (both partners having a secure attachment orientation) and 12 being insecure (at least one partner having an insecure attachment orientation). Data were collected through a self-report adult attachment measure and a self-report continuous affect data were collected using a video recall procedure. Data were analyzed using the DS methodology known as the SSG analysis, based on measures of flexibility and negativity. Based on the body of attachment literature, I expected to see a marked difference between secure and insecure couples in the levels of flexibility and negative affect during these conversations.

I expected that secure couples would be more flexible than insecure couples during the conversation about recent hurts or offenses, but less flexible during the conversation about feeling cared for or supported, when compared to insecure couples. The data did not indicate a significant difference between secure and insecure couples on the measures of flexibility. However, the nonsignificant trends in the flexibility measures were in the expected direction.

Regarding negativity, I expected that secure couples would be significantly less negative than insecure couples during both conversations. The results indicated that secure couples spent significantly less time in negative affect than insecure couples during the pre conversation. In addition, when controlling for marital satisfaction the data indicated that attachment accounted for the significant difference for the time couples spent in negative affect during the experiment. Additionally, attachment accounted for the significant difference in the visits to negative affect even when controlling for marital satisfaction. Interestingly enough, the data indicated significant changes in negativity for both secure and insecure couples between the pre and post phases of the perturbation experiment.

Limitations. There were a number of limitations that need to be addressed. The first is the size of the sample. A larger sample size provides a researcher with a more general representation of the population being studied. When considering the size of this sample several limitations must be noted. First, a larger sample size might have influenced, either positively or negatively, the results indicated by the data. Second, this sample did provide sufficient subjects to examine the difference between secure and insecure attachment. However, this sample did not provide sufficient subjects to examine

the difference between each insecure style of attachment identified in the literature (Bartholomew & Horowitz, 1991; Brennan, Clark, & Shaver, 1998) and securely attached couples. The next limitation that must be discussed is the nature of the couples in this study. It should also be noted that the couples who participated in this study were non-clinic or non-distressed couples. Thus, these finding should not be generalized to clinically distressed couples.

Attachment and flexibility. When constructing the hypotheses for this study, I expected that secure attachment would influence a couple's ability to remain flexible during the pre phase of the discussion. In contrast, I hypothesized that secure attachment would result in a greater ability to remain positive in the post phase of the discussion. Furthermore, I hypothesized that insecure attachment would constrict a couple's flexibility in the pre phase of the discussion, resulting in a diminished ability to remain positive in the post phase of the discussion. The results of the analyses indicated no significant differences between secure and insecure couples on the measures of flexibility. However, non-significant trends in the hypothesized direction suggested that secure and insecure couples were different concerning their flexibility. These results could be explained by the small sample size used in this study.

Attachment and negativity. When constructing hypotheses concerning negativity, I expected that secure couples would spend less time in negative affect and visit the negative affect region of the SSG less when compared to insecure couple's during both the pre and post phases of the discussion. The tests of these hypotheses indicated significant differences between secure and insecure couples. In addition, when examining both secure and insecure couples separately the results suggested that secure couples

significantly influenced their duration in negative affect and their number of visits to the negative affect region of the SSG between the pre and post phases of the discussion.

Negative Duration. This measure evaluated the amount of time that couples spent in the negative affect region of the SSG during each of the two separate conversations of the perturbation experiment. The results indicate that secure couples spent considerably less time in negative affect during both the pre and post phases of the discussion than insecure couples. These results mean that secure couples are able to influence their duration in the negative affect during marital interaction. Furthermore, insecure couples are unable to exert the same influence, as secure couples, during marital interaction.

These results support current assertions from the adult attachment literature. For example, Bartholomew and Horowitz (1991) stated that the secure style of attachment was indicative of high security in interpersonal relationships. The secure couples in this study demonstrated their security in their relationships through their lower durations in the negative affect region of the SSG. In spite of experiencing visits to the negative affect region of the SSG, these couples were still able to maintain a low duration in the amount of time spent in negative affect. In addition, Hazan and Shaver (1987) reported that secure individuals would have a higher sense of trust in interpersonal relationships. The secure couples in this study exhibited their trust in the self and others through their lower durations in the negative affect region of the SSG. For example, these secure couples were able to discuss a topic of conflict without placing a great deal of negative attribution to the conversation since the had lower durations in the negative affect region of the SSG. This study also provided supported literature for insecurely attached individuals. Collins and Feeney (2000) and Gallo and Smith (2001) linked insecure attachment to negative

attributions of partner communication and emotions. The insecure couples in this study seemed to have a more negative attribution of partner communication and emotions due their higher durations in the negative affect region of the SSG when compared to secure couples. Most importantly, this study has addressed a gap in literature concerning the concept of absorbing states (Gottman, 1994).

Gottman (1994) presented the idea that couples, based on previous patterns of affective interaction, could be caught and remain in affective absorbing states. This study, through DS methodologies, has provided validation that the concept of absorbing states can be observed and studied through affective experiences in marital interaction. This assertion is important for several reasons. First, since insecure couples had higher durations in the negative affect region of the SSG, the argument could be made that these couples were caught in a negative absorbing state warranting further exploration of the influence of these negative absorbing states for insecure couples. Second, since secure couples had lower durations in the negative affect region of the SSG, the argument could be made that these couples were remaining in a positive absorbing state. The above idea warrants further exploration of the influence of these positive absorbing states for secure couples. In addition, the use of both the self-report continuous affect measure and the use of the SSG analyses in this study have provided the means to statistically validate this concept for future empirical endeavors.

Negative Visits. This measure consisted of the number of visits a couple made to the negative affect region during both the pre and post phases of the discussion. In essence, this measure was developed to test the influence of the perturbation in these couple's systems. The results concerning this hypothesis were mixed. For example, there

was no significant difference between secure and insecure couples concerning the visits to negative affect during the pre phase of the discussion. However, significant results were indicated concerning the post phase of the discussion between secure and insecure couples. Secure couples had fewer visits to the negative affect region of the SSG than insecure couples during the post phase of the discussion. This idea is what I like to refer to as the bounce factor. The bounce factor is the idea that secure couples can visit the negative affect region of the SSG without experiencing high durations in the negative affect region, and can just as quickly bounce back into a positive state of affect on the SSG.

The differences in visits to the negative region of the SSG during the post phase deserves to be discussed in light of the influence of the perturbation. Secure couples were able to remain in the positive affect region of the SSG, making only a few visits to the negative affect region of the SSG during the post phase of the discussion.. This suggests that when perturbed a secure couple, influenced by their working model, will naturally seek a soothing and anxiety reducing state on the SSG, much like gravity bringing an object in motion to rest once again on the earth. So how are the insecure couples' working models influencing these results? It seems that the insecure couples, influenced by their working model, war against the notion to visit and remain in the positive affect region of the SSG much like friction robs the momentum of a moving object making efforts to move forward. These ideas, derived from the studies statistical results, are supported be adult attachment literature. Feundling(1998) stated that adult attachment literature has developed enough that, "it is safe to say we know there are broad differences in affect regulation across adult attachment styles" (p. 292). It is safe to say

that my study has demonstrated that there is a broad difference in affective experience between secure and insecure couples. In addition, this study has supported Alford et al. (2006) assertion that secure attachment is associated with higher levels of positive affect when compared to insecure couples; and that secure couples seemed to be able to be more positive when discussing memories about their relationship, like the secure individuals in Gentzler and Kerns (2006) study.

Marital satisfaction and attachment. Why should marital interaction be included in a study of married couples where adult attachment has been given such great focus? The answer is simple. Both marital satisfaction and attachment have been addressed in this study in order to answer the question of, which variable has the greatest influence during marital interaction. To answer this questions many ideas and thoughts must be addressed. First, the couples in this study differed significantly in their marital satisfaction, with secure couples reporting being more martially satisfied when compared to insecure couples. These results suggest that security of adult attachment influences a couple's perceived level of marital satisfaction.

I hypothesized that attachment would account for the greatest influence on measures of flexibility when compared with marital satisfaction. However, the relationship between marital satisfaction and adult attachment concerning measures of flexibility did not rise to the hypothesized level of significance. In contrast to the measures of flexibility, significant results were indicated between marital satisfaction, adult attachment, and measures of negativity

These results must be discussed with an intricate understanding of the statistical procedure. The goal was to establish whether marital satisfaction or adult attachment

influenced differences between the pre and post phases of the discussion. The most interesting results were concerned with the pre and post phase negative duration. According to my analyses, attachment orientation influenced the duration spent in a negative region of the SSG during the pre phase, and marital satisfaction influenced the duration spent in a negative region of the SSG during the post phase of the discussion. What does this mean for both secure and insecure couples? Secure couples should be able to have lower duration in the negative affect region during the pre phase due to their attachment security. Furthermore, secure couples should be able to have lower durations in the negative affect region since they have higher levels of marital satisfaction. Both of these ideas are supported by the data analyses conducted in this study.

Insecure couples will have a markedly different experience than secure couples concerning duration in the negative region of the SSG. For example, the insecure couples had higher durations in the negative affect region due to their attachment insecurity during the pre phase of the discussion. During the post phase of the discussion, insecure couples will experience higher durations in the negative region of the SSG due to their lower levels of marital satisfaction. This suggests that insecure couples are heavily influenced by both their insecure attachment and low marital satisfaction. Furthermore, these results present the idea that insecure attachment could influence the marital satisfaction of couples over a longer period of time(Gallo & Smith, 2001; Moteolivia & Garcia-Martinez, 2005).

Interesting results were also indicated between marital satisfaction, adult attachment, and visits to the negative region of the SSG. The pre phase analysis did not indicate significant differences between marital satisfaction and adult attachment.

However, the post phase analysis did indicate that attachment style did influence the number of visits to the negative affect region of the SSG when compared to marital satisfaction. These results suggest that secure couples had fewer visits to the negative affect region due to their attachment security. In contrast, the insecure couples had higher number of visits to the negative affect region due to their insecure attachment and not marital satisfaction.

In order to provide a more uniform discussion of the data, I have refrained from discussing the results of this study in light of dynamic systems theory until now. I will now discuss the many enhancements that dynamic systems theory brought to this study. Granic and Hollenstein (2003) argued that many theoretical and methodological approaches to social science lacked the capability of studying the non-linear nature of social interaction. By applying DS theories and methodologies, I have been able to study and depict the non-linear systemic nature of marital interaction using the SSG analysis. In addition, several authors have argued that DS provides researchers with the capability of explaining and predicting the structured patterns and cycles of behavior observed in complex systems (Gardner, Burr & Weidower, 2006; van Geert & Lichtwarck-Aschoff, 2005). This study has provided a statistical picture of these structured patterns and behaviors in marital interaction between secure and insecure couples.

Furthermore, this study has provided support for the concepts of attractors in the state space of a system. While this study did not strive to identify specific attractors, the results could provide support that negative and positive affect are attractors in the state space of marital systems. For example, attractors are conceptualized as the cognitive, affective, and behavioral actions observed in interaction. This study supports the idea that

specific affective states are highly attractive to both secure and insecure couples, further reinforcing the concept of attractors in dynamic marital systems. Granic and Hollenstein (2003) made the argument that perturbation could influence dramatic shifts in the interaction of systems. This study provided support that perturbations can influence the affective experiences of secure and insecure couples (Hollenstein & Lewis, 2006), while supporting the use of DS to observe and research the interaction of marital dyads (Granic & Lamey, 2002; Hollenstein et al., 2004; Lewis et al., 1999) since DS has not been widely applied to marital systems.

Most importantly, this study has provided exceptional support for the use of the SSG analysis for observing, measuring, and depicting dyadic interaction in marital systems. Several DS researchers have specifically argued that one advantage of using the SSG analysis is the ability to observe the structure, not content, of dyadic behavior (Granic et al., 2003; Lewis et al., 1999; Lewis et al., 2004). This study has provided a candid representation of the affective structure observed between secure and insecure couples during both negative and positive conversations. This study can now provide researchers with a reference point for the affective patterns that can be observed between secure and insecure couples. This study has accomplished the above, while still providing an analysis of the moment-to-moment interactions of marital dyads, which are not typically addressed in dyadic research. The data in this study, derived from the SSGs has also supported the many statistical advantages associated with SSGs discussed by Granic and Hollenstein (2003). Lastly, this study has supported Hollenstein and Lewis (2006) argument that SSGs address the measurement difficulties associated with researching affect and emotions.

Furthermore, the current endeavor has supported Laible and Thompson (2000) argument that DS can provide an enhanced perspective of the influence of attachment styles in the interaction patterns of dyadic structures. Furthermore, this document has integrated specific thoughts from Laible and Thompson. For example, this research has begun to link specific attractor patterns to specific styles of attachment, and this research could provide support that working models (Attachment Theory) influence the forceful self-organization of behavioral patterns in dynamic systems (Dynamic Systems Theory). Most importantly, by applying the DS methodology of SSG analyses to the observation and exploration of affect, emotions, and flexibility in dyadic interaction this study has supported the work of Hollenstein and Lewis (2006). Indeed, these studies provide interesting fodder to fuel the fire for a more complex statistical and methodological approach to adult attachment research.

Future Research

After great thought and deliberation, I think that the implications for this study are rather simple and straight forward. This study has provided an interesting and candid glimpse in the influence of adult attachment on affect and flexibility in marital interaction. Therefore, the main implication is that this study needs to be replicated in order to provide more support for the theoretical and methodological ideas in the current study. Indeed, this study has implied that secure and insecure attachments have a great influence of the affective experience and possibly the emotional flexibility experienced by couples in marital interaction. Given this information, the results of this study provide further support for the replication of this study for the benefit of both researchers and clinicians.

If this study were replicated on a more grand scale, a more rich perspective could be gleaned for the affective intricacies associated with all of the insecure attachment styles that have been identified in the adult attachment literature. This idea is of great importance concerning future research. A more clear and concrete perspective of the dismissive-avoidant, fearful-avoidant, and preoccupied styles of attachment is needed. A replication of this study could provide the much-needed perspective concerning these insecure styles of attachment. Furthermore, the method and design of this study could be used to further explore the relationship between attachment and other crucial variables that have been shown to influence marital interaction.

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van Geert, P. L. C., & Lichtwarck-Aschoff, A. (2005). A dynamic systems approach to family assessment. *European Journal of Psychological Assessment*, 21, 240-248.

VITA

Dustin Williams

Candidate for the Degree of

Master of Science

Thesis: A DYNAMIC STSYEMS ANALYSIS OF ADULT ATTACHMENT STYLES, AFFECT, FLEXIBILITY, AND REAL TIME MARTIAL INTERACTION

Major Field: Human Development and Family Science

Biographical:

Personal Data:

Education: Graduated from Moore High School, Moore, Oklahoma in May 1998; received a Bachelor of Science degree in Church Ministries from Southwestern Assemblies of God University, Waxahachie, Texas in May 2002. Completed the requirements for Master of Science degree with a major in Human Development and Family Science at Oklahoma State University, Stillwater, Oklahoma in July 2007.

Experience: Worked for two years as a full time student minister in Little Rock, Arkansas; employed by Oklahoma State University, Department of Human Development and Family Science as a graduate research and teaching assistant 2005 through 2006; employed by Oklahoma State University, College of Human Environmental Sciences: Academic Programs and Service as a teaching assistant 2006 to May 2007.

Name: Dustin Williams Date of Degree: July, 2007

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: A DYNAMIC STSYEMS ANALYSIS OF ADULT ATTACHMENT STYLES, AFFECT, FLEXIBILITY, AND REAL TIME MARTIAL INTERACTION

Pages in Study: 92 Candidate for the Degree of Master of Science

Major Field: Human Development and Family Science

Scope and Method of Study: This study explored adult attachment, affect, and flexibility during marital interaction through the dynamic systems method of state space grid analyses. Secure and insecurely attached couples affect were compared in measures of flexibility and negativity during a negative and positive conversation. I hypothesized that insecure attachment influenced the frequency and duration of negative affect, constricting the couples' ability to transition from negative affect. I hypothesized that secure attachment influenced the frequency and duration of positive affect, promoting a couples' ability to transition into positive affect.

Findings and Conclusions: The study did find both significant results and nonsignificant trends concerning the variable tested in the study. For measures of flexibility, nonsignificant trends indicate that secure couples were more flexible when compared with insecure couples. Furthermore, the measures of negativity did reveal significant results. Secure couples had lower durations in negative affect and fewer visits to negative affect in the marital interaction episode when compared to insecure couples.

ADVISER'S APPROVAL: _____