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by

Ashley C. Seibert, M.A.

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CHAPTER 1

INTRODUCTION

The experiences children have with peers influence many parts of children’s lives including their cognitive, social, and emotional functioning (Berndt, 1996; Hartup, 1996; Newcomb & Bagwell, 1996). Because of the impact children’s peer relationships have on children’s later adjustment, it is important to investigate pathways that lead to adaptive peer relationships. Many researchers have pointed to the importance of the family and how interactions and relationships with family members may be linked to children’s experiences with peers (Parke & Ladd, 1992). Research has shown that the quality of children’s relationships with parents and peers are interrelated (Kerns, Contreras, & Neal-Barnett, 2000). Many theoretical perspectives have been proposed to explain these associations. In this paper, I will apply the theoretical perspective of attachment theory to explore the associations between children’s security of attachment to their mothers and their peer relationships. Additionally, I will investigate two potential mediating mechanisms that may explain the link between children’s security of attachment to their mothers and children’s later peer relationships, specifically emotion regulation and previous peer experience (Contreras & Kerns, 2000; Sroufe, Egeland, & Carlson, 1999).
Parent-Child Attachment

The attachment relationship has been described as an enduring, emotional bond a child forms with a particular attachment figure who (ideally) provides the child with security and comfort (Ainsworth, 1989). The child uses the attachment figure as a secure base from which to explore the environment and as a safe haven in times of distress. The formation of attachment to caregivers is a normative event. That is, all children form attachments to their caregivers even if they do not receive adequate care (Bowlby, 1982), although attachments do vary in quality. Attachment relationships are thought to be long-enduring and the attachment figure is not interchangeable with another person (Ainsworth, 1989). There is a desire to maintain closeness to the attachment figure and to reestablish proximity if the bond is threatened. In an attachment relationship, a child may experience distress if separated from his or her attachment figure and will experience grief if there is permanent loss of the attachment figure.

Although all children form attachments to their caregivers, there is considerable variability in the degree to which an attachment figure functions as a secure base (Ainsworth, Blehar, Waters, & Wall, 1978). Children who experience sensitive and responsive care are expected to form a secure relationship with their caregiver (DeWolff & van IJzendoorn, 1997). A sensitive and responsive parent is able to notice his/her child’s communication signals and respond appropriately. Sensitive and responsive parents are also warm, accepting, and affectionate. In this relationship, the child is able to use the parent as a secure base from which to explore the environment and as a haven of safety in times of distress (Bowlby, 1973; 1982). The perception of the attachment
Children who are not able to use their attachment figures as a secure base and safe haven may develop insecure attachments to their attachment figures (Ainsworth et al., 1978). There are three forms of insecure attachment which are characterized by avoidance, ambivalence, or disorganization in relation to a particular attachment figure (Ainsworth et al., 1978). Each has been associated with a distinct pattern of caregiving.

Children who experience rejecting caregiving are expected to form an insecure-avoidant relationship with their caregiver (Cassidy, 1994). Rejecting parents tend to ignore or punish their child’s bids for contact and attention, especially when the child is expressing negative emotions. Because their parents reject the children’s expression of negative emotion, these children tend to minimize (i.e., hide or mask) their emotions (Cassidy, 1994). The minimizing of emotion is thought to be adaptive because it allows for the child to maintain a connection with his/her attachment figure. That is, when insecure-avoidant children minimize their emotions and demands for assistance, they reduce the risk of isolating themselves from their rejecting caregiver.

Parents of insecure-ambivalent children tend to be inconsistently responsive or somewhat inept at reading social signals of their child (Cassidy, 1994). As a result, children are unsure whether they can count on the parent’s support. Just as minimizing emotions is adaptive for insecure-avoidant children, heightening emotions is adaptive for insecure-ambivalent children because it serves as a way to maintain a connection with an inconsistently available caregiver (i.e., displays of emotion draw the attention of their
attachment figure; Cassidy, 1994). By maximizing their emotions, these children are ensuring that their inconsistent caregiver will be available if a serious, stressful event does occur.

Parents of insecure-disorganized children are often psychologically unavailable. They may be coping with stress in their own lives such as adapting to their own loss or trauma (e.g., death of a parent) or marital problems. Other parents of insecure-disorganized children may be abusive or neglectful (Lyons-Ruth & Spielman, 2004; van IJzendoorn, Schuengel, & Bakermans-Kraneburg, 1999). Children who form a disorganized attachment to a caregiver are unable to use the attachment figure as a secure base or safe haven in a coherent and organized way. At times, they may show a combination of avoidance and ambivalence. These children also may show bizarre behaviors, such as freezing when the attachment figure is around, because the caregiver is a source of fear as well as a safe haven (e.g., if the caregiver is intimidating, dominating or has displayed signals of fright, or if the child has experienced abuse; DeOliveira, Bailey, Moran, & Pederson, 2004; Jacobvitz & Hazen, 1999). Some older insecure-disorganized children respond to the psychological unavailability of their parent by adopting the parental role, and the role reversal may be manifested in the child’s either serving as a caregiver to the parent or treating the parent in a punitive way (van IJzendoorn et al., 1999).

Peer Relationships

Clearly, the parent-child relationship is important for children, and the type of caregiving children receive may promote the type of attachment relationship children
form (Cassidy, 1994; DeWolff & van IJzendoorn, 1997). The experiences children have with peers are another important aspect in children’s social development. Experiences with peers influence many parts of children’s lives including their social and emotional functioning (Berndt, 1996; Newcomb & Bagwell, 1995; Newcomb & Bagwell, 1996). Through interactions with peers, children develop a wide range of behaviors, skills, and experiences that will affect their adjustment.

It is important to keep in mind that different tasks are important for peer relationships at different phases of development. While it is true that peers are important social partners by early childhood, the major developmental tasks in peer relationships may change across the childhood years (Booth-LaForce & Kerns, in press). The childhood years can be broken down into three periods: early childhood (ages 3-7), middle childhood (ages 8-12), and adolescence (ages 13-19).

The major developmental task during early childhood is to engage in the world of peers (Gottman & Mettetal, 1986; Sroufe et al., 1999, 2005). This involves sustaining and coordinating interactions with individual peers, selecting play partners, and successfully participating in group activities. Providing evidence for these ideas, children in this age group define a friend as someone you play with, and children show more coordinated play with friends than non-friends (Howes, 1988). Additionally, children in early childhood are more likely to maintain harmony in play with friends than with non-friends (Kerns, 1996).

The central issues or major developmental tasks during middle childhood are much more complex. For example, a major developmental task during middle childhood
is to form durable specific friendships which are characterized by loyalty, support, and closeness (Sroufe et al., 1999, 2005; Sullivan, 1953). At the same time, peer groups become more stable and organized and children need to find a place in the larger peer network (Gottman & Mettetal, 1986). The complexity arises because now children have to coordinate friendship with peer group functioning. For competent children, friendships enhance acceptance by and participation in the peer group, and group settings provide a context for enhancing friendships (Gottman & Mettetal, 1986). The developmental progression goes from a focus on the development of coordinated and sustained interactions with peers in early childhood to a greater concern for friendship and one’s standing in the peer group emerging in middle childhood (Sullivan, 1953).

During adolescence, peers, along with parents, are an important source of emotional support (Kerns, 1994). A major change in friendship from middle childhood to adolescence is an increase in intimacy (Berndt, 1982; Gottman & Mettetal, 1986). Providing evidence for this proposal, when adolescents were asked to define a friend, they were more likely to include intimacy, understanding, and loyalty than were preadolescents (Hartup, 1983). Additionally, when children and adolescents were asked open-ended questions or structured questions about friendship, there was a dramatic increase in comments about the sharing of intimate thoughts and feelings with friends, and also an increase in intimate knowledge of a friend, from middle childhood to adolescence (Berndt, 1982).

The developmental changes in peer relationships across the childhood years have implications for which dimensions of peer relationships to study at different ages (Kerns,
1994). For example, the dimension of responsiveness can be studied at all three age periods. Other dimensions, such as coordinated interactions and intimacy, are more salient at particular ages and should be investigated during those ages (Kerns, 1994; Kerns, 1996). Additionally, the links between children’s security of attachment and peer relationships may change across the childhood years, and effects may be stronger when the major developmental tasks of peer relationships are investigated (Kerns, 1994; Sroufe et al., 1999). For example, studies of attachment and peer interaction skills (e.g., coordinated interactions) may be more relevant during early childhood while studies investigating attachment and friendship quality may be more relevant in middle childhood (Booth-LaForce & Kerns, in press; Kerns, 1994).

Friendships can differ from one another in many ways. These include the presence of a friendship, the number of friendships children have, and the quality of children’s friendships (Bukowski & Hoza, 1989). Researchers generally agree that friendships include reciprocity (i.e., cooperation, receiving equal ‘benefits’ from the friendship), liking (i.e., wish to spend time with one another), and affection/having fun (i.e., companionship) (Bukowski, Newcomb, & Hartup, 1996). While the three basic features of reciprocity, liking, and affection remain the same with age, the way they are manifested changes with age (Newcomb & Bagwell, 1995, 1996). For example, Newcomb and Bagwell (1995) found that relationship properties of intimacy, trust, and commitment are more prevalent in friendships among early adolescents than among younger children.
Attachment and Peer Relationships

The associations between parent-child attachment and peer relationships have been conceptualized in many ways. Sroufe et al. (1999), Sroufe and Fleeson (1986), and many others have proposed ideas as to why attachment relationships would be related to peer relationships. Sroufe (1983) and Sroufe and Fleeson (1986) suggest that the earliest relationships (i.e., attachment relationships) are of particular importance because they represent models for later relationships. For example, children learn about the reciprocal nature of relationships through interactions with their attachment figures (Sroufe et al., 1999). In addition, children with a secure attachment relationship will have experienced available and responsive caregiving, and will come to expect these positive relationship qualities in their other close, emotional relationships (Sroufe et al., 1999). Also, secure attachment gives children the confidence to explore new environments on their own, including peer relationships (Kerns, 1996). Not only does secure attachment give children the confidence to explore new relationships, it also ensures that securely attached children will enter peer relationships with exploratory and relationship skills that will make them more attractive to peers (Sroufe et al., 1999).

It has been speculated that the different insecure patterns are related to specific kinds of relational problems. Insecure avoidant children have experienced rejecting caregiving, and will come to expect others to be rejecting. Since they believe others will be rejecting they may withdraw from social situations or may preemptively act in an aggressive manner (Sroufe, 2005; Sroufe et al., 1999). Insecure ambivalent children have experienced inconsistent caregiving, and will come to expect others to act inconsistently
as well. Since they believe others will behave inconsistently, they may exhibit manipulative or passive behavior which may lead them to display relational aggression or be victimized by peers (Sroufe, 2005; Sroufe et al., 1999). Insecure disorganized children’s caregivers tend to be psychologically unavailable. Because of this, disorganized children are unable to interact with others in coherent, organized ways which may lead them to withdraw from social situations or to act out aggressively (Jacobvitz & Hazen, 1999).

The earliest studies investigating the link between mother-child attachment and peer relationships came from the Minnesota studies (Sroufe, 1983; Sroufe, et al., 2005). The findings from these studies supported the hypothesis that the quality of infant-caregiver attachment is related to later peer competence (Sroufe, 1983; Sroufe et al., 1999; Sroufe, 2005). Children with secure attachment showed higher global social competence than children with ambivalent or avoidant attachment (Sroufe 1983), they showed less hostility and more empathy (Sroufe, 1983), and they showed more positive affect with peers (Sroufe, Schork, Motti, Lawroski, & LaFreniere, 1984). Additionally, in follow-up studies, Sroufe et al. (2005) showed that early attachment predicted peer relationships into middle childhood and adolescence. For example, children classified as securely attached during infancy were later rated to be more competent with peers and to have higher quality friendships than did children insecurely attached in infancy (Shulman, Elicker, & Sroufe, 1994; Sroufe, 2005; Sroufe et al., 1999).

Later studies have continued to support the link between children’s security of attachment and relationships with peers. Belsky and Fearon (2002) showed that
attachment security at 15 months was related to social competence at three years of age. Additionally, Bost, Vaughn, Washington, Cielinski, and Bradbard (1998) found that security of attachment was related to social competence in four-year-olds. Booth, Rose-Krasnor, and Rubin, (1991) showed that insecurely attached four-year-olds were more aggressive and their social exchanges contained more negative affect than those who were securely attached. Rydell, Bohlin, and Thorell (2005) found that securely attached preschool children were more competent with peers than both insecure-avoidant and insecure-ambivalent children. Kerns and Barth (1995) found that preschool boys who were more securely attached to their mothers were ranked higher on peer popularity. Additionally, children more securely attached to their fathers were rated as more friendly and cooperative with their peers. In addition, Turner (1991) found that four-year-old children who were securely attached to their mothers were self-reliant and showed fewer dependent or attention-seeking behaviors than insecurely attached children. Interestingly, Turner found different relations between insecure attachment and peer relations for boys and girls. Insecure boys showed more aggressive, assertive, controlling, and attention-seeking behaviors than secure children. Insecure girls displayed more dependent and compliant behavior, but less assertive and controlling behavior than secure children. Further, Verschueren and Marcoen (1999) showed that, in kindergartners, child-father attachment was related to anxious/withdrawn behavior. Secure attachment is also related to the quality of preschoolers’ interactions with friends (Kerns, 1994; Park & Waters, 1989; Youngblade, Park, & Belsky, 1993).
Linkages between attachment and peer relationships have also been demonstrated during the middle childhood years. Cohn (1990) found that, in first grade, insecurely attached boys were less well liked by teachers and peers, perceived as more aggressive by peers, and reported as less competent by teachers than securely attached boys. Similarly, Stams, Juffer, and van IJzendoorn (2002) found that attachment security at one year predicted social competence at age seven. Children who are securely attached to their mothers have been shown to behave in more competent ways with peers (Bohlin, Hagekull, Rydell, 2000; Contreras, Kerns, Weimer, Gentzler, & Tomich, 2000; Freitag, Belsky, Grossmann, Grossmann, & Scheuerer-Englisch, 1996; Yunger, Corby, & Perry, 2005). Children more securely attached to their mothers were better liked and less likely to be rejected by their peers (Granot & Mayseless, 2001; Kerns, Klepac, & Cole, 1996, Study 1). The link between secure attachment and peer competence was also found for children who were securely attached to their fathers (Booth-LaForce, Oh, Kim, Rubin, Rose-Krasnor, & Burgess, 2006). Similarly, Verschueren and Marcoen (2002) found that rejected-nonaggressive children perceived their relationship with their father as less secure than did popular children, and peer acceptance was predicted by the perceived quality of attachment to father at ages 8 and 11 (Verschueren & Marcoen, 2005).

Lieberman, Doyle, and Markiewicz, (1999) found that security of attachment to either parent was not significantly related to popularity.

As mentioned above, friendship increases in salience during the middle childhood years. Therefore, most studies of attachment and friendship have included children in middle childhood or adolescence. Studies that have investigated the link between
attachment and the number of children’s friendships have found mixed evidence (Booth-LaForce & Kerns, in press; Kerns, 2008). For example, in one study (Kerns et al., 1996) attachment security and the number of reciprocated friendships were positively related. Other studies have not supported the link between attachment security and number of reciprocated friendships (Booth, Rubin, & Rose-Krasnor, 1998; Lieberman et al., 1999; Shulman, et al., 1994). The lack of consistent evidence for a link between attachment security and number of friends may be due to the fact that most children in middle childhood have at least one friend (Booth-LaForce & Kerns, in press), and measures of the presence of a friendship do not capture information about the quality of the friendship. However, researchers have found that attachment is related to the quality of children’s friendships. This link is evident when researchers investigate measures of support, companionship, responsiveness, and conflict in friendship (Howes & Tonyan, 2000; Kerns et al., 1996, Study 2; Lieberman et al., 1999; Rubin, Dwyer, Booth-LaForce, Kim, Burgess, & Rose-Krasnor, 2004; Shulman, 1995).

A few studies have investigated the unique correlates of insecure attachment patterns. In the Minnesota study, preschool teachers were asked to write a descriptive phrase about each child and these phrases were then used to classify children into categories. The categories represented the theoretical patterns expected as likely outcomes for children who were avoidant (e.g., hostile, isolated, etc.) or ambivalent (e.g., helpless, impulsive, etc.). Most of the avoidant children were placed in the avoidant categories (6 of 8), and most of the ambivalent children were placed in the ambivalent categories (5 of 7; Sroufe, 1983). Troy and Sroufe (1987) found that four- and five-year-
old avoidant children were likely to be characterized by aggression while ambivalent children were likely to be characterized by victimization. Lyons-Ruth, Alpern, and Repacholi (1993) found that the strongest single predictor of hostile behavior in the preschool classroom was disorganized attachment. Seventy-one percent of hostile preschoolers were classified as disorganized in infancy. Additionally, Jacobvitz and Hazen (1999) found that disorganized children actively avoided contact with peers and also showed defensively aggressive behavior.

Unique correlates of insecure attachment patterns have also been found at later ages. Shulman et al. (1994) found that avoidant children were not likely to be involved in friendships during summer camp. Ambivalent children did try to become involved with peers, but did so ineffectively. Granot and Mayseless (2001) found that during middle childhood avoidant and disorganized children had the highest level of peer rejection. Ambivalently attached children were rated by teachers as less socially adept than secure children. Additionally, ambivalent children perceived themselves to be more rejected than they actually were. Dykas, Ziv, and Cassidy (2008) found that insecure-dismissing adolescents were more likely than secure/autonomous adolescents to be nominated as aggressive and perceived as victims. It is important to keep in mind that Dykas et al. only included the insecure/dismissing group so they were not able to examine whether another group of insecure adolescents (e.g., ambivalent, disorganized) might be victimized but not aggressive.

The literature on attachment-peer links has grown so tremendously that Schneider, Atkinson, and Tardif (2001) performed a meta-analysis to evaluate the
strength of the association between child-parent attachment and children’s peer relationships. It has been suggested that attachment may be more related to friendship than to social interactions with strangers or acquaintances (Belsky & Cassidy, 1994). Attachment theory is a theory about close relationships, and it is hypothesized that there would be stronger links between attachment relationships and other close relationships, such as friendships, than between attachment relationships and less close relationships (e.g., acquaintances). Further, these ideas lead researchers to make distinctions between how attachment would be related to specific aspects of peer relationships, such as friendship and peer competence, rather than peer relationships more generally.

The Schneider et al. (2001) meta-analysis included 63 studies with 3,510 children. They found an effect size of .20. Attachment was related to both peer competence (effect size of .14) and friendship quality (effect size of .24), with stronger effects found for friendship quality. Benson, McWey, and Ross (2006) also conducted a meta-analysis which included adolescents. Their meta-analysis included 53 studies with 12,482 participants. They found an effect size of .54. Parent-adolescent attachment was related to both social competence and best friendship relationship quality, with stronger effects found for best friendship quality. It is important to note that most of the studies in the Benson et al. (2006) meta-analysis had measured both attachment and peer relationships with self-reports, which may account for why the effect size was larger in this meta-analysis. Regardless, the reviews clearly document a linkage between attachment and peer relationships, with a stronger effect for friendship quality than peer competence.
Emotion Regulation: Mediator of Attachment-Peer Linkages

Schneider et al. (2001) stated that the link between mother-child attachment security and peers has been so well documented that relatively little will be gained with new studies linking attachment with peer relationships. Although support for a link between attachment and peers is established, there is less agreement and evidence for how to explain these effects. Despite the large literature showing that attachment and peer relationships are related, there is very little attention to mechanisms that may explain why they are related.

A mechanism proposed to account for the relation between attachment and peer relationships is emotion regulation (Contreras & Kerns, 2000). Thompson (1994) defines emotion regulation as the means by which children monitor, evaluate, and modify their emotional reactions in order to accomplish their goals. Emotion regulation may be related to attachment in that the attachment relationship serves as the context in which emotion regulation develops (Kobak & Sceery, 1988; Sroufe et al., 1999). Theoretically, emotion regulation may be related to attachment for several reasons. First, attachment is (ideally) a safe environment in which the child is free to explore emotion and to experience more positive emotion (at least in a secure relationship; Solomon & George, 1999). This freedom of exploration allows the child to experience a wider range of emotions (Carlson & Sroufe, 1995). Second, the interactions in a secure parent-child attachment relationship help the child to develop models of appropriate emotion responses, which they may use in other interpersonal relationships (Contreras & Kerns, 2000). Parental modeling gives children the opportunity to learn to refocus attention (Carlson & Sroufe, 1995) and to
internalize emotion regulation strategies which may be applied to other social situations (Zimmerman, Maier, Winter, & Grossman, 2001). Finally, a securely attached child may engage in more emotion dialogues with their parents and the child is able to receive instructional feedback about emotions during these dialogues (Laible & Thompson, 2007; Oppenheim, Koren-Karie, & Sagi-Schwartz, 2007). For example, mothers of securely attached children may use these dialogues to help their children develop more constructive responses to regulate their own emotions (Contreras & Kerns, 2000).

Patterns of emotion regulation developed within the attachment relationship are hypothesized to become internalized by the child, and displayed even when the attachment figure is absent (Contreras & Kerns, 2000; Sroufe, 1983). For example, within the attachment relationship, more securely attached children may learn adaptive techniques for managing negative emotions, which they can then apply to new situations, even when the attachment figure is not available (Contreras & Kerns, 2000). In the context of attachment relationships, children learn how to predict others’ emotional responses (Kobak, 1999) and also how and when to express and regulate emotion to achieve a desired goal (Cassidy, 1994).

Even though there are many theoretical speculations, there are relatively few studies of attachment and emotion regulation. A few studies have demonstrated a link between attachment and emotion regulation during early childhood. Smith, Calkins, and Keane (2006) showed that higher levels of attachment security were associated with more adaptive emotion expression by toddlers. Similarly, Park and Waters (1989) and Sroufe et al. (1984) demonstrated that securely attached children displayed more positive affect
with their peers. Additionally, Sroufe (1983) found that securely attached children were more ego-resilient during their preschool classes.

Even though the research is scarce, a link between attachment and emotion regulation in middle childhood has been found. Sroufe, Egeland, and Kreutzer (1990) asked teachers to rate the emotional health of elementary school children. Children who had been rated as more secure as infants were rated higher on emotional health by their elementary teachers, supporting a link between attachment and emotion regulation. Similarly, Kerns, Tomich, Aspelmeier, and Contreras (2000) found that mother-child attachment was related to children’s emotional health. Kerns, Abraham, Schlegelmilch, and Morgan (2007) examined relations between attachment and behavior in school, and found that preadolescents with a more secure attachment demonstrated better emotion regulation at school. Contreras et al. (2000) and Kerns et al. (2007) found that parent-child attachment and child coping skills are related, in that more securely attached children are more likely to use more effective coping strategies. Additionally, Brumariu, Kerns, and Seibert (2008) found that disorganized children showed higher levels of negative cognitive errors and lower levels of constructive coping strategies.

As mentioned previously, during middle childhood one of the child’s most important goals is to be socially accepted by peers and to maintain peer relationships. Emotion regulation may be vital for success in peer relationships (Hubbard & Coie, 1994; Parker & Gottman, 1989). It has been shown that emotion regulation influences a child’s ability to function socially (Eisenberg, Fabes, Karbon, & Murphy, 1996). Individuals who show greater emotion regulation have been found to both perceive themselves and to be
perceived by others as more socially competent (Lopes, Salovey, Cote, & Beers, 2005). In addition, an inability to regulate emotions causes individuals to act in ways which undermine social functioning (Eisenberg, Cumberland, & Spinrad, 1998), with children who are less successful in regulating emotions also less successful in peer relationships (Hubbard & Coie, 1994).

Because emotion regulation is important for both attachment and peer relationships, Contreras et al. (2000) proposed that emotion regulation may mediate attachment-peer links. In their study of fifth graders, they found that one aspect of emotion regulation, constructive coping, mediated the associations between attachment and peer relationships. Another study (Abraham & Kerns, unpublished manuscript) replicated and extended the work of Contreras et al. (2000) by examining whether perceptions of attachment predicts the quality of peer relationships that children form at summer camp, and whether children’s coping strategies and mood could explain these associations. They found that positive mood and emotion-focused coping do act as partial mediators of the relationship between perceived attachment security and best friendship positive qualities.

**Previous Peer Experience and Later Peer Relationships**

There are other processes that may explain the association between parent-child attachment and peer relationships besides emotion regulation, such as previous peer experience. Sroufe and Howes are two researchers who have explored how previous peer experience may affect later peer relationships. Sroufe et al. (1999) proposed that peer experiences make unique contributions to social development, relative to attachment.
Additionally, they proposed that although peer relationships are qualitatively different in middle childhood and early childhood in terms of durability, emotional sharing, and the extent of mutual coordination, the advances during middle childhood build upon foundations laid out during early childhood. Further, they suggested that the quality of peer experiences depends on earlier parent-child relationships.

To test this proposal, they investigated whether peer experiences at any age (preschool [4 years], middle childhood [10 years], adolescence [15 and 16 years]) predicted later social competence, and whether family experiences and peer experiences were complementary in promoting later social competence. That is, they tested whether early peer experiences add to the prediction of middle childhood peer competence, over and above that predicted by attachment history. Sroufe et al. (1999) were able to support this proposal with their empirical data. Peer competence at any given age was found to predict peer competence at every later period, even after controlling for attachment.

Similarly, Howes, Hamilton, and Phillipsen (1998) were also interested in the continuity of children’s peer relationships. They found that children’s formation of close friendships in preschool predicted children’s ratings of friendship quality at nine years of age. Additionally, Howes and Phillipsen (1998) found that children who took part in more complex play with peers when they were toddlers were less aggressive and withdrawn when they were nine years of age. Thus, there is some evidence that greater peer competence at earlier ages forecasts more competent relationships with peers at a later age.
When Sroufe et al. (1999) tested whether family experiences and peer experiences are complementary in promoting later social competence, they found that both infant attachment and preschool peer competence independently predicted peer competence in middle childhood. Attachment security supported the emergence of preschool peer competence, yet at the same time it continued to make a unique contribution to middle childhood peer competence. Additionally, preschool peer competence also made a unique contribution to middle childhood peer competence. Thus, peer competence in middle childhood reflects the convergence of experience with parents and peers (Sroufe et al., 1999). Taken together, the work by Sroufe and colleagues and Howes and colleagues suggests that previous peer experience may explain the link between security of attachment and children’s later peer relationships, and may also provide a unique contribution to children’s later peer relationships.

Hypotheses

The goal for my dissertation is to examine pathways from early mother-child attachment to pre-adolescent friendship. My dissertation will add to the literature by examining how mother-child attachment and peer relationships are related over time, and examining mediating mechanisms which may explain the associations (Figure 1). Even though there is a need to investigate why attachment and peer relationships are related, very few mediating mechanisms have been examined. I will extend earlier research by investigating both emotion regulation and peer competence as mediators of the relations between mother-child attachment and peer relationships. In addition, my dissertation will be one of only a few studies which have investigated the unique role of previous peer
Figure 1: Pathways to pre-adolescent friendship.
experience on later peer relationships. A strength of my study is that I will investigate two key aspects of peer relationships: peer competence and friendship. Additionally, I will investigate all associations using a longitudinal design, which has been rarely used in earlier studies. One study that has used a longitudinal design to investigate the association between attachment and peer competence is the Minnesota Study of Risk and Adaptation. A difference between my study and the Minnesota Study is that later attachment was not assessed in the Minnesota Study. Assessing only early attachment may result in the underestimation of the effects of attachment on peer relationships. I will address this limitation by investigating both earlier and later attachment.

In this study, I will investigate only attachment security instead of the attachment categories for two reasons. First, I wanted to investigate both earlier and later attachment and only security was measured at both time points. Second, previous research has demonstrated a link between attachment security and peer relationships. A lot less has been documented about attachment category correlates. Since one of the main points of this study was to investigate mediating mechanisms, I wanted to use attachment security because I would expect a link between security and peer relationships based on prior theory and data.

The first hypothesis to be tested is that mother-child attachment at three years of age will directly predict later peer competence at fifth grade, and mother-child attachment at fifth grade will be concurrently related to peer competence at fifth grade. Specifically, I expect that children more securely attached at three years of age or fifth grade will have more competent peer relationships in fifth grade.
The second hypothesis is that mother-child attachment at three years of age will directly predict later friendship at sixth grade, and mother-child attachment at fifth grade will directly predict later friendship at sixth grade. Specifically, I expect that children more securely attached at three years of age or fifth grade will have higher quality friendships in sixth grade. Both the first and second hypotheses will replicate earlier research demonstrating a link between attachment and peer relationships.

The third hypothesis is that the associations between mother-child attachment at three years and peer competence at fifth grade will be mediated by emotion regulation at third grade. The fourth hypothesis is that the associations between mother-child attachment at three years and friendship at sixth grade will be mediated by emotion regulation at third grade.

The fifth hypothesis is that the associations of mother-child attachment at three years and attachment at fifth grade with friendship at sixth grade will be mediated by peer competence at fifth grade. This will add to the literature by investigating another potential mechanism (peer competence) that may explain the attachment-peer link and will also provide evidence for the idea that peer relationships in middle childhood are the result of prior experience in both parent and peer relationships.

The sixth hypothesis is that peer competence at third grade will uniquely predict peer competence at fifth grade, after controlling for mother-child attachment at age three. The seventh hypothesis is that peer competence at third grade will uniquely predict friendship at sixth grade, after controlling for mother-child attachment at age three. Both
of these hypotheses will add to the literature by showing that previous peer experience has a unique influence on later peer relationships.
CHAPTER 2

METHOD

Participants

In 1991, a diverse sample of children and their families were enrolled in the NICHD Study of Early Child Care at 10 hospital locations across the United States (Little Rock, AR; Irvine, CA; Lawrence, KS; Boston, MA; Philadelphia, PA; Pittsburgh, PA; Charlottesville, VA; Morganton, NC; Seattle, WA; Madison, WI). All women giving birth at these locations were screened for eligibility and willingness to be contacted at a later time. The major exclusionary criteria were mother under 18 at time of child’s birth, family planned to move within the next three years, children with disabilities or had been hospitalized for more than seven days after birth, mothers who did not speak English, and families who did not have a phone in the house. Participants who met eligibility criteria were selected according to a conditionally random sampling plan, which ensured that participants included mothers who planned to go to work or school part time or full time during their child’s first year, as well as those who planned to stay home with their child. The conditionally random sampling plan also ensured that participants reflected the economic, educational, and ethnic diversity of the different locations. Based on all of these criteria, 1,364 families were enrolled in Phase I of the study. The demographics of
the entire sample are presented in Table 1. Of the entire sample, 52% were male, 80%
were Caucasian, 84% came from intact families, and the overall family income was 2.86
times that of the poverty level (computed by dividing the total family pre-tax income by
the poverty threshold for a household). The entire sample was not nationally
representative. As an example, according to US Census data for 1994, 31% of family
households were single parent families. In the NICHD sample, only 15% of households
were single parent families. Thus, the NICHD sample is more advantaged than a
nationally representative sample.

Table 1. Descriptive Statistics on Entire Sample Demographics

<table>
<thead>
<tr>
<th>Measures</th>
<th>N</th>
<th>M (SD)</th>
<th>Minimum</th>
<th>Maximum</th>
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<tr>
<td>Demographic measures</td>
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</tr>
<tr>
<td>Male</td>
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<td></td>
</tr>
<tr>
<td>Female</td>
<td>1,364</td>
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<tr>
<td>Child ethnicity</td>
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<td></td>
</tr>
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<td>Caucasian</td>
<td>1,364</td>
<td>1,097 (80)</td>
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<td></td>
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<tr>
<td>African-American</td>
<td>1,364</td>
<td>176 (13)</td>
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<tr>
<td>Other</td>
<td>1,364</td>
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<tr>
<td>Intact</td>
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<td>Step parent</td>
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</tr>
<tr>
<td>Single Parent</td>
<td>1,364</td>
<td>198 (15)</td>
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</table>
The demographic characteristics for the subsample of 1,140 families used for these analyses are presented in Table 2. Of this subsample, 51% were male, 83% were Caucasian, 85% came from intact families, and the overall family income was 2.95 times that of the poverty level.

**Procedure**

Phase I of the study included 1,364 families and followed the children from birth to three years. Phase II of the study followed the 1,103 children who continued to participate from 54 months through first grade. Phase III of the study followed the 1,077 children who remained in the study from second through sixth grades. Phase IV followed over 1,000 of the original children from age 14 through age 15. The present study will include data collected during Phase I and Phase III. The NICHD SECC is much broader than the constructs investigated in this study. Relevant to this study, research assistants made observational assessments of attachment in a laboratory playroom when children were three years of age. During third grade, mothers reported on children’s peer competence and emotion regulation. During fifth grade, mothers reported on peer competence again, and children reported on perceptions of security to mother. Finally, during sixth grade, research assistants made observational assessments of children’s friendship quality in a laboratory setting.
Table 2. Descriptive Statistics on Study Demographics and Measures

<table>
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<tr>
<th>Measures</th>
<th>N</th>
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<th>Maximum</th>
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<td>Household type G5</td>
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<tr>
<td>Step parent</td>
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<tr>
<td>Single Parent</td>
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<td>171 (18)</td>
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<td>Study measures</td>
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<tr>
<td>Attachment security 36 months</td>
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<td>9.00</td>
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<td>Attachment security G5</td>
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<tr>
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<td>.00</td>
<td>2.00</td>
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<tr>
<td>Excluded G5</td>
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<td>1.79 (.35)</td>
<td>.25</td>
<td>2.00</td>
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<tr>
<td>Peer victimization G5</td>
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<td>1.77 (.35)</td>
<td>.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Child positive social behavior G6</td>
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<td>5.00</td>
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<td>3.48 (.82)</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Overall friendship G6</td>
<td>849</td>
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<td>1.00</td>
<td>5.00</td>
</tr>
</tbody>
</table>
**Measures**

*Mother-Child Attachment*

Attachment security at 36 months was assessed using a modified Strange Situation procedure (Cassidy & Marvin and the MacArthur Working Group on Attachment, 1992). Using this modified procedure, the mother and child were given time to make themselves comfortable in a room which contained a basket of toys, a beanbag chair, a chair for the mother, and a schoolhouse with plastic figures. After three minutes, the mother was signaled to leave the room. This first separation lasted three minutes, unless the child was distressed, in which case the mother returned to the room early. The mother came back in the room for a three minute reunion. The mother then left again and this second separation lasted five minutes, unless the child was distressed. The assessment ended after three minutes of the second reunion. Research assistants at the sites were trained and certified to conduct this modified procedure.

The child’s behavior during the procedure was classified according to the system developed by Cassidy and Marvin (1992). This system classifies preschoolers as secure (B) or insecure (A, C, and D). Secure (B) children are able to resolve the stress of the situation and resume calm, comfortable interaction with the mother. Insecure-avoidant (A) children remain neutral during the procedure, and even after a reunion they rarely express negative or positive emotion toward the mother. Instead, they minimize their emotions. Insecure-ambivalent (C) children show fussy, whiny, or resistant behavior toward the mother. They seek contact, but the contact is not satisfactory. These children heighten their emotions. Insecure-controlling/other (D) children are either controlling or
show a combination of strategies (such as both avoidance and ambivalence) during the reunions. Controlling children take charge of the reunion, through role-reversal (acting as a caretaker or in a punitive way). Sixty-four percent of children were classified as secure, 4% were classified as insecure-avoidant, 15% were classified as insecure-ambivalent, and 17% were classified as insecure-controlling/other. Observer agreement for the attachment classifications was 75.6%. Coders also made a 9-point security rating, in which 1 = Very insecure, 3 = Insecure, 5 = Probably secure, 7 = Secure, and 9 = Very secure. For the security rating, interrater agreement assessed via intraclass correlations was .83. The global rating of security was examined in this study. Solomon and George (2008) state in their review of attachment measures in infancy and early childhood that the Cassidy-Marvin system is the preferred measure for assessing attachment in 3- and 4-year-olds. However, they do mention that some of the validation results are problematic. The problematic findings are that there is relatively low continuity between infant and preschool classifications, and failure to consistently find distinctive differences in mother-child interaction associated with the avoidant and ambivalent groups. Evidence for validity was demonstrated by NICHD Early Child Care Research Network (2001) who found modest but consistent associations between maternal sensitivity (averaged across the first three years) and attachment security at three years. Additionally, they found consistent, theoretically predicted, but modest associations between attachment security and concurrent measures of social competence, problem behavior, positivity, and compliance.
Attachment at fifth grade was assessed using the My Family Questionnaire (Appendix A – items 2, 3, 5, 6, 8-18). Eleven items included in this questionnaire were items taken from the Security Scale (Kerns et al., 1996). Four more items included in this questionnaire were similar to items on the Security Scale. Thus, to assess perceptions of attachment in middle childhood, only the 15 items similar to the Security Scale were used. The questionnaire asks children to report on their perception of security in mother-child relationships (e.g., “It’s easy to count on my mom for help”). Items are scored on a 4-point scale, in which 1 = Not at all true, 2 = Not very true, 3 = Sort of true, and 4 = Very true. Cronbach’s alpha is .81. The Security Scale has been found to have adequate internal consistency and test-retest reliability and there is also evidence of validity as it has shown associations with other measures of attachment, parenting, and other theoretically related constructs (Kerns, Schlegelmilch, Morgan, & Abraham, 2005).

*Emotion Regulation*

In third grade, emotion regulation was assessed using the Emotion Regulation (Parent Report of Children’s Reactions) Questionnaire (Appendix B). This questionnaire focuses on temporal features of emotion and operationalizes emotion regulation as the intensity in which children express their emotions. Mothers reported perceptions of how her child expresses emotions in response to events (e.g., “When angry, it is easy for my child to still be rational and not overreact”). Mothers were asked to rate their child’s frequency of display of emotions on a 5-point scale, in which 1 = Never, 2 = Occasionally, 3 = About half the time, 4 = Usually, and 5 = Always. Cronbach’s alpha is .76. The child emotion regulation score is the sum of responses to all of the items. Items
were scored so that higher values indicate greater emotion regulation. Evidence for validity was demonstrated by Eisenberg, Fabes, Bernzweig, Karbon, Poulin, and Hanish (1993), and Eisenberg, Fabes, Murphy, Maszk, Smith, and Kabron (1995), who found that children’s emotion regulation was related to their social functioning.

Peer Competence

Peer competence at third grade and fifth grade was assessed using the 43-item Child Behavior with Peers Questionnaire (Appendix C). The Child Behavior with Peers Questionnaire includes 31 items measuring aggressive behavior (e.g., “Argues with peers”), prosocial behavior (e.g., “Seems concerned when other children are distressed”), asocial behavior (e.g., “Likes to be alone”), and exclusion by peers (e.g., “Not chosen as playmate by peers”), from Ladd’s revision of the Child Behavior Scale (Ladd & Profilet, 1996). The questionnaire also includes six items measuring peer victimization (e.g., “Is ridiculed by peers”), adapted from the Peer Victimization Scale (Kochenderfer & Ladd, 1996). Additionally, it includes six items measuring relational aggression (e.g., “Spreads rumors or gossips about some peers”), from the Children’s Social Behavior Scale – Teacher Form (Crick, 1996).

The asocial behavior, exclusion by peers, and peer victimization subscales were used in this study. These subscales were chosen because of their relevance to the major developmental tasks of middle childhood. As mentioned above, during middle childhood children need to find a place in the larger peer network. In other words, they need to be integrated and included in the peer network. If children display asocial behavior they are prohibiting themselves from being included in the peer network, and if they are excluded
or victimized by their peers they also are not able to become integrated into the larger peer group, and thus do not succeed at the major developmental tasks of middle childhood. Confirming the use of asocial behavior, exclusion, and peer victimization, results of a factor analysis showed that these three subscales loaded on one factor while aggressive behavior, prosocial behavior, and relational aggression loaded on another factor at third grade and fifth grade, suggesting the three subscales used in this study make up a peer engagement factor.

It has been suggested that it is best to have information from multiple sources when assessing children’s emotional and behavioral functioning, and social competence (Achenbach, McConaughy, & Howell, 1987; Renk & Phares, 2004). Information from multiple informants allows one to have a more complete picture of the individual because each informant may have different experiences with children’s various characteristics and behaviors. Achenbach et al. and Renks and Phares both found low to moderate correlations between different types of informants which suggests that each type of informant typically contributes a considerable amount of variance not accounted for by the others. Additionally, Renks and Phares suggest that discrepancies between mother and teacher report may be due to differences in the setting in which each informant interacts with the child. For example, children may behavior differently and/or have different peer partners at home than they do at school.

There are both advantages and disadvantages to mother reports and teacher reports. Advantages to mother reports are that mothers may see their children interact with peers in more settings than do teachers. For example, mothers see their children
interact with peers at home, at church, on sports teams, in groups and one on one.

Disadvantages with mother reports are that reports may be biased due to mothers wishing to portray their children in the best possible light (Schneider & Byrne, 1989). Advantages to teacher reports are that they tend to be more objective than mother reports, and teachers are familiar with norms of children’s social behavior (Schneider & Byrne, 1989). Disadvantages with teacher reports are that, due to the structured school day, teachers may not get to see children interact with peers very often. Due to previous research which has found discrepancies between mother and teacher reports, and the advantages and disadvantages of both mother and teacher reports, I originally wanted to include both mother and teacher reports in this study. However, the teacher data did not converge well in SEM analyses so only mother reports were used.

Mothers rated the study child’s behavior with peers on a 3-point scale, in which 0 = Not true, 1 = Sometimes true, and 2 = Often true. All of the subscales were reverse scored so that higher scores indicate greater peer competence. Cronbach’s alpha ranged between .78 and .89 for grade three, and .74 and .91 for grade five. There was some evidence for validity for mother reports in that mother reports and teacher reports were correlated between .28 and .38 for the peer variables suggesting that they were reporting on similar behaviors. This measure has also been shown to have validity in that the subscales from the Children’s Behavior Scale were associated in expected directions with observations of the same behaviors (Ladd & Proﬁlet, 1996). The subscales from the Peer Victimization Scale (Kochenderfer & Ladd, 1996) were associated in expected directions with observations of peer aggression in the classroom, loneliness, and peer acceptance.
The subscales from the Children’s Social Behavior Scale – Teacher Form (Crick, 1996) were positively correlated with peer nominations of relational aggression.

*Friendship*

In sixth grade, friendship was assessed using an Observed Friendship Interaction task (Appendix D). An observational measure of friendship quality was included because it provides an objective measure of friendship quality and research assistants report on actual behaviors of the friends.

The Observed Friendship Interaction consists of seven different tasks (Snack, Jenga, Pictionary, Plan a Vacation, Millionaire, Hand Game, Prize Selection) in which the study child and a self-identified best friend complete a specific task as instructed by the research assistant. The “Millionaire”, “Hand Game”, and “Prize Selection” tasks were dropped from coding because they did not provide additional useful information about the quality of the children’s friendship beyond what could be obtained from the other four tasks. Each of the tasks was designed to elicit different kinds of behaviors and interactions (e.g., social interaction, conversation, cooperation, conflict, competition, etc.). Thus, the behavior of the study child and of the dyad was rated in terms of observed interactions across all episodes combined, without giving weight to any one task.

Seven subscale scores were applied to each task. Five of the subscale scores applied to the study child’s behavior (study child positive social behavior, negative behavior, competitiveness, self-disclosure, agency), and two applied to the dyadic interaction (negative interaction, overall friendship quality). All scales were coded on a 5-point scale, in which 1 = Not at all characteristic and 5 = Highly characteristic or 1 = Not
at all close and 5 = Very close (for overall friendship quality). The codes were adapted from those developed by the work of earlier researchers, including Youngblade et al. (1993).

The child positive social behavior, child agency, and dyadic overall friendship quality subscales were used in this study. Child positive social behavior includes showing affection, cooperation, disclosing intimacies, etc. Child agency includes an active interest in participating with the friend, appreciation of individual and team accomplishments, sharing ideas and listening to the friend’s contributions, etc. The overall friendship quality subscale includes clear ability to get along, not fight; emotionally close, intimate; they support one another; they interact socially even when they do not have to, etc. (Appendix D). These variables were chosen because they encompass reciprocity, liking, and affection, which most researchers agree are attributes that are included in friendships (Bukowski et al., 1996). Additionally, the two individual codes were chosen because they show that the study child is active and engaged in the friendship, and they were thought to be most closely related to the attachment behavior of the study child. The dyad code was chosen because friendship quality is influenced by the characteristics of both children in the relationship. The inter-rater agreement (intraclass correlations), computed based on 103 participants, ranged between .90 and .92.
CHAPTER 3

RESULTS

Preliminary Analyses

The participants included in this study \((N = 1,140)\) were compared to participants excluded due to missing data on 36 month attachment. Children included in this study were more likely to be Caucasian \(\chi^2 (2) = 20.37, p < .001\). Families included in this study were more likely to be intact families \(\chi^2 (2) = 13.52, p < .01\), and have a higher income-to-needs ratio \(t (1,271) = -2.7, p < .01\).

Child sex, ethnicity (Caucasian, African-American, Other), income-to-needs ratio at fifth grade, and household type at fifth grade (Intact Family, Step Family, Single Parent, No Parent) were controlled for in all models, due to significant associations with the outcome variables (see Table 3). Additionally, several gender differences were found on the main study variables. Boys \((M = 5.13)\) were more likely than girls \((M = 4.91)\) to be more securely attached at age three, \(t (1, 1138) = 2.15, p < .05 (d=.13)\). Boys \((M = .26)\) were also more likely than girls \((M = .18)\) to be more victimized by peers at grade three, \(t (1, 914.72) = 3.42, p < .01 (d=.23)\). Boys \((M = .30)\) were more likely than girls \((M = .26)\) to be more asocial at grade five, \(t (1, 916.82) = 2.01, p < .05 (d=.12)\). Girls \((M = 3.54)\) were more likely than boys \((M = 3.34)\) to show more positive social behavior in
friendships at grade six, \( t (1, 847) = -3.99, p < .001 (d=.28) \). Girls \((M = 3.56)\) were also more likely than boys \((M = 3.33)\) to be a part of higher quality friendships at grade six, \( t (1, 847) = -4.23, p < .001 (d=.29) \). Due to the associations between gender and several study variables, gender was investigated as a moderator in all of the hypotheses. Gender differences were only found in hypotheses 6, 7, and the overall model. These differences are discussed in the text.

For descriptive purposes, correlations among the study variables are shown in Table 4. Preliminary analyses looked at construct stability. Attachment at three years and at fifth grade were positively and significantly associated with one another \((r = .08, p <.05)\). The peer competence variables at grade three were all significantly and positively associated with one another \((rs between .28 and .58, all p <.001)\). Similarly, the peer competence variables at grade five were also all significantly and positively associated with one another \((rs between .40 and .66, all p <.001)\). Additionally, the peer competence variables at grade three and grade five were also significantly and positively associated \((rs between .21 and .61, all p <.001)\).

Direct effects among the main study variables were examined using the zero-order correlations in Table 4. To examine mediating mechanisms and the unique influence of certain variables, SEM analyses were used. The specific program used was Mplus 5.1 (Muthen & Muthen, 1998 – 2008). Full information maximum likelihood (FIML) was used to handle missing data. FIML estimates the model on the basis of all available data; including the incomplete cases (Muthen & Muthen, 1998 – 2008). Thus, all 1,140 individuals were included in the SEM analyses. It has been shown that FIML is
### Table 3. Associations of Demographic Variables with Outcome Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Asocial G5</th>
<th>Excluded G5</th>
<th>Peer Victimization G5</th>
<th>Positive Social Behavior</th>
<th>Agency</th>
<th>Overall Friendship</th>
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</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
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<tr>
<td>Male</td>
<td>$t (1, 916.82) = 2.01^*$</td>
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<td></td>
<td>$t (1, 847) = -3.99^{***}$</td>
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<td>$t (1, 847) = -4.23^{***}$</td>
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<td>Female</td>
<td>$M = .30$</td>
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<tr>
<td>White</td>
<td>$F (2, 931) = 5.58^{**}$</td>
<td>$F (2, 931) = 6.68^{**}$</td>
<td>$F (2, 846) = 8.27^{***}$</td>
<td>$F (2, 846) = 10.02^{***}$</td>
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<td>$F (2, 846) = 11.62^{***}$</td>
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<td>Intact</td>
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<td>$F (3, 833) = 3.78^{**}$</td>
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<td>Single Parent</td>
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<td>Income-to-needs</td>
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<td>$r = .08^{*}$</td>
<td>$r = .13^{**}$</td>
<td>$r = .11^{**}$</td>
<td>$r = .09^{*}$</td>
<td>$r = .10^{**}$</td>
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*Note: *$p<.05$, **$p<.01$, ***$p<.001$*
Table 4. Associations among Study Variables

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<th>1.</th>
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<td>.07*</td>
<td>.06</td>
<td>.05</td>
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<td>8. Excluded G5</td>
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<td>9. Peer victimization G5</td>
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<td>10. Child positive social behavior G6</td>
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<td>.47**</td>
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<td>11. Child agency G6</td>
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<td>.51*</td>
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<td>12. Overall friendship G6</td>
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Note: *p < .05, **p < .01, ***p < .001
superior to listwise and pairwise deletion. FIML parameter estimates were unbiased compared to the other methods (Enders & Bandalos, 2001).

Hypothesis 1: Direct Effect of Attachment on Peer Relationships

It was expected that mother-child attachment at three years of age would directly predict peer competence at fifth grade, and mother-child attachment at fifth grade would be concurrently related to peer competence at fifth grade. Table 4 shows that attachment at three years was related to asocial behavior and exclusion at fifth grade, and attachment at fifth grade was related to all three aspects of peer competence at fifth grade. The results show that children with higher ratings of security to mother at age three have more competent peer relationships in fifth grade, and children with higher perceptions of security to mother at fifth grade have more competent peer relationships in fifth grade. A model which included both attachment at three years and attachment at fifth grade investigated the unique contribution of each on peer competence (Figure 2). The Chi-square test was significant: $\chi^2 (14) = 43.84, p < .001$. Large sample sizes tend to produce significant Chi-square tests, so it is more meaningful to look at fit indices (Kline, 2005; Maruyama, 1998). The Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA) with its 90% confidence interval were used as indices of model fit. CFI assesses the relative improvement in fit of the researcher’s model compared with a baseline model. RMSEA estimates the amount of error of approximation per model degree of freedom and takes sample size into account. A CFI greater than .90 indicates an adequate fit and greater than .95 indicates a good fit. RMSEA below .08 indicates an adequate fit and below .05 indicates a good fit. Fit indices indicated that the model fit the
Note: *p < .05, ***p < .001

*Figure 2.* Direct effect of attachment on peer relationships
data well; CFI = .97, RMSEA = .04 with the 90% confidence interval .03 - .06. The analysis shows that when attachment at three years and attachment at fifth grade are both included, only attachment at fifth grade remains a statistically significant predictor of peer competence at fifth grade. This result suggests that the effect of early attachment on later peer relationships comes from later attachment.

Hypothesis 2: Direct Effect of Attachment on Friendship

It was expected that mother-child attachment at three years of age and mother-child attachment at fifth grade would directly predict friendship at sixth grade. Table 4 shows that attachment at fifth grade does directly predict child positive social behavior and overall friendship at grade six, but attachment at three years is not associated with any of the three friendship variables. The results show that children with higher perceptions of security to mother at fifth grade have higher quality friendships at sixth grade. A model which included both attachment at three years and attachment at fifth grade investigated the unique contribution of each on friendship (Figure 3). The Chi-square test was not significant: \( \chi^2 (14) = 13.06, p = .52 \). Fit indices indicated that the model fit the data well; CFI = 1.00, RMSEA = .00 with the 90% confidence interval .00 - .03. The analysis shows that when attachment at three years and attachment at fifth grade are both included, attachment at fifth grade remains a statistically significant predictor of friendship at sixth grade. Again, results suggest that the effect of attachment on friendship comes from later attachment.
Note: *p < .05, **p < .01, ***p < .001

Figure 3. Direct effect of attachment on friendship
Hypothesis 3: Emotion Regulation as a Mediator between Attachment and Peer Competence

It was expected that the associations between attachment at three years and peer competence at fifth grade would be mediated by emotion regulation at grade three. Table 4 shows that attachment at three years is associated with asocial behavior and exclusion at grade five, attachment at three years is associated with emotion regulation at grade three, and emotion regulation at grade three is associated with exclusion and peer victimization at grade five.

A model investigating these associations fit the data well (Figure 4), $\chi^2 (19) = 49.73, p < .001; \text{CFI} = .96, \text{RMSEA} = .04$ with the 90% confidence interval .03 -.05. When taking everything else in the model into account (e.g., emotion regulation and the demographic variables), the association between three year attachment and peer competence at fifth grade was no longer significant. According to Baron and Kenny (1986), one of the criteria for mediation is that there is a significant association between the independent variable and the outcome. An indirect effect does not require this significant association (McElwain, Booth-LaForce, Lansford, Wu, & Dyer, 2008). A significant indirect effect means that the independent variable has an effect on the outcome through another variable. The investigation of indirect effects is important because it is the independent variable-mediator and mediator-dependent variable associations (not the independent variable-dependent variable association) that are key for testing intervening mechanisms (McElwain et al., 2008). Thus, although mediation could not be tested for because Baron and Kenny’s criteria were not met, one could still test for an indirect effect. The indirect effect of attachment at three years on peer
Figure 4. Emotion Regulation as a mediator between attachment and peer competence

*Note:* *p < .05, ***p < .001
competence at fifth grade through emotion regulation was examined. The indirect effect was significant $\beta = .01$, $p < .05$. The significant indirect effect suggests that children learn about emotions in attachment relationships, and then these emotion regulation skills are applied to peer relationships.

**Hypothesis 4: Emotion Regulation as a Mediator between Attachment and Friendship**

It was expected that associations between attachment at three years and friendship at sixth grade would be mediated by emotion regulation at third grade. Table 4 shows that while there was a significant association between attachment at three years and emotion regulation at third grade, friendship at sixth grade was not related to attachment at three years or emotion regulation at third grade. Since the independent variable and the mediator were not related to the outcome, there cannot be a direct or indirect effect.

**Hypothesis 5: Peer Competence as a Mediator between Attachment and Friendship**

**Attachment at Three Years**

It was expected that the association between attachment at three years and friendship at sixth grade would be mediated by peer competence at fifth grade. Table 4 shows that although there is not a significant association between attachment at three years and friendship at sixth grade, there are significant associations between attachment at three years and asocial behavior and exclusion at fifth grade and between peer competence at fifth grade and friendship at sixth grade (4 out of 9 correlations are significant, $r_s$ range from .08 to .10). A model investigating these associations fit the data
well (Figure 5), \( \chi^2 (37) = 76.85, p < .001; \) CFI = .98, RMSEA = .03 with the 90% confidence interval .02 - .04. Since there were attachment-peer competence and peer competence-friendship associations, an indirect effect of attachment on friendship through peer competence was examined. This indirect effect was not significant \( \beta = .01, p = .12. \) Although the model could be fit to the data, the indirect path was not significant and thus the results do not confirm the hypothesis.

**Attachment at Fifth Grade**

It was expected that the association between attachment at fifth grade and friendship at sixth grade would be mediated by peer competence at fifth grade. Table 4 shows the associations between attachment at fifth grade, peer competence at fifth grade, and friendship at sixth grade. A model investigating these associations fit the data well (Figure 6), \( \chi^2 (37) = 76.34, p < .001; \) CFI = .98, RMSEA = .03 with the 90% confidence interval .02 - .04. Although there were significant correlations between peer competence and friendship, when taking everything else in the model into account (e.g., attachment and demographic variables), the association between peer competence at fifth grade and friendship at sixth grade was no longer significant. While there was a significant attachment-peer competence association, there was not a significant peer competence-friendship association. Therefore, peer-competence cannot act as an intervening variable between attachment and friendship. Although the model could be fit to the data, key paths were not significant. Neither the direct path from peer competence to friendship nor the indirect path from attachment to friendship was significant, therefore the hypothesis was not confirmed.
Note: *p < .05, ***p < .001

Figure 5. Peer competence as a mediator between 36 month attachment and friendship
Figure 6. Peer competence as a mediator between fifth grade attachment and friendship

Note: *p < .05, ***p < .001
Hypothesis 6: Unique Influence of Peer Competence on Later Peer Competence

It was expected that peer competence at third grade would uniquely predict peer competence at fifth grade, after controlling for attachment at three years. Table 4 shows that associations between peer competence at grade three and grade five were significantly and positively related (rs range between .21 and .61, all p < .001). A model testing the unique influence of peer competence at grade three on peer competence at grade five while taking attachment at age three into account fit the data well (Figure 7), χ²(29) = 101.15, p < .001; CFI = .97, RMSEA = .05 with the 90% confidence interval .04 -.06. The statistically significant link between peer competence at grade three and peer competence at grade five (β = .66, p < .001) shows that earlier peer competence does have a unique influence on later peer competence even when taking earlier attachment into account. Further, the association between attachment at three years and peer competence at fifth grade is no longer significant after taking into account everything else in the model (e.g., peer competence and demographic variables), suggesting that attachment has an indirect effect on later peer competence through earlier peer competence. Additionally, analyses investigating gender as a moderator found that the association between attachment at three years and peer competence at third grade is significant for boys (β = .16, p < .01) but not for girls (β = -.02, p = .76).

Hypothesis 7: Unique Influence of Peer Competence on Later Friendship

It was expected that peer competence at third grade would uniquely predict friendship at sixth grade, after controlling for attachment at age three. Table 4 shows that
Figure 7. Unique influence of peer competence on later peer competence

Note: *p < .05, ***p < .001
peer competence at third grade is associated with friendship at sixth grade (8 out of 9 correlations significant, rs range between .07 and .17). A model testing the unique influence of peer competence at grade three on friendship at grade six while taking attachment at age three into account fit the data well (Figure 8), $\chi^2 (32) = 82.87, p < .001$; CFI = .97, RMSEA = .04 with the 90% confidence interval .03 - .05. The statistically significant link between peer competence at grade three and friendship at grade six ($\beta = .14, p < .01$) after taking attachment at three years into account shows that earlier peer competence has a unique influence on friendship even after controlling for earlier attachment. Further, analyses investigating gender as a moderator found that the association between peer competence at grade three and friendship at sixth grade is significant for girls ($\beta = .26, p < .001$) but not for boys ($\beta = .04, p = .50$). Thus, peer competence has a unique influence on friendship for girls, but not for boys. Similar to what was found for hypothesis six, the association between attachment at three years and peer competence at third grade is significant for boys ($\beta = .16, p < .01$) but not for girls ($\beta = -.02, p = .69$).

**Overall Model - Pathways to Pre-adolescent Friendship**

An overall model that includes all of the constructs was examined. The previous models were limited in that they only contained variables specific to that particular hypothesis, which is not a good representation of real life. For example, when I tested peer competence as a mediator I did not take the effects of emotion regulation into account. Therefore, I am not able to tell what, if any, effect emotion regulation may have
Figure 8. Unique influence of peer competence on later friendship

Note: *p < .05, **p < .01, ***p < .001
on the other variables. Although the overall model is still incomplete, it is more integrated and more reflective of real world complexity than the individual models. The overall model fit the data well (Figure 9), $\chi^2 (81) = 201.00, p < .001$; CFI = .96, RMSEA = .04 with the 90% confidence interval .03 - .04. For the most part, most of the parameters remained the same. Partially confirming hypotheses one and two, attachment at fifth grade, but not attachment at three years, is a significant predictor of peer competence at fifth grade and friendship at sixth grade. Disconfirming hypothesis three, the indirect effect of attachment at three years on peer competence at fifth grade through emotion regulation at third grade is no longer significant when placed into the overall model. There was not a significant path between attachment at three years and friendship, nor was there a significant path between emotion regulation and friendship. Thus, hypothesis four was not confirmed. The paths between attachment at three years and peer competence at fifth grade, and between peer competence at fifth grade and friendship at sixth grade were no longer significant when examining peer competence at fifth grade as an intervening variable between attachment at three years and friendship at sixth grade. Additionally, the path between peer competence at fifth grade and friendship at sixth grade was not significant when examining peer competence at fifth grade as an intervening variable between attachment at fifth grade and friendship at sixth grade. Thus, hypothesis five was not confirmed. Confirming hypotheses six and seven, peer competence at third grade is a significant predictor of peer competence at fifth grade and friendship at sixth grade even after controlling for earlier attachment. Similar to the individual models, although there were several statistically significant parameters, they
Note. A = Asocial, E = Excluded, P = Peer Victimization, O = Overall, P = Positive, AG = Agency
*p < .05, **p < .01, ***p < .001

Figure 9. Pathways to pre-adolescent friendship
were quite small in terms of magnitude except for the link between peer competence at third grade and peer competence at fifth grade which was moderate in terms of magnitude.

Similar to what was found in the individual models, analyses investigating gender as a moderator found that the association between peer competence at grade three and friendship at sixth grade is significant for girls ($\beta = .27, p < .001$) but not for boys ($\beta = .08, p = .28$). Thus, peer competence has a unique influence on friendship for girls, but not for boys. Further, the association between attachment at three years and peer competence at third grade is significant for boys ($\beta = .16, p < .01$) but not for girls ($\beta = -.01, p = .80$). Interestingly, moderation analyses also showed that the association between peer competence at grade five and friendship at sixth grade is significant for girls ($\beta = -.25, p < .01$) but not for boys ($\beta = .09, p = .27$).
CHAPTER 4

DISCUSSION

It is important to investigate pathways that lead to adaptive peer relationships because of the impact children’s peer relationships have on children’s cognitive, social, and emotional functioning. The goal of this study was to examine how mother-child attachment and peer relationships are related over time, and examine mediating mechanisms which may explain the associations. The purpose of the first two hypotheses was to check for associations between attachment and peer relationships. The first hypothesis was that mother-child attachment at three years of age, and mother-child attachment at fifth grade would be related to peer competence at fifth grade. This hypothesis was confirmed. Children with higher ratings of security to mother at age three, and children with higher perceptions of security to mother at fifth grade, had more competent peer relationships in fifth grade. Investigation of the unique contribution of early attachment and later attachment showed that when both of them are taken into account, only attachment at fifth grade remained a statistically significant predictor of peer competence at fifth grade.

The second hypothesis was that mother-child attachment at three years of age, and mother-child attachment at fifth grade, would predict friendship at sixth grade. This
hypothesis was partially confirmed. Attachment at fifth grade, but not at three years of age, predicted later friendship. Specifically, children with greater perceptions of security to mother at fifth grade had higher quality friendships at sixth grade, even when earlier attachment was taken into account.

One issue of debate in the attachment literature is whether early attachment has independent effects on socioemotional development or whether the influence of attachment can be explained by concurrent attachment. Several researchers have shown independence of predictions from early and late attachment assessments (Bohlin et al., 2000). Similarly, it has been suggested that development is the product of early experiences and current circumstances (McElwain, Cox, Burchinal, Macfie, 2003; Sroufe et al., 1990). An alternative view (Lewis, Feiring, & Rosenthal, 2000) is that only concurrent attachment experiences are important. For example, Lewis et al. did not find a predictive relation of early attachment to maladjustment but they did find evidence of an association between concurrent attachment and maladjustment. The independent contributions of early and later attachment can be assessed in a statistical sense, but early and later attachment are not independent. For example, children carry forward what they learn in their early attachment relationships into new situations and relationships. The current study shows that although early attachment does not independently predict peer relationships, it may indirectly influence peer relationships by leading children onto a particular developmental pathway. In other words, the influence of early attachment may be carried forward and have an impact on peer relationships through later attachment relationships.
The current study also shows that later attachment is more strongly related to peer relationships than early attachment. This finding speaks to the importance of including measures of early and concurrent attachment in studies. The two attachment measures were assessed approximately eight years apart, and it is possible that over a time period of this length children can become more or less secure. This finding fits with the work of others who have found that attachment can and does change (Weinfield, Whaley, & Egeland, 2004). The conditions under which attachment organization may change include negative events occurring in the family (i.e., divorce) and child maltreatment.

The next hypotheses investigated mechanisms that may explain the associations between attachment and peer relationships. One mediating mechanism, emotion regulation, was only tested as a mediator between early attachment and peer relationships so that the measure of attachment was obtained before the mediator. If emotion regulation was tested as a mediator between later attachment and peer relationships, the measure of attachment would have been obtained after the mediator. The third hypothesis was that the associations between mother-child attachment at three years and peer competence at fifth grade would be mediated by emotion regulation at third grade. This hypothesis was partially confirmed. Specifically, results showed a significant indirect effect of attachment on peer competence through emotion regulation. This indirect effect suggests that children learn about emotions and how to modify their emotions in the attachment relationship, and these emotion regulation skills are then applied to peer relationships and help them to behave more competently with peers.
The indirect effect of attachment on peer competence through emotion regulation supplements previous literature which has found that emotion regulation acts as a mediator of the attachment-peer link. Contreras et al. (2000) found that constructive coping strategies mediated the associations between attachment and peer relationships. Abraham and Kerns (unpublished manuscript) found that positive mood and emotion-focused coping act as mediators of the associations between attachment and friendship. Additionally, the current study adds to the literature by examining emotion regulation as a mediator between attachment and peer relationships using a longitudinal design.

Emotion regulation includes both intrinsic and extrinsic processes by which children monitor, evaluate, and modify their emotional reactions in order to accomplish their goals (Thompson, 1994). Intrinsic processes include temperamentally based emotional arousability (such as intensity) and attentional control process (Fox & Calkins, 2003). Extrinsic processes include the ways in which parents shape and socialize emotional responses of the child (Fox & Calkins, 2003). The earlier studies provide evidence that extrinsic processes of emotion regulation (constructive coping skills learned in parent-child relationships) are important for attachment and peer relationships. The measure of emotion regulation in the current study operationalizes emotion regulation as emotional intensity. Emotional intensity is an intrinsic process of emotion regulation. The current study adds to the literature by showing that intrinsic processes of emotion regulation are important for attachment and peer relationships as well. It would be interesting to investigate how intrinsic and extrinsic processes of emotion regulation work together to influence the attachment-peer link. For example, perhaps children who are inclined to
experience intense emotions need the constructive coping skills learned in the parent-child attachment relationship more than children who do not experience intense emotions so that they know how to manage their emotions in ways that will allow them to function well within the peer group. Contreras et al. tested the interactive effect of negative emotionality (i.e., frequency and intensity with which mainly negative emotions are felt) and constructive coping on children’s peer competence. Providing support for the above idea, they found that children high on negative emotionality do not necessarily experience problems in peer relationships if they have developed and use constructive coping strategies.

The fourth hypothesis was that the associations between mother-child attachment at three years and friendship at sixth grade would be mediated by emotion regulation at third grade. This hypothesis was not confirmed, as neither attachment at three years nor emotion regulation at third grade was related to friendship at sixth grade. It was surprising that emotion regulation was not related to friendship because emotion regulation is thought to be important for peer relationships, including friendship (Hubbard & Coie, 1994). Perhaps the aspects of emotion regulation measured in this study were not aspects that would influence pre-adolescent friendships. The measure used in this study was a measure of emotional intensity or reactivity. Emotional intensity or reactivity may be more relevant at younger ages. Other aspects of emotion regulation, such as coping skills and interpretations of emotions, may be more relevant during the middle childhood years. During middle childhood, children have the cognitive capacity to use more sophisticated emotion regulation strategies, such as constructive coping skills.
Now, instead of reacting intensely to emotional situations children can use their coping skills to figure out a way to handle their emotions. Additionally, other aspects of emotion regulation, such as constructive coping skills, may also be more relevant for peer relationships rather than friendships. Constructive coping skills may be particularly important for friendships because they provide children with an adaptive way to handle their emotions that will also allow them to preserve their friendships.

The fifth hypothesis was that the associations of mother-child attachment at three years and attachment at fifth grade with friendship at sixth grade would be mediated by peer competence at fifth grade. This hypothesis was not confirmed. A model examining peer competence as a mediator of early attachment and friendship found that there was an association for attachment at three years and peer competence at fifth grade, and an association between peer competence at fifth grade and friendship at sixth grade. However, the indirect effect of attachment at three years on friendship through peer competence was not significant. A different model examining peer competence as a mediator of later attachment and friendship found that although there was an association between attachment at fifth grade and peer competence at fifth grade, there was not an association between peer competence at fifth grade and friendship at sixth grade when attachment was included in the model.

The last hypotheses investigated whether previous peer experience has a unique influence on later peer relationships controlling for earlier attachment. The sixth hypothesis is that peer competence at third grade would uniquely predict peer competence at fifth grade, after controlling for mother-child attachment at age three. The
seventh hypothesis was that peer competence at third grade would uniquely predict friendship at sixth grade after controlling for mother-child attachment at age three. Both of these hypotheses were confirmed. Earlier peer competence does have a unique effect on later peer competence and later friendship after controlling for earlier attachment. Interestingly, the association between attachment at three years and peer competence at fifth grade is no longer significant when peer competence at third grade is taken into account, suggesting that it is peer competence at grade three that accounts for peer competence at grade five. These findings support what Sroufe et al. (1999) and Howes et al. (1998) have found which is that peer competence at any given age predicted peer competence at every later period. Additionally, these findings fit with the Sroufe et al. (1999) findings that peer experiences add to the prediction of middle childhood peer competence over and above that predicted by attachment history.

Although the models had adequate fit, one caveat is that some links in the models differed for boys and girls. Specifically, the association between attachment at three years and peer competence at third grade is significant for boys but not for girls. In addition, the link from peer competence at grade three to friendship at grade six is significant for girls but not for boys. This is important to keep in mind because it means that earlier peer competence has a unique effect on friendship for girls, but not for boys. Research on gender differences in peer relationships has found that girls’ peer relationships tend to be intense, intimate, and characterized by extended dyadic interactions (Maccoby, 1998; Rose & Rudolph, 2006). These attributes of girls’ peer relationships may better prepare them for the development of friendships. Boys’ peer relationships, on the other hand, take
place predominantly in large structured groups which may interfere with the development of close relationships such as friendships (Rose & Rudolph, 2006). Thus, the nature of girls’ and boys’ peer relationships may explain why greater peer competence predicts higher quality friendships for girls but not for boys.

Finally, an overall model was tested that allowed for additional links among the constructs. The individual models were limited in that they only contained variables specific to that particular hypothesis. Although the overall model is still incomplete, it is more integrated and more similar to real world complexity than the individual models. For the most part, the parameter estimates in the integrated model remained the same as the individual models. One difference was that the indirect effect of attachment at three years on peer competence at fifth grade through emotion regulation at third grade is no longer significant. This is not surprising since the effect was small to begin with, and in the overall model other variables are influencing peer competence. Additionally, in the overall model, one can see that peer competence at third grade still uniquely predicts later peer competence and friendship even when later attachment is included in the model. Another difference was that, in the overall model, the association between fifth grade peer competence and friendship is significant for girls but not for boys. Further, this association is negative. In the overall model, change in peer competence is what is being modeled. Perhaps the children who become more competent with peers over time do this at the expense of having high quality friendships.

Findings from the current study are in some ways similar to and in some ways different from what Sroufe et al. (1999) proposed and empirically found in their
longitudinal study of early attachment relationships and later peer relationships. Sroufe et al. found that children with secure early attachment histories were more likely to show greater peer competence in preschool, and greater peer competence and friendship in middle childhood and adolescence. They also found that both early attachment and preschool peer competence independently predicted peer competence and friendship in middle childhood and adolescence. Similar to Sroufe et al., in the current study, early attachment was related to third grade peer competence, and third grade peer competence was related to fifth grade peer competence and friendship. Different from what Sroufe et al. found, early attachment was not directly related to fifth grade peer competence and friendship. It appears that early attachment sets the stage for third grade peer competence which then influences fifth grade peer competence and friendship. A difference between the Sroufe et al. study and the current study is that later attachment was assessed in the current study. Later attachment was found to directly predict fifth grade peer competence and friendship. Additionally, third grade peer competence still predicted fifth grade peer competence and friendship when later attachment was in the model. These findings suggest that it is important to include both early attachment and later attachment in studies because without later attachment, one would have underestimated the effects attachment has on friendship.

This study can inform efforts to explain individual differences in friendship. Since friendships can impact children’s later cognitive, social, and emotional outcomes it is important to figure out why some children have better quality friendships than others (Berndt, 1996; Hartup, 1996; Newcomb & Bagwell, 1996). Not much is known about
what explains individual differences in friendship. Attachment theory has been able to provide some explanation for individual differences in friendship. Children more securely attached to their parents are more likely to have higher quality friendships (Schneider et al., 2001). However, attachment theory is just part of the explanation. This current study adds to the limited literature focused on individual differences in friendships by showing that earlier peer competence can also explain individual differences in friendship quality. Specifically, children who were more competent with peers tended to have higher quality friendships. Rose and Asher (1999; 2004) have found that children’s goals and strategies in conflict-of-interest and help-giving situations with friends are associated with the quality of their friendships. In the conflict-of-interest tasks, children’s goals may include maintaining the friendship, getting their own needs met, or revenge. In the help-giving situations, children’s goals may include talking with the friend or engaging in a distracting activity with the friend. Rose and Asher found that the goals children choose in these situations influences their friendship quality. The work of Rose and Asher suggests that it is important to keep children’s goals in mind when examining individual differences in friendship quality. The current model could be modified by including children’s goals to see how they impact friendship quality.

The current study showed that three specific aspects of peer relationships (asocial behavior, exclusion, and peer victimization) are related to friendship, and thus provides support for intervention programs that incorporate social skills training to help children learn the skills needed to make and keep friends. Berner, Fee, and Turner (2001) implemented a social skills training program that focused on interpersonal problem
solving skills. Several problem solving skills were taught such as identifying the problem, generating alternative solutions, and implementing a specific solution. After intervention, the treatment group actively participated in conversations and initiated interactions with other children more often than the control group. Children in the treatment group also spent less time alone. DeRosier and Marcus (2005) implemented a social skills training program for peer-rejected, victimized, and socially anxious children. This intervention included skills such as communication, cooperation, compromise, etc. Coping strategies for teasing and peer pressure were also included. The intervention included active practice such as role-playing and modeling. Children who participated in this intervention program showed improvement in social, emotional, and behavioral domains. Murphy and Scheider (1994) implemented an intervention that emphasized the development of skills conveying liking and an interest in becoming friends (both of these are thought to play a role in friendship formation). The intervention included role-playing to guess the level of liking displayed by others and to practice displaying behaviors that infer liking. Children who participated in the intervention showed modest, but consistent, improvement in specific relationships. The results of these studies suggest ways to help asocial, excluded, and victimized children to improve their peer relationships. For example, interventions could focus on helping asocial children convey an interest in peer relationships which may make them more attractive to peers. Additionally, interventions could help excluded and victimized children develop constructive coping strategies for dealing with teasing. Also, these children could be taught effective problem solving skills which may help them to be less excluded and victimized by peers. By helping asocial, excluded, and
victimized children to become more competent in peer relationships they will have many opportunities to form and maintain friendships.

Strengths of the current study are the large sample size and the use of multiple methods. Additionally, the temporal ordering of constructs allowed for one to have confidence about the direction of effects. Even though there is a need to investigate why attachment relationships and peer relationships are related, very few mediating mechanisms have been examined. Another strength of this study is its attempt to explain why attachment and peer relationships are related by exploring emotion regulation and previous peer experience as mediators. An additional strength of this study is that it provides some information about what influences individual differences in pre-adolescent friendship. There are also applied implications of this study in that it suggests that children with poor emotion regulation and peer competence skills should be targeted for intervention so that they can be successful in later friendships.

Limitations of the current study are that it is a low-risk sample. Not only is the NICHD sample low-risk, but the subsample for the current study is especially low-risk. Therefore, the generalizability of the results is limited to white, middle class families. Additionally, because of the low-risk sample it is possible that some associations were not found (like they were in the Minnesota study) because there is not a lot of variability in the current sample. In addition, as this is an existing dataset, one has to work with the measures that were already chosen to investigate the study questions. There was only one measure of emotion regulation to choose from, and it is possible that it did not encompass aspects of emotion regulation that are important for children’s peer relationships. The
measure of emotion regulation used in this study assessed children’s emotional intensity. Emotional intensity is an intrinsic process of emotion regulation. Extrinsic processes of emotion regulation include skills that children learn within parent-child relationships, such as constructive coping skills. It is possible that extrinsic processes of emotion regulation may be more related to peer relationships than intrinsic processes because extrinsic processes are learned within relationships and then applied in other relationships. There are also statistical limitations with this study. It is important to keep in mind that even though the data fit the model well, the model proposed in this study is not the only model that could fit the data. It is possible that there are alternative models that could fit the data just as well.

Future studies should expand on this work by examining other potential mediating mechanisms of the attachment-peer link. Only emotion regulation was found to be an intervening variable, and only in one case. It is possible that if the measure of emotion regulation had assessed children’s coping skills instead of emotional intensity there would have been stronger evidence of emotion regulation as a mediator. As mentioned previously, aspects of emotion regulation such as constructive coping skills seem to be more relevant for children during middle childhood than emotional intensity. Therefore, future studies should focus on different aspects of emotion regulation such as constructive coping skills, interpretations of emotionally-charged events, and awareness of emotions. Additionally, future studies may want to focus on aspects of emotion competence that may act as mediators of the attachment-peer link such as children’s
emotion knowledge, the ability to read other’s emotions, and the ability to empathize with others (Saarni, 1999).

Since previous peer competence does not seem to explain the association between attachment and peer relationships, other variables should be examined that may possibly explain the associations. For example, children’s views of self-worth could be examined as a potential mediator (Booth-LaForce, Rubin, Rose-Krasnor, & Burgess, 2005). In attachment relationships (at least in secure attachment relationships), children come to view themselves as worthy of the care of others. These children can then apply their positive view of the self into their peer relationships. For example, they may feel confident in approaching peers since they are confident in themselves and they may expect peers to accept them since they view themselves as worthy of the care of others. Verschueren and Marcoen (1999) found that security of attachment to mother is related to children’s self-esteem. Similarly, Cassidy (1988) found that securely attached six-year-olds described themselves in a positive light, and portrayed themselves as accepted and valued. Additionally, Easterbrooks and Abeles (2000) found that self-worth is related to peer competence, school adjustment, and negatively related to behavior problems. Providing support for self-worth as a mediating variable between attachment peer relationships, Verschueren and Marcoen (2002) found that the link between security with father and rejected non-aggressive peer status was mediated by children’s perceptions of self-worth during middle childhood. Additionally, Verschueren and Marcoen (2005) found that self-worth mediated the link between child-father security and peer acceptance during middle childhood. Further, Booth et al. (2005) found that self-worth did serve as a mediator
between attachment security and both friendship quality and psychosocial functioning. These studies suggest that self-worth should be investigated as a mediator of the attachment-peer link.

Finally, since the quality of children’s friendships is influenced by both members of the dyad, it will be important for future studies to take into consideration characteristics of the study child’s friend as well. For example, how the study child’s friend regulates their emotion and how they act in the larger peer group may influence how they interact with the study child in their friendship. Additionally, the friend’s attachment to his/her mother may also influence how the friends interact. For example, Park and Waters (1989) showed that it is important to consider the attachment of both members of the friendship dyad. Preschool friendship dyads in which both children were securely attached were more harmonious, less controlling, and happier than dyads with one securely attached and one insecurely attached child. Kerns et al. (1996) found that it is also important to consider the attachment history of both members of the friendship dyad during middle childhood. They found that dyads in which both children were securely attached were more responsive and less critical than dyads with one secure and one insecure member.

In summary, the current study adds to the attachment and peer relationship literature in several ways. It points to the importance of assessing attachment at both early and later ages, so that important findings are not underestimated. It provides some support for emotion regulation as an intervening variable between attachment and peer relationships. The lack of findings for emotion regulation and peer competence as
mediators suggests the importance of future studies to investigate other potential mediating mechanisms. Finally, it underscores the importance of previous peer experience by showing that previous peer experience adds to the prediction of peer relationships over and above that explained by earlier attachment.
REFERENCES


The following directions are read to the child: "Now I'd like to talk with you about different people that you know. First, I'm going to ask you some things about you and your mom. Then I'll ask the same types of questions about you and your dad/other adult's name. And finally, I'll ask the same questions about you and your teacher. [Questionnaire Teacher's Name]. When you answer, let me know what you think and how you really feel about them."

Go over the response scale (Green side scale marked: My Family Questionnaire, Part I Card A) with the child. Say: "Before we get started, here's the card you'll use to answer. There are four possible choices: 'Not at All True,' 'Not Very True,' 'Sort of True,' and 'Very True.' Do you have any questions about how to answer?" Make sure that the child understands the scale. "Okay, let's get started." Ask all the questions for the mother version.

<table>
<thead>
<tr>
<th></th>
<th>Not at All True</th>
<th>Not Very True</th>
<th>Sort of True</th>
<th>Very True</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I wish my mother paid more attention to me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>I wish my mother could spend more time with me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>I wish my mother knew me better.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>I wish my mother knew more about how I feel.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>I enjoy the time I spend with my mother.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>I wish I was closer to my mother.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>I wish I could talk about more things with my mother.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>It's easy to trust my mom.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>My mom butts in a lot when I'm trying to do things.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>It's easy to count on my mom for help.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>I do not really like telling my mom what I'm thinking or feeling.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>I don't really need my mom for much.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13</td>
<td>I worry that my mom does not really love me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td>I sometimes wonder if my mom might leave me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>I worry that my mom might not be there when I need her.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>I think my mom does not listen to me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17</td>
<td>I go to my mom when I'm upset.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>18</td>
<td>I wish my mom would help me more with my problems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
APPENDIX B

PARENT REPORT OF CHILDREN’S REACTIONS
**PARENT REPORT OF CHILDREN'S REACTIONS**

Children differ in the ways that they respond to events and in their expression of emotion. Please indicate how your child reacts to events by circling the number above the scale shown below each statement. Please describe how your child reacts, not how you think a child should react or on how you think other children react.

Please think about when your child feels emotions, even if your child does not get emotional very often.

1. When my child feels an emotion, either positive or negative, my child feels it strongly.
   - Never
   - Occasionally
   - About Half the Time
   - Usually
   - Always

2. After finishing a difficult task, my child feels delighted or elated
   - Never
   - Occasionally
   - About Half the Time
   - Usually
   - Always

3. My child responds very emotionally to stories, movies and events.
   - Never
   - Occasionally
   - About Half the Time
   - Usually
   - Always

4. My child is calm and not easily aroused.
   - Never
   - Occasionally
   - About Half the Time
   - Usually
   - Always

5. When angry, it is easy for my child to still be rational and not overreact.
   - Never
   - Occasionally
   - About Half the Time
   - Usually
   - Always

6. When happy, my child is contented and calm rather than exhilarated and excited.
   - Never
   - Occasionally
   - About Half the Time
   - Usually
   - Always

7. When my child experiences anxiety, the anxiety is normally very strong.
   - Never
   - Occasionally
   - About Half the Time
   - Usually
   - Always

8. Even when happy, sad, or upset, my child does not get highly emotional.
   - Never
   - Occasionally
   - About Half the Time
   - Usually
   - Always

9. When happy, my child is bursting with joy.
   - Never
   - Occasionally
   - About Half the Time
   - Usually
   - Always

10. My child is slow to become angry, nervous or upset.
    - Never
    - Occasionally
    - About Half the Time
    - Usually
    - Always
APPENDIX C

MY CHILD’S BEHAVIOR WITH OTHER CHILDREN
### MY CHILD’S BEHAVIOR WITH OTHER CHILDREN

We would like for you to describe your child’s behavior with peers—other children who are about your child’s age. Circle the number of the descriptions that best apply.

<table>
<thead>
<tr>
<th></th>
<th>Not True</th>
<th>Sometimes True</th>
<th>Often True</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tends to react to other children’s distress by teasing them or making things worse</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2. Not chosen as playmate by peers</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3. Likes to be alone</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4. Keeps peers at a distance</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5. Peers avoid my child</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>6. When mad at a peer, gets even by excluding the peer from the group</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>7. Seems concerned when other children are distressed</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>8. Is an aggressive child</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>9. Taunts and teases other children</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>10. Often unoccupied</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>11. Threatens other children</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>12. Spreads rumors or gossips about some peers</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>13. Takes turns with play materials</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>14. Kind toward peers</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>15. Can be trusted, is dependable</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>16. Listens to classmates</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>17. When angry at a peer, tries to get other children to stop playing with that child</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>18. Is excluded from peers’ activities</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>19. Compromises in conflict with peers</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>20. Is ignored by peers</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>21. Is cooperative with peers</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>22. Loses temper easily in conflicts with peers</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>23. Argues with peers</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>24. Friendly toward other children</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>25. Annoys or irritates other children</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>26. Is a solitary child</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>27. Disrupts peers’ activities</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>28. When mad at a peer, ignores or stops talking to that child</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>29. Shows concern for moral issues (e.g., fairness, welfare of others)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>30. Is ridiculed by peers</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>31. Avoids peers</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>32. Offers help or comfort when other children are upset</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>33. Withdraws from peer activities</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>34. Will continue to bother or hurt other children even when they are clearly upset</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>35. Is bossy toward peers</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>36. Threatens to stop being someone’s friend in order to hurt that child or to get what is wanted from that child</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>37. Is picked on by other children</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>38. Is called names by peers</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>39. Is pushed around by other children</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>40. Peers say negative things about him/her to other children</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>41. Is teased or made fun of by peers</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>42. Is hit or kicked by other children</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>43. Tries to exclude certain peers from group activities</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
APPENDIX D

OBSERVED FRIENDSHIP INTERACTION
STUDY CHILD POSITIVE SOCIAL BEHAVIOR (5-point scale)

- high level of positive engagement with friend.
- initiates social interaction; engages friend in play.
- orients toward friend, maintains eye contact
- responds to friend’s initiations.
- enjoys friend; compliments, shows affection.
- cooperates; accommodates to friend’s wishes.
- discloses intimacies, personal details.
- empathizes, helps
- enjoys interaction; smiles, laughs
- ebullience is not necessary as long as the child is clearly positive to friend
- at low end: withdrawn, disengaged, flat.

STUDY CHILD AGENCY (5-point scale)

- Throughout the interactive tasks, the child acts with vigor, confidence, and eagerness to complete the tasks.
- Child takes an active interest in participating along with the friend, invests sincere effort and energy, and appreciates accomplishments both as an individual and a team member.
- Agency includes a sense of coordination between affect and behavior. The child appears well integrated and comfortable directing her/his energy appropriately when interacting with the friend.
- Agency must be scored for goal-oriented behavior when interacting or discussing task objectives with the friend.
- Other goals or expressions or unnecessary levels of excitement may be in service of distracting or entertaining the friend, winning approval, etc., and would not represent agency here.

OVERALL QUALITY OF FRIENDSHIP (5-point scale)

- clear ability to get along, not fight.
- emotionally close, intimate
- high level of mutuality, sensitivity, enjoyment, agreement
- children are aware of each other
- their actions are positively “linked” to each other (take turns, follow the other’s lead).
- their actions and affect are mutual (giggling or laughing together)
- they are physically affectionate (sit close, heads together, etc.)
- they might gossip about a third party
- they support one another
- conversations are personal, intimate
- they get along well, cooperative
- they both enjoy each other
- they interact socially even when they don’t have to