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# Emotion Knowledge and Relational Aggression in Preschoolers

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EMOTION KNOWLEDGE AND RELATIONAL AGGRESSION IN  
PRESCHOOLERS

A Dissertation

Submitted to the School of Education

Duquesne University

In partial fulfillment of the requirements for  
the degree of Doctor of Philosophy

By

Karen Ann Morine

May 2009



**DUQUESNE UNIVERSITY**  
**SCHOOL OF EDUCATION**  
**Department of Counseling, Psychology and Special Education**

*Dissertation*

Submitted in Partial Fulfillment of the Requirements  
For the Degree of Doctor of Philosophy (Ph.D.)

**School Psychology Doctoral Program**

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March 10, 2009

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PRESCHOOLERS

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## ABSTRACT

# EMOTION KNOWLEDGE AND RELATIONAL AGGRESSION IN PRESCHOOLERS

By

Karen Ann Morine

May 2009

Dissertation Supervised by Dr. Laura M. Crothers

The preschool years are an important time in a child's emotional development. Children learn how to navigate peer relationships and understand the source of others' emotions, one of the most important tasks of this developmental period. Deficits in emotion knowledge have been linked with increased aggressive behaviors and poor peer acceptance. This study's main objective was to clarify whether emotion knowledge is related to relational aggression in young children. In addition, the role of age, sex, siblings, depressed affect, and peer acceptance and rejection was examined in the context of relational aggression. Sixty-six preschool children from ages 3 to 4 were administered Denham's Affective Knowledge Test (DAKT; Denham, 1986), and both preschool teachers and children completed the Preschool Social Behavior Scale-Teacher and Peer Forms (PSBS-T; PSBS-P; Crick et al., 1997) to assess relationally-aggressive behaviors.

Results of the study indicated that four-year-old children engage in more relationally-aggressive behaviors as rated by teachers than three-year-old children. In addition, relationally-aggressive preschool boys experience significantly less peer rejection than non-relationally-aggressive preschool boys. Several additional findings involving emotion knowledge, depressed affect, and peer acceptance and rejection approached significant levels.

## ACKNOWLEDGEMENT

"Whatever you can do, or dream you can, begin it. Boldness has genius, power, and magic in it."

Johann Wolfgang von Goethe

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## CHAPTER I

### INTRODUCTION

Early childhood is a critical time period in which children learn how to successfully navigate within their social and emotional world. During this time period, young children begin to recognize their own and other's emotions, express their emotions in a developmentally appropriate manner, and to learn how to regulate their own emotions, for example. Learning how to regulate one's own emotions, especially as related to social interactions, is necessary for the successful formation of peer relationships (Saarni, 1990).

Poor social interactions are manifested in different ways, including peer-related aggression (both direct and indirect), behavior problems, and internalizing and externalizing disorders, among others. Researchers indicate that a child's knowledge of emotions can predict propensity towards aggression, including both verbal and physical behaviors. Specifically, investigators have found that young preschoolers with poor understanding of emotions are more likely to experience behavior problems than preschoolers with sophisticated knowledge of emotions (Arsenio, Cooperman, & Lover 2000; Denham et al., 1990; Denham et al., 2002). Further, children with less emotion knowledge may evidence anger or aggression more often than peers that have sophisticated emotion knowledge. These children can be characterized as having poor social competence. Preschoolers' emotional competence has been found to predict concurrent and social competence in kindergarten (Denham et al., 2003). Thus, emotional development affects social development.

Although older children have better emotion knowledge than young children (Denham et al., 1994), relational aggression is more prevalent in school-age children and adolescents (Crick, 1996; Crick, 1997; Crick & Grotpeter, 1995; Henington, Hughes, Cavell, & Thompson, 1998; Rys & Bear, 1997). Given the relationship between poor emotion knowledge and verbal and physical aggression, poor emotion knowledge may also be related to a child's propensity towards relational aggression. Preschool-aged children with poor emotion knowledge are more likely to use verbal and physical aggression in their peer interactions (Arsenio & Lemerise, 2001), suggesting that preschoolers who inaccurately understand and interpret emotions in social situations may be more likely to use aggression in their interactions with others.

This is confirmed with social information processing research that has found that relationally-aggressive children tend to attribute hostile intent to relationally conflictual situations. As such, these children may make errors in their processing of social and emotional events with peers (Crick, Grotpeter, & Bigbee, 2002). Similarly, children with identified aggression are more likely to have emotion knowledge deficits. Although relational aggression is more prevalent in the school age years and beyond due to children's cognitive abilities and social networks, researchers have found that preschoolers also use relational aggression, although in a less sophisticated manner (Crick, Casas, & Mosher, 1997; Crick et al., 1999; Crick, Ostrov, Appleyard, Jansen, & Casas, 2004; Ostrov & Keating, 2004; Ostrov, Woods, Jansen, Casas, & Crick, 2004). Consequently, preschoolers with less sophisticated emotion knowledge may be more likely to use relationally-aggressive behaviors in their interactions with peers.

## Significance of the Problem

Understanding the relationship between emotion knowledge and relational aggression in preschoolers is significant because both constructs are related to the development of social and emotional competence. The lack of social and emotional competence is related to later negative outcomes such as internalizing and externalizing disorders (Werner & Crick, 1999). Thus, intervening in early childhood as a means to strengthen a child's emotional and social competence is imperative in order to prevent and/or avoid negative outcomes such as psychopathology.

In addition to the significance of intervention, understanding the relationship between emotion knowledge and relational aggression will further add to the theoretical conceptualization of relational aggression. Researchers have posited that emotion knowledge may serve as a protective factor against engaging in bullying and reactive forms of aggression (Arsenio & Lemerise, 2001). Denham and Burton (2003) also contend that while aggressive children may have emotion knowledge, they may have associated impairments in regulating their emotions. Although some researchers have found a relationship between emotion knowledge and verbal and physical aggression in preschoolers (Arsenio et al., 2000), the relationship between emotion knowledge and relational aggression is not well documented. Thus, the current research study will add to the theoretical understanding of the nature relational aggression in early childhood.

In terms of education, understanding the link between emotion knowledge and relational aggression may also inform an early childhood social-emotional curriculum. Because early childhood is an important time for children to learn, both cognitively and emotionally/socially, a curriculum that includes emotional and social content will further

contribute to children's development. Specifically, preschool teachers may teach conflict resolution skills that include the teaching of emotions and emotional regulation that ultimately leads to the management of peer relationships. Including emotional and social learning in preschool curriculums will potentially encourage the development of healthy, well-adjusted children.

More broadly, children's emotional and social success in early relationships impacts their later relationships, both personally and professionally. Even more, children who are able to successfully navigate social relationships early in life are better equipped to handle the social demands of the workplace in the future. Overall, emotional and social competence is necessary for lifelong success in terms of social problem solving and the ability to get along and work with others.

### Theoretical Basis for the Study

#### *Relational Aggression*

There are a couple of theories that explain relational aggression in children. One theory assists in explaining the etiology of relational aggression, while the other explains the social information-processing of aggressive children. Although there are many factors that contribute to the use of relational aggression, the available research is not clear with regards to its direct causes. However, Bandura's (1978) social learning theory appears to provide the best explanation of the etiology of relational aggression. Specifically, Bandura proposed that the interplay among behavior, environment, and cognition form the basis of human functioning, a concept referred to as reciprocal determinism. Current research suggests that genetic factors, cognitive processes, social-psychological adjustment, and family dynamics all contribute to the use of relational aggression

(Crothers et al., 2007). The research in this area continues to develop, and some disagreement persists with regard to the nature and influence of these factors.

In addition, social information-processing theory may explain the way relationally-aggressive children misinterpret social situations. Social information-processing theory posits that children generate interpretations of social situations in order to explain behavior. These interpretations then influence their response to future social interactions. The steps of social-information processing include encoding internal and external social cues, interpreting the encoded cues, clarifying goals, response access or construction (generating possible strategies for responding to the immediate social cue), and response decision (evaluating the generated strategies and choosing one to use; Crick & Dodge, 1994).

Researchers indicate that children's social behavior results from sequential social-information processing steps (Crick & Dodge, 1994; Crick et al., 2002; Lemerise & Arsenio, 2000). Children who use skillful processing at each step are socially competent, whereas poor processing is expected to result in such deviant social behavior as aggression. Further, relationally-aggressive grade school children experience social information-processing biases. Two studies (Crick et al., 2002, Study 1 and Study 2) examined children's interpretation of social cues, and showed that relationally-aggressive children exhibit hostile attribution biases for relational conflict situations, such as not being invited to a peer's birthday party.

A child's mental state can also influence his or her information-processing (Crick & Dodge, 1994; Lemerise & Arsenio, 2000). For example, a child's knowledge of social rules, knowledge of past social experiences, behavioral expectations in social situations,

and a child's ability to regulate his or her behavior can affect the child's mental state. Further, the child's mental state may influence his or her interpretation of a social situation, possibly in a hostile or aggressive manner. In this manner, a child's understanding of his or her emotions may be important in the subsequent interpretation of social situations. Further, some researchers propose that emotion knowledge may be one social information-processing indicator of preschoolers' risk of aggression (Denham et al., 2002).

### *Emotion Knowledge*

There are several theories (Gordon, 1989; Saarni, 1990; 1999) that explain the development of emotions in young children. These theories posit that emotional competence develops in a sequential, yet interdependent fashion in young children (Denham, 1998). Specifically, the components of emotional competence include expression, understanding (or emotion knowledge), and regulation (Gordon, 1989; Saarni, 1990; 1999). A young child's understanding of his or her own and others' emotions affect his or her peer relationships. Further, a child's understanding of emotion is one of the most important tasks of preschoolers' development (Denham & Kochanoff, 2002). Children with emotion knowledge deficits may have difficulty making and maintaining friends, and these deficits may also contribute to aggressive behavior. In contrast, earlier and sophisticated knowledge of emotions is associated with decreased aggression (Denham et al., 2002).

In addition, there are several developmental factors that may influence the young child's understanding of emotions. Children learn about emotion primarily through their parents. Parents teach children about emotions by expressing their own emotions,

reacting to their children's emotions, and talking with them about emotions (Denham, 1998). Other socializers of emotion knowledge include day care providers, preschool teachers, siblings, and peers. Aspects of socialization that promote children's understanding of emotion include parental discussions of emotions in daily life, parental acceptance and encouragement of emotional expression, and the expression of primarily positive emotions (Denham, 1998).

### Relevant Literature

#### *Relational Aggression*

Relational aggression harms others through the actual damage or the threat of damage to relationships, unlike physical aggression, which usually results in physical harm to the victim (Crick et al., 1999). Crick and Grotpeter (1995) originally identified and defined relational aggression as a distinct form of aggression that is, in general, unique to girls, defining it as "harming others through purposeful manipulation and damage of their peer relationships" (p.711). Relational aggression involves both direct and indirect acts. For example, direct acts of relational aggression may include verbal exchanges within a social interaction (e.g., "you can't play with me unless..."; Crick et al., 1999). Indirect acts can be characterized as rumor spreading or gossiping that do not typically focus on the immediate social exchange (Ostrov & Keating, 2004; Ostrov, et al., 2004).

A characteristic of relational aggression specific to early childhood populations is the occurrence of aggressive acts in response to immediate problems. That is, children who engage in relational aggression tend to react to the present situation rather than perceived past transgressions (Crick et al., 2004). Further, researchers have found that

relational aggression during the preschool years is relatively unsophisticated. During this developmental period, young children are just learning how to interact appropriately with peers. Young children who engage in relational aggression tend to do so in simple and concrete ways, such as covering their ears when angry with a peer or telling a child to “go away” (Crick et al., 1997).

### *Social Information Processing*

Although the role of social information processing has been examined in relationally-aggressive children, the role of emotion knowledge in social information processing models has yet to be explored in current research with preschoolers. Research has indicated that relationally-aggressive grade school children tend to make social information processing errors in a way similar to children who are overtly aggressive. Specifically, relationally-aggressive children tend to attribute hostile intent to peers in ambiguous and negative relational contexts, such as not being invited to a friend’s birthday party, whereas overtly aggression children tend to exhibit hostile intent to instrumental conflict situations, such as being unexpectedly pushed by a peer on the playground (Crick et al., 2002). Further, researchers have argued the need to examine the role of emotions in social information processing models of bullying (Arsenio & Lemerise, 2001). An accurate understanding of others’ emotions and other-oriented emotional responsiveness may serve as protective factors against bullying and reactive forms of aggression. However, the role of emotion knowledge and relational aggression has yet to be reported in preschool research, a limitation this study proposes to address.

### *Age, Sex, and Sibling Differences*

Although research indicates that preschoolers engage in relationally-aggressive behaviors, the role of sex, age, and siblings is not fully understood. Age differences in preschool relational aggression have yet to be explored in documented research. In terms of the sex of the child, some research indicates that males engage in relationally-aggressive behaviors more than females (Henington et al., 1998; Loudin et al., 2003; McEvoy, Estrem, Rodriguez, & Olson, 2003), while other research demonstrates that females engage in relational aggression more than males (Crick & Grotpeter, 1995; Grotpeter & Crick, 1996; Rys & Bear, 1997; Moretti et al., 2001; Ostrov et al., 2004). When citing differences between males and females, researchers contend that, in general, boys are more likely to use instrumental aggression, or aggression that is focused on specific social goals, such as obtaining a toy (Fabes & Eisenberg, 1992). Sibling research with older children indicates that relational aggression is the most frequently used form of aggression that siblings use towards each other, which may influence the learning of such behaviors within the family environment (Crick et al., 1999). Additionally, research with preschool children indicates that female older sisters use relationally-aggressive behaviors towards their female peers more often than their younger sisters (Ostrov, Crick, & Stauffacher, 2006). This study, then, will examine whether relationally-aggressive children have older siblings. This study also proposes to address possible age, sex, and gender differences in preschool relational aggression.

### *Depressed Affect*

Preschool children who display prosocial behavior towards peers are less likely to engage in relational or overt forms of aggression. In contrast, teacher-assessed overt

aggression is related to depressed affect in males and teacher-assessed relational aggression is positively related to depressed affect in females (Crick et al., 1997). Preschool children who aggress relationally against peers tend to experience depression, isolation, and loneliness (Crick, 1997; Crick et al., 1997; Crick & Grotpeter, 1995), and children with poor emotion knowledge tend to have difficulty understanding how others feel, or their emotional experience (Saarni, 1999). Children who are able to accurately understand emotional cues in peer social situations are more likely to be prosocial and accepted by peers (Crick & Dodge, 1994). Further, these children tend to be viewed by peers as better play partners, fun, and able to respond to peers' emotions during play in an appropriate manner (Denham, 1989). Preschool children, then, who display positive affect (or prosocial behavior) with peers may have a better understanding of emotions and, as indicated by research, are less likely to use relationally-aggressive behaviors (Crick et al., 1997). In contrast, children who use relational aggression against peers tend to experience depression, and despite experiencing depressed feelings, they may continue to use relational aggression in the future. Thus, the role of depressed affect in the relationship between emotion knowledge and relational aggression is important to understand in the context of this study.

### *Peer Status*

Relational aggression is also related to peer rejection and peer acceptance. Research suggests that preschool and school-age children who are victims of relational aggression are more likely than their non-victimized peers to experience peer rejection (Crick & Grotpeter, 1996; Crick et al., 1999). In turn, school-age children who aggress relationally are at a greater risk of experiencing peer rejection, among other forms of

maladjustment such as depression and loneliness (Crick & Grotpeter, 1995; Crick et al., 1997) when compared to nonaggressive peers. For preschool boys and girls, relational aggression is positively related to peer rejection. When examining gender differences in peer acceptance, relationally-aggressive preschool boys tend to experience both teacher- and peer-assessed acceptance and rejection by peers, while relationally-aggressive females experience rejection only. Further, relationally-aggressive preschool boys experience same-sex, but not opposite-sex acceptance by peers (Crick et al., 1997). The current study will explore the relationship between relationally-aggressive preschool boys and opposite- and same-sex acceptance.

Relational aggression is also predictive of future peer rejection. Crick and colleagues' (2006) investigated relational and physical aggression in 91 preschoolers in a longitudinal study. The researchers found that teacher-assessed relational aggression predicted future peer rejection for females, but not males. In contrast, teacher-assessed physical aggression predicted future peer rejection for males, but not females. This research suggests that preschool girls who use relational aggression are more likely to be rejected by their female peers. Thus, relationally-aggressive preschool girls who engage in relational aggression tend to experience concurrent peer rejection (Crick et al., 1997), and are at risk for future peer rejection (Crick et al., 2006), whereas relationally-aggressive boys are at a lessened risk for peer rejection.

### *Emotion Knowledge*

For young children, emotions are a significant form of communication, especially for those with limited language (Denham, 1998). Emotion knowledge or understanding is defined as labeling emotions, identifying emotion-eliciting situations, inferring the causes

and consequences of emotion-eliciting situation, and finally, understanding that others' emotions may differ from one's own (Denham, 1998; Denham & Kochanoff, 2002). According to Gordon (1989) and Saarni (1990), emotion knowledge is one of three components necessary for emotional competence. The other components of emotional competence are expression, such as using gestures to nonverbally express emotion, and regulation, such as coping with distressing or pleasurable emotions. Denham (1998) asserts that the skills of emotional competence typically work in an integrated manner, and considers them interdependent. As preschoolers' cognitive and language abilities mature, so does their understanding about their own and others' feelings. Some researchers believe that the ability to discuss emotions serves as a regulating and clarifying function in the social relationships of very young children (Bretherton, Fritz, Zahn-Waxler, & Ridgeway, 1986). Emotion-eliciting social situations allow young children the opportunity to express and reflect on their own and others' emotions.

Emotion knowledge centers on interpersonal and intrapersonal intelligence. Understanding one's own emotion (intrapersonal intelligence) and others' emotions (interpersonal intelligence) are necessary to complete the developmental tasks of preschool. Successful completion of the steps of emotion knowledge impact both the way peers accept a preschooler concurrently and in the future. In particular, deficits in emotion knowledge have been linked with behavior problems in preschoolers (Arsenio et al., 2000; Denham et al., 1990; Denham et al., 2002), and children who can effectively and accurately interpret and recognize emotions are more successful at avoiding particular forms of peer-related aggression (Crick & Dodge, 1994). Thus, emotional competence impacts social competence, or the successful formation of peer relationships.

## Problem Statement

This study will examine if relationally-aggressive preschoolers have lower levels of (or less sophisticated) knowledge of emotions. Researchers have indicated that there is a relationship between children's understanding of emotions and verbal (insulting others) and physical aggression (Arsenio et al., 2000) in preschoolers as young as four. Children who evidence prosocial behavior are less likely to engage in overt or relational aggression in the preschool years (Crick et al., 1997). In addition, relational aggression is related to concurrent and future peer rejection for both sexes (Crick et al., 1997; Crick et al., 2006). However, for boys, relational aggression is significantly associated with peer acceptance (Crick et al., 1997).

Children with higher levels of emotion knowledge are less likely to initiate aggression with peers and are also more accepted by peers. Also, deficits in emotion knowledge have been linked with behavior problems like peer-related aggression (Denham et al., 2002; Denham, McKinley, Couchoud, & Holt, 1990; Arsenio et al., 2000). Researchers also indicate that children who can effectively and accurately interpret and recognize emotions are more successful at avoiding peer-related aggression (Crick & Dodge, 1994). As aforementioned, there appears to be a link between children's understanding of emotions and verbal and physical aggression (Arsenio et al., 2000), but the relationship between children's understanding of emotions and relational aggression has yet to be explored in the research literature thus far. Therefore, this study will be an explanation of the relationship between emotion knowledge and relational aggression, both important aspects of emotional and social competence.

## Research Questions and Hypotheses

In this study, the following research questions and hypotheses will be posed.

1. Are there age (three-year-old and four-year-old), sex (male and female), and sibling (with or without older siblings) differences in the use of relational aggression as rated by teachers and peers?

Hypothesis 1: Four-year-old children engage in more relationally-aggressive behaviors than three-year-old children.

Hypothesis 2: Compared to preschool-aged males, preschool-aged females engage in more relationally-aggressive behaviors.

Hypothesis 3: Children with older siblings are more likely to use relational aggression.

2. Does emotion knowledge account for a statistically significant portion of the variance in relational aggression in preschool children?

Hypothesis 4: Emotion knowledge accounts for a statistically significant portion of the variance in relational aggression in preschool children.

3. Does depressed affect account for emotion knowledge and relational aggression?

Hypothesis 5: Preschool children with a depressed affect are more likely than children with a non-depressed affect to use relational aggression and have associated impairments in emotion knowledge.

4. Are there sex differences in peer rejection and peer acceptance between relationally-aggressive and non-relationally-aggressive preschoolers?

Hypothesis 6: Relationally-aggressive preschool girls are more likely than non-relationally-aggressive preschool boys and girls to experience peer rejection.

Hypothesis 7: Relationally-aggressive preschool boys are more likely than non-relationally-aggressive preschool boys and girls to experience both peer rejection and peer acceptance.

5. Of relationally-aggressive boys, are there differences between opposite sex and same sex acceptance?

Hypothesis 8: Relationally-aggressive preschool boys are more likely to be accepted by same sex than opposite sex peers.

## CHAPTER II

### LITERATURE REVIEW

The formative preschool years are an important time in children's emotional, social, cognitive, and motor development (Brazelton & Greenspan, 2000; Denham, 1998; Denham & Burton, 2003; Denham & Kochanoff, 2002; Shirk & Russell, 1996). Young children, between the ages of two and five, are learning to engage in coordinated play, and begin to form peer relationships (Denham & Kochanoff, 2002) that are reflective of social competence (Denham & Burton, 2003). Social relationships are important for the development of emotion knowledge because children are starting to locate the source and meaning behind emotions (Brazelton & Greenspan, 2000). When children exhibit aggressive behaviors, social and emotional outcomes can be disrupted. Poor outcomes include being rejected by peers, loneliness, depression, and isolation (Crick, 1996; Crick & Grotpeter, 1995; Crick et al., 1997). Relational aggression is measurable in children as young as three (Crick et al., 1997). However, the relationship between emotion knowledge and relational aggression in young children is not well understood.

#### *Emotional and Social Competence*

Emotion knowledge is one aspect of emotional competence. The development of emotional competence occurs within the social context of peer, parent, and teacher relationships, among others. Early childhood is an important time for children to learn about emotions as well as to develop positive peer relationships. Emotional experience and social experience are thus inextricably linked through reciprocal influence (Denham, 1998; Saarni, 1990; 1999). The components of emotional competence include skills that children need to be emotionally self-efficacious, especially in situations involving

emotional social interactions. In social situations, individuals think about how to respond emotionally while simultaneously using their knowledge about emotions and emotional expressiveness to successfully interact with other people (Saarni, 1999).

The components of emotional competence include expression, understanding (or emotion knowledge), and regulation (Gordon, 1989; Saarni, 1990; 1999). Emotional expression encompasses using gestures to communicate emotions (e.g., giving a kiss), demonstrating empathy, displaying complex emotions (e.g., guilt, pride, shame), and realizing that someone may feel a certain way on the inside, but display the emotion differently on the outside. Emotional understanding involves discerning one's own and others' emotional states and expressing one's emotions in words. Finally, emotion regulation involves coping with distressing or pleasing emotions and "up-regulating" emotions at appropriate times, such as scowling at a bully to protect oneself (Denham, 1998, p.3).

A young child's understanding of his or her own and others' emotions affect his or her navigation of peer relationships and help him or her engage in successful coordinated play with others. In fact, a child's understanding of emotion is one of the most important tasks of preschoolers' development (Denham & Kochanoff, 2002). Children who have deficits in emotion knowledge may have difficulty making and maintaining friends, and these deficits may also contribute to aggressive behavior. In contrast, earlier and sophisticated knowledge of emotions is associated with decreased aggression (Denham et al., 2002).

Differences in emotion knowledge have been detected in children as young as three or four. Research is suggestive of children who evidence sophisticated knowledge

of emotions earlier in development tending to have improved social outcomes (Denham et al., 2002). Additionally, preschoolers' emotional competence has been found to predict concurrent and future social competence in kindergarten (Denham et al., 2003).

Young children who have less sophisticated emotion knowledge, a specific skill of emotional competence, may have difficulty understanding others' emotional experience (Saarni, 1999). This, in turn, can affect a child's relationship with peers. Also, children who have stronger emotion knowledge are more likely to be viewed by peers as better play partners, more fun, and more likely to appropriately respond to others' emotions while playing (Denham, 1989). In other words, these children can be described as socially competent. In contrast, relationally-aggressive children tend to be rejected and disliked by peers and experience feelings of depression, isolation, and loneliness (Crick, 1997; Crick et al., 1997; Crick & Grotpeter, 1995). These children may not be considered as socially competent.

Children with higher levels of emotion knowledge are less likely to initiate aggression with peers and are also more accepted by peers. Also, deficits in emotion knowledge have been linked with behavior problems like peer-related aggression (Arsenio et al., 2000; Denham et al., 1990; 2002). Research also indicates that children who can effectively and accurately interpret and recognize emotions are more successful at avoiding particular forms of peer-related aggression (Crick & Dodge, 1994). Therefore, this study will explore the relationship between emotion knowledge and relational aggression, both important aspects of emotional and social competence.

### *Types of Aggression*

Aggression is defined differently across studies and psychological disciplines. Types of aggression include overt, reactive, proactive, and relational. Researchers have defined a variety of non-physical forms of aggression. There is some disagreement regarding the use of the terms relational aggression, indirect aggression, and social aggression. Björkqvist (2001) contends that these different terms are actually describing the same behavior of female aggression. In this paper, the term relational aggression as defined by Crick and Grotpeter (1995) will be used. The term relational aggression is more appropriate for the preschool population because indirect and social aggression require the establishment of social networks, which may not be appropriate for preschool population. Further, Crick et al. (1997) use the term relational aggression in their research with preschoolers. Because the present research concerns preschoolers and their social adjustment, the definition of and term relational aggression is more appropriate than indirect or social aggression.

*Reactive and proactive aggression.* Theories of aggressive behavior and studies of physical aggression differentiate reactive or hostile and proactive or instrumental aggression (Dodge & Coie, 1987). Reactive aggression is an angry or defensive response to perceived frustration or provocation (Dodge & Coie, 1987). The intent of reactive aggression is retaliation against the provocateur. Conversely, proactive aggression involves achieving a desired goal (e.g., pushing someone out of the way in order to be the line leader).

Most of the research to date has focused on overt forms of aggression, which is more characteristic of boys (Block, 1983). This research indicates that aggressive

children are more likely to misinterpret social cues in a hostile manner, to generate aggressive responses, and to believe that aggression will result in positive outcomes (Crick & Dodge, 1996; Perry, Perry, & Rasmussen, 1986). Crick and Dodge (1996) studied proactive and reactive aggression in 624 third through sixth grade boys and girls (9-12 years of age). The authors hypothesized that children who use reactive or proactive aggressive would use two different patterns of social information-processing and also posited that there are contrasting social goals of proactive, reactive, and nonaggressive children. Using teacher ratings of aggression, an intent attribution instrument, response decision instrument, and a social goal instrument, the researchers found that reactive aggressive children were more likely to attribute hostile intent to peer provocations. That is, children who were reactive aggressive tended to misinterpret the actor's (provocateur's) intent. Proactively aggressive children evaluated aggressive acts more positively than nonaggressive peers. In terms of social goals, children who use proactive aggression tended to prefer goals that were instrumental, such as obtaining a toy rather than becoming friends with a peer. Thus, the researchers' findings demonstrate that proactively or reactively aggressive children use distinct social information-processing mechanisms.

*Indirect and social aggression.* Indirect aggression has been defined by Lagerspetz, Björkqvist, and Peltonen (1998) and is characterized by confrontational acts, such as gossip and social alienation. Galen and Underwood (1997) describe social aggression as “directed towards damaging another's self-esteem, social status, or both, and may take direct forms such as verbal rejection, negative facial expressions or body movements, or more indirect forms such as slanderous rumors or social exclusion” (p.

589). Indirect and social aggression tends to be subtle because the behaviors are more disguised, manipulative, and less direct when compared to direct (e.g., physical and verbal) forms of aggression (Xie, Farmer, & Cairns, 2003).

In a study of social aggression, Galen and Underwood (1997) examined 234 students in the fourth, seventh, and tenth grade (average ages of 9, 12, and 15 years, respectively) using the Social Behavior Questionnaire (SBQ), a questionnaire consisting of 12 vignettes depicting social interactions between same-sex peers. The researchers found that girls use more subtle ways of expressing anger than boys and girls perceive this aggression as hurtful. Björkqvist, Lagerspetz, and Kaukiainen (1992) studied developmental trends of indirect aggression in 11- and 12-year-old children using a peer nomination instrument to assess aggression and sociometrics to assess the social structure of the class. The authors found gender differences in which girls were more likely to use indirect aggression, while boys were more likely to exhibit physical aggression. Further, the use of indirect aggression appears related to maturation and an existence of a social network. That is, indirect aggression was not as fully developed in 8-year-olds as it was in 11-year-olds. However, results from a more current longitudinal study using 3,089 boys and girls between the ages of 4 and 11 yields the finding that indirect aggression is established in early relationships (as young as age four) and is used by both males and females throughout middle childhood (Vaillancourt, Brendgen, Boivin, & Tremblay, 2003).

*Relational aggression.* In contrast to physical aggression, which harms other through physical damage, relational aggression harms others through damage or the threat of damage to relationships (Crick et al., 1999). Additionally, in contrast to social

aggression, relational aggression does not include facial expressions, gestures, or direct attacks on another person's self-esteem (Galen & Underwood, 1997). Crick and Grotpeter (1995) originally identified and defined relational aggression as a distinct form of aggression that is generally unique to girls. The researchers described relational aggression as "harming others through purposeful manipulation and damage of their peer relationships" (p.711). Relational aggression involves both direct and indirect acts. Using a peer nomination measure, some researchers describe relational aggression in early childhood as more direct in nature (e.g., "you can't play with me unless...") and focusing on the immediate social exchange (e.g., "covering ears to indicate ignoring or giving a peer the "silent treatment"; Crick et al., 1999). However, in contrast, observational research indicates that preschoolers use relationally-aggressive acts such as gossiping and spreading rumors, which are more indirect in nature and do not always reflect the immediate social exchange (Ostrov & Keating, 2004; Ostrov, et al., 2004).

A characteristic of relational aggression specific to early childhood populations is the occurrence of aggressive acts in response to immediate problems. Children who engage in relational aggression tend to react to the present situation rather than perceived past transgressions (Crick et al., 2004). Further, researchers have found that relational aggression evidenced during the preschool years is relatively unsophisticated. During this developmental period, young children are just learning how to interact appropriately with peers. Therefore, young children who engage in relational aggression tend to do so in simple and concrete ways (Crick et al., 1997).

The literature distinguishes indirect, social, and relational aggression. These forms of aggression have in common damage to social relationships, and Björkqvist (2001)

argues that social aggression is the most appropriate term to describe non-physical types of aggression. However, researchers such as Crick and Grotpeter (1995) contend that relational aggression is a unique form of aggression distinct from social or indirect aggression. In response, other authors believe that the distinctions between relational, indirect, and social aggression are usually an artifact of authors' conceptualizations rather than distinct syndromes (Björkqvist, 2001).

#### *Assessment of Relational Aggression*

*Peer and teacher reports.* Several studies of relational aggression use peer reports of social behavior (Crick et al., 1997). Findings from these studies indicate that young children, aided by pictures of their classmates and practice items, are able to provide reliable and valid information concerning a host of constructs, including peer acceptance and relational aggression, particularly when a peer rating approach is used (Denham et al., 2000; Hart et al., 2000). In this peer nomination approach, researchers ask children to point to several pictures of children in their classroom, for example, who exhibit the characteristic described by the item (e.g., physical and relational aggression; Crick et al., 1997). Peer nomination measures are frequently used to assess relational aggression in children (Crick, 1996; Crick & Grotpeter, 1995; Crick et al., 1997; 2002; Grotpeter & Crick, 1996; Tomada & Schneider, 1997). Peer reports are typically used in conjunction with information yielded from other informants, such as teachers, parents, and observations. Crick et al. (1997) developed the Preschool Social Behavior Scale for Teachers Form (PSBS-T) to measure relational and physical forms of aggression in preschool populations.

*Observations.* Most empirical work on relational aggression in young children has relied on peer and teacher reports, and only a few studies have used observational approaches to assess relationally-aggressive behaviors. However, Ostrov and Keating (2004) and Ostrov et al. (2004) have used observations to assess preschoolers' relationally-aggressive behavior. Specifically, Ostrov and Keating (2004) collected data regarding preschool aggression (relational, physical, verbal, and nonverbal) using structured observational assessment (continuous event recording for 10 minute periods) during unstructured free play periods as well a structured coloring task. For the coloring task, researchers set up situations intended to promote conflict between peers (e.g., only one crayon was available for two children). Similarly, Ostrov et al. (2004) used a semi-structured observational assessment with a coloring task, to understand gender differences in relational, physical, verbal, and nonverbal aggression. The coloring sessions were videotaped and later coded by trained undergraduate students whom recorded the behaviors. Favorable psychometric properties have been demonstrated for raters' coding of aggressive behavior (Ostrov & Keating, 2004; Ostrov et al., 2004).

Unstructured observations can also be used to collect information regarding relationally-aggressive behaviors. These observations are generally simple and time-efficient. When using unstructured observations, a researcher may observe a child for a particular duration of time and in a particular location (e.g., on the playground or during a teaching activity; Crothers & Levinson, 2004).

### *Relational Aggression and Psychosocial Adjustment*

Children who engage in relational aggression are at an increased risk for psychosocial maladjustment in the preschool years (Crick et al., 1997; Crick, Casas, & Ku, 1999; Ostrov et al., 2004), school years (Crick, 1996; Crick & Grotpeter, 1995; Henington et al., 1998; Rys & Bear, 1997; Tomada & Schneider, 1997), and college years (Linder, Crick, & Collins, 2002; Werner & Crick, 1999). In addition, children who engage in forms of aggression that are atypical to their gender; that is, boys who are relationally-aggressive and girls who are physically aggressive, are at an even higher risk of adjustment problems (Crick, 1996). Examples of adjustment problems include peer rejection and being disliked by peers as well as feelings of depression, loneliness, and isolation (Crick & Grotpeter, 1995; Crick et al., 1997).

### *Development of Relational Aggression*

*Preschool years.* Using a teacher (Preschool Social Behavior Scale-Teacher Form) and peer (Preschool Social Behavior Scale-Peer Form) instrument with 65 preschoolers, the investigation conducted by Crick and colleagues (1997) of relational and overt aggression provided the first evidence of relational aggression in young children ages three- to five-years-old. In a more recent observational study of 60 three- to five-year-old children, Ostrov et al. (2004) confirmed that differences in young boys and girls' aggression might be detected as early as age three. To further confirm the existence of relational aggression in preschool populations, Crick et al. (1999) studied 129 children, ranging in age from three years-one month to five years-six months using the Preschool Social Behavior Scale-Teacher Form and Preschool Peer Victimization Measure-Teacher Report. The researchers found that preschoolers are indeed victims of relational and

physical aggression and that peer victimization is distinct from other forms of aggression in young children. Even as preschoolers, girls tend to deliver and receive relational aggression and boys tend to deliver and receive physical aggression (Ostrov et al., 2004). Further, relational aggression is moderately stable during the preschool years (Crick et al., 2006).

Peer nomination and teacher rating scales developed by Crick et al. (1997), describe the characteristics of young children determined to be relationally-aggressive. The researchers adapted these rating scales from an instrument used in their prior research with elementary school children to assess social behavior (Children’s Social Behavior Scale-Teacher Form; Crick, 1996; see Table 1; Table 2). The PSBS-T and PSBS-P are commonly used together to assess preschool relational aggression.

Table 1

*Relational Aggression Items Included on the Preschool Social Behavior Scale for Peers Form (PSBS-P)*

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1. Kids who say they won’t invite someone to their birthday party if they can’t have their own way.
  2. Kids who won’t let a kid play in the group if they are mad at the kid—they might tell the kid to go away.
  3. Kid who tell other kids that they can’t play with the group unless they do what the group wants them to do.
  4. Kids who won’t listen to someone if they are mad at them—they might even cover their ears.
-

Common acts of relational aggression in preschool populations include covering one's ears when a peer is talking or telling a peer that he or she will not be invited to a birthday party unless he or she shares a toy (Crick et al., 1999). In addition, relational aggression in the preschool years might involve a peer attempting to get other children to dislike a particular peer or telling other children not play with a peer. Overall, relational aggression involves subtle, non-physical attacks on children's social relationships.

Table 2

*Relational Aggression Items Included on the Preschool Social Behavior Scale for Teachers Form (PSBS-T)*

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1. Tells a peer that he or she won't play with that peer or be that peer's friend unless he or she does what this child asks.
  2. Tells others not to play with or be a peer's friend.
  3. When mad at a peer, this child keeps that peer from being in the play group.
  4. Tells a peer that they won't be invited to their birthday party unless he or she does what the child wants.
  5. Tries to get others to dislike a peer.
  6. Verbally threatens to keep a peer out of the play group if the peer doesn't do what the child asks.
-

*School age years.* Females' friendships during the school-age years become increasingly intimate, and include such characteristics as self-disclosure and exclusivity. Relationally-aggressive children tend to have at least one reciprocal friend (Rys & Bear, 1997), and females in this age group tend to deliver and receive relational aggression in their friendships more than males (Crick & Nelson, 2002). In a study assessing whether the social problems that both relationally and overtly aggressive children experience in their peer group also occur in friendship dyads, researchers found that fourth, fifth, and sixth grade girls who have highly intimate and exclusive friendships were more likely to be relationally-aggressive. These girls also used less self-disclosure than their friends (Grotperter & Crick, 1996). This may be attributed to the differing social goals of boys and girls. For example, boys typically prefer to dominate in their social group and girls typically want to achieve intimacy (Block, 1983). In the school-age years, children who are relationally-aggressive tend to hurt each other by damaging what their social group values most. In this case, girls value social relationships most and thus inflict damage by threatening to withdraw social support or eliminating intimacy (Crick & Grotperter, 1995).

Similar results have been found for pre- to late adolescence, with females engaging in relationally-aggressive behavior more than their male counterparts. A study investigated self-other representations and relational and overt aggression in adolescent males and females, between the ages of 11 and 17. Specifically, females who reported being negatively perceived by peers were more likely to use relational aggression, whereas negative peer representations of self predicted lower levels of relational aggression in males (Moretti, Holland, & McKay, 2001). Negative self-representations

may be related to negative affect and hostile attributions of others, which may affect a child or adolescent's propensity to use relational aggression (Crick & Dodge, 1996; Crick & Werner, 1998).

Crick and Rose (2000) contend that relational aggression may increase as children age due to growing sophistication in their cognitive abilities and an increasingly complex social network. Acting in a relationally-aggressive manner requires developed cognitive abilities in contrast to physical aggression, which may explain the increase in relational aggression throughout the school age years. Peer relationships become more intimate and complex during the school years, which may also contribute to relational aggression increasing with age (Xie et al., 2003). In contrast, physical aggression, typically more common in early childhood, decreases with age (Crick & Rose, 2000).

*College-age years.* In a sample of 300 19- to 25-year-old African-American college students, Loudin, Loukas, and Robinson (2003) investigated relationally-aggressive behavior; specifically, the role of social anxiety and empathy in predicting relational aggression. To assess relational aggression, the researchers used a self-report measure adapted from Werner and Crick's (1999) peer-nomination scale. In this study, girls used lower levels of relationally-aggressive behaviors and higher levels of physical aggression when engaging in conflict with other females. The researchers found that male and female college students who were less empathic and exhibited social anxiety were more likely to engage in relational forms of aggression. Specifically, male students who reported having less empathic concern were more likely than their same-age peers to use relationally-aggressive behaviors. In contrast, empathy was unrelated to females' use of relationally-aggressive behavior. In addition, students who had higher levels of

perspective-taking in their social relationships were less likely to use relational aggression. Thus, perspective-taking abilities may affect females' use of relational aggression.

Relational aggression and victimization also exists in romantic relationships in undergraduate college students (Linder et al., 2002). Researchers indicate that men and women use relational aggression in romantic relationships, with men reporting higher levels of relational victimization than women. Further, relational aggression and victimization is positively associated with negative romantic relationship qualities, such as frustration and jealousy, and negatively correlated with positive relationship qualities. The researchers also found that men and women who feel alienated from their mothers or engaged in frequent and intense communication with their fathers were more likely to use relational aggression in a relationship, indicating that relationships with parents may play a role in using relational aggression in romantic relationships. In terms of psycho-social adjustment, the researchers also found that college students who used relational aggression experienced peer rejection, lower levels of prosocial behavior, lower levels of life satisfaction as well as antisocial personality features and bulimia.

#### *Peer Status and Relational Aggression in Preschoolers*

Research suggests that preschool and school-age children who are victims of relational aggression are more likely than their non-victimized peers to experience peer rejection (Crick & Grotpeter, 1996; Crick et al., 1999). In turn, school-age children who are the perpetrators of relational aggression are also at a greater risk of experiencing peer rejection, among other forms of maladjustment such as depression and loneliness (Crick & Grotpeter, 1995; Crick et al., 1997) when compared to nonaggressive peers. For

preschool boys and girls, relational aggression is positively related to peer rejection. However, when examining gender differences in peer acceptance and peer rejection, relationally-aggressive males tend to also experience acceptance by peers (Crick et al., 1997). Additionally, relationally-aggressive preschool boys experience same-sex, but not opposite-sex acceptance by peers (Crick et al., 1997). Being both accepted and rejected by peers is often referred to as controversial status (Coie, Dodge, & Kupersmidt, 1990), or, in other words, these children are both liked and disliked by peers.

Relational aggression is also predictive of future peer rejection. Crick and colleagues (2006) investigated relational and physical aggression in 91 preschoolers in a longitudinal study. Relational aggression was assessed via observations and the Preschool Social Behavior Scale-Teacher and Peer Form (PSBS-T/F) and peer rejection was assessed with the PSBS-T. The researchers found that teacher-assessed relational aggression predicted future peer rejection for females, but not males. In contrast, teacher-assessed physical aggression predicted future peer rejection for males, but not females. This research suggests that preschool girls who use relational aggression are more likely to be rejected by their female peers. Thus, relationally-aggressive preschool girls who engage in relationally-aggressive behaviors tend to experience concurrent peer rejection (Crick et al., 1997), and are at risk for future peer rejection (Crick et al., 2006), whereas relationally-aggressive boys are at a lessened risk for peer rejection.

#### *Developmental Trajectories of Relational Aggression*

*Family interactions and parent-child relationship factors.* During infancy and early childhood, parents are the primary socializers in a child's development. Through parental modeling, coaching, and contingent responding, children learn to cope with their

own and others' emotions, which then contributes to their socialization (Denham, 1998). Researchers indicate that the development of relational aggression may be associated with an extreme focus on relationships. Using a peer nomination measure, Grotper and Crick (1996) studied 315 children from 29 third, fourth, fifth, and sixth grade classrooms and found, for example, that relationally-aggressive children are more likely to characterize their dyadic friendships as highly exclusive, intimate, and jealous. In addition, relationally-aggressive third-grade children describe their relationship with parents as exclusive and intimate (Grotper, 1997). Research with college students indicate that men and women who have higher levels of communication with their fathers are more likely to use relational aggression in romantic relationships, suggesting that their relationships with their fathers are over-involved or enmeshed (Linder et al., 2002).

Nelson and Crick (2002) investigated the association between parental psychological control (love withdrawal and/or erratic emotional behavior) and physical and relational aggression for males and females in a sample of 115 third grade children using the Children's Social Behavior Scale-Peer Form, Parenting Practices Questionnaire, and the Parental Psychological Control measure. The researchers found that coercive control and psychological control uniquely contributed to the development of relational and physical aggression. More specifically, the use of corporal punishment most impacted the development of both forms of childhood aggression. For girls, higher levels of paternal psychological control were positively associated with relational aggression. Maternal coercive control was significantly related to physical and relational aggression in the third grade boys. This may explain why some researchers have found that boys also experience relational aggression during the school-age years (Crick &

Nelson, 2002; Henington et al., 1998). In respect to the findings regarding paternal psychological control and relational aggression, this study suggests that fathers may contribute to or maintain relationally-aggressive behaviors in their daughters.

Nelson, Hart, Yang, Olsen, and Jin (2008) examined the effect of aversive parenting and physical and relational aggression in a sample of 215 Chinese preschool children (46 to 76 months of age). The researchers adapted a peer nomination instrument developed by Crick et al. (1997) to assess physical and relational aggression. To assess parenting styles, spouses rated their partner's parenting behaviors (including authoritarian and authoritative styles as well as psychological control) using a questionnaire. Results of the study indicated that physically coercive and psychologically controlling parenting styles predicted aggression in Chinese preschool children. More specifically, girls were more likely to use physical and relational aggression with peers when both the mother and father used psychological control. In contrast, joint physical coercion between mother and father predicted physical aggression in their sons. Further, differential parenting styles affected the use relational aggression in girls only. For example, when Chinese mothers were rated as more physically coercive than the fathers, the preschool girls were relationally-aggressive. However, father psychological control was related to relational aggression in girls. Thus, this recent study further confirms that fathers who use psychological control contribute to relationally-aggressive behaviors in girls. In addition, mothers who use physical coercion may promote relationally-aggressive behaviors in girls.

Hart, Nelson, Robinson, Olsen and McNeilly-Choque (1998) investigated maternal and paternal parenting styles and marital interactions in a sample of 207 Russian

preschool children (three years seven months to six years seven months) and their parents. In order to assess parenting styles and marital interactions, the researchers used the Parenting Behavior Questionnaire and a Marital Hostility Scale. Further, overt and relational aggression was assessed by the researchers through teacher rating scales. The authors found that maternal and paternal coercion and lack of parental responsiveness contributed the most to relational and overt aggression in Russian preschool children. Specifically, for boys, more responsive parenting was linked to less relational aggression. For girls, father's responsiveness was related to less overt aggression, but not relational aggression. In contrast to Nelson and Crick's (2002) findings with third grade children and Nelson and colleagues (2008) findings with preschool children, Hart et al. (1998) found that parental psychological control was not related to relational aggression for preschool boys and girls. Overall, these studies emphasize the importance and impact of responsive, non-coercive parenting in inhibiting the development of relational aggression.

*Peer and sibling influences.* Peers and siblings may also contribute to the development of relational aggression. In a study with second and fourth grade children who completed a peer-nomination instrument, Werner and Crick (2004) found that nonaggressive girls who befriended peers who were relationally-aggressive were more likely themselves to be relationally-aggressive in the future. Sibling research with older children indicates that relational aggression is the most frequently used form of aggression that siblings use towards each other, which may influence the learning of such behaviors within the family environment (Crick et al., 1999). In addition, research with three- and four-year-old siblings who were assessed for both relational and physical aggression using a structured observation, indicated that female older sisters used

relational aggression towards female peers than their younger female sisters. Further, male older brothers more often used physical aggression with their male peers than their younger brothers (Ostrov et al., 2006). Thus, young children may model or learn relationally-aggressive behaviors through peers and sibling relationships.

*Gender roles.* Block (1983) contends that males and females grow up in different psychological environments, which contributes to their psychological functioning. The researcher outlines several personality differences of males and females, which then influence their environment. He asserts that males are biologically more aggressive and impulsive, while females are inherently more empathic, affiliative, cooperative, nurturing, and desire intimate relationships.

Some research indicates that males engage in relationally-aggressive behaviors more than females (Henington et al., 1998; Loudin et al., 2003; McEvoy et al., 2003), while other research demonstrates that females engage in relational aggression more than males (Crick & Grotpeter, 1995; Crick et al., 1997; Grotpeter, & Crick, 1996; Lagerspetz et al., 1988; Moretti et al., 2001; Ostrov et al., 2004; Rys & Bear, 1997). When citing differences between males and females, researchers contend that, in general, boys are more likely to use instrumental aggression, or aggression that is focused on specific social goals, such as obtaining a toy (Fabes & Eisenberg, 1992). Similarly, boys are significantly more overtly aggressive than girls (Block, 1983), while girls are more likely to use a relational form of aggression that involves damaging social relationships (Crick & Grotpeter, 1995; Crick et al., 1997; Grotpeter & Crick, 1996; Ostrov et al., 2004).

*Language development.* Bonica, Arnold, Fisher, Zelijo, and Yershova (2003) studied the relationship between language development, relational aggression, and

relational victimization in an ethnically diverse sample of preschoolers. The authors hypothesized that there would be a positive relationship between language development and relational aggression based on research suggesting a positive relationship between language development and physical aggression in boys. The researchers found a robust positive relationship between the development of language and relational aggression across gender and socioeconomic status. This relationship remained, even after controlling for age. Further, language scores may predict relational aggression more strongly for boys.

In addition to relational aggression, language development is also important to emotion knowledge. The first step in emotion knowledge is the ability to label emotional expressions verbally (and nonverbally; Denham, 1998). Research with two- through four-year-old children indicates that older preschoolers are better at naming emotional expressions than younger children (Denham, 1990). Specifically, for all ages, naming happy and sad emotional expressions is easiest, while fear and anger are the most difficult. More importantly, three- and four-year-old children who have more sophisticated emotion knowledge have fewer behavior problems before and during kindergarten (Denham & Kochanoff, 2002; Denham, Renwick-DeBardi, & Hewes, 1994). Language development, then, is important in promoting both emotion knowledge and relationally-aggressive behaviors.

*Social information-processing.* Differences in cognitive processing have also been noted in children who are aggressive. Researchers indicate that children's social behavior results from sequential social information-processing steps. Children who use skillful processing at each step are socially competent, whereas poor processing is expected to

result in such deviant social behavior as aggression. The steps of social information-processing include encoding internal and external social cues, interpreting the encoded cues, clarifying goals, response access or construction [generating possible strategies for responding to the immediate social cue], and response decision [evaluating the generated strategies and choosing one to use] (Crick & Dodge, 1994).

Results of two studies provide evidence that relational aggression, like overt aggression, is significantly related to social-information processing biases (Crick et al., 2002, Study 1 and Study 2). Using a sample of 825 third grade children, the researchers assessed physical and relational aggression using a peer nomination instrument and a hypothetical-situation instrument to assess the children's intent attributions. These studies examined children's interpretation of social cues, and showed that relationally-aggressive children exhibit hostile attribution biases for relational conflict situations. Relationally-aggressive children tend to attribute hostile intent to peers in ambiguous and negative relational contexts, such as not being invited to a friend's birthday party. This finding is consistent with other research that shows that males use instrumental aggression to achieve social dominance (Fabes & Eisenberg, 1992), while girls damage social relationships to achieve this same goal (Crick & Grotpeter, 1995). Even more, adolescent girls who use indirect forms of conflict management (e.g., spreading rumors) may do so as a means to assert power and control in their social relationships (Crothers, Field, & Kolbert, 2003). In contrast, overtly aggression children tend to exhibit hostile intent to instrumental conflict situations, such as being unexpectedly pushed by a peer on the playground (Crick et al., 2002). As such, instrumental or relational provocations may

incite aggressive behavior in these children, because they threaten their unique social goals.

Crick and Werner (1998) examined the response decision step (evaluation of generated strategies and choosing one to use) in Crick and Dodge's (1994) social-information processing model. The researchers compared third through sixth grade children's response decision processes across and within gender of both overt and relational aggressive children using a peer nomination instrument to assess types of aggression and a hypothetical-situation instrument to assess children's patterns of social information processing at the response decision step. The researchers found that overtly aggressive girls (atypical to gender) exhibited response decision biases in instrumental conflict situations, which is similar to overtly aggressive boys. However, they found that neither relationally-aggressive boys nor girls exhibit processing biases in relational conflict situations. Further, they found that relationally-aggressive girls do not exhibit response decision biases and that girls looked upon relational conflict situations more favorably than boys.

Arsenio and Lemerise (2001) discussed the role of social information-processing models and varieties of childhood bullying. They argue that the role of emotions have not been included in information-processing models of aggression. They also contend that an accurate understanding of others' emotions and other-oriented emotional responsiveness may serve as protective factors against bullying and reactive forms of aggression. The role of emotion knowledge and relational aggression has yet to be reported in research of preschoolers, a limitation this study proposes to address.

*Perspective-taking abilities.* In addition to social-information processing, perspective-taking may also be highly relevant to understanding the developmental trajectories of relational aggression. Researchers have found college students who have perspective-taking abilities are less likely to use relational aggression (Loudin et al., 2003). Children may require perspective-taking abilities in order to understand how relationally-aggressive behaviors would be harmful to other children. Preschoolers who have perspective-taking abilities tend to be socially expressive, sympathetic and prosocial towards other children who experience distress during play. They also tend to be better accepted by peers (Saarni, Mumme, & Campos, 1998).

*Depressed affect.* The relationship between depressed affect and relational aggression has been assessed with preschool children between the age of three and a half and five and a half using the Preschool Social Behavior Scale-Peer and Teacher Form (PSBS - T/P; Crick et al., 1997). Prosocial behavior as assessed by teachers is negatively related to relational and overt aggression for male and female preschool children. Further, depressed affect is positively related to overt aggression in boys ( $r = .25, p < .10$ ) and relational aggression in girls ( $r = .30, p < .05$ ). In addition, overt and relational aggression is negatively related to prosocial behavior for both males ( $r = -.49, p < .001$ ) and females ( $r = -.53, p < .001$ ) as assessed by teachers (Crick et al., 1997). Thus, children who display prosocial behavior towards peers are less likely to engage in relational or overt forms of aggression. In contrast, teacher-assessed overt aggression is related to depressed affect in males and teacher-assessed relational aggression is positively related to depressed affect in females (Crick et al., 1997).

Research also indicates that preschool children who aggress relationally against peers tend to experience depression, isolation, and loneliness (Crick, 1997; Crick et al., 1997; Crick & Grotpeter, 1995), and children with poor emotion knowledge tend to have difficulty understanding how others feel, or their emotional experience (Saarni, 1999). Children who are able to accurately understand emotional cues in peer social situations are more likely to be prosocial and accepted by peers (Crick & Dodge, 1994). Further, these children tend to be viewed by peers as better play partners, fun, and able to respond to peers' emotions during play in an appropriate manner (Denham, 1989). Preschool children, then, who display positive affect (or prosocial behavior) with peers may have a better understanding of emotions and, as indicated by research, are less likely to use relationally-aggressive behaviors (Crick et al., 1997). In contrast, children who use relational aggression against peers tend to experience depression, and despite experiencing depressed feelings, they may continue to use relational aggression in the future. Thus, the role of depressed affect in the relationship between emotion knowledge and relational aggression is important to understand in the context of this study.

*Emotion knowledge.* The relationship between knowledge of emotions and relational aggression has not yet been documented. Crick et al. (2004) contend that more research is needed in this area in order to understand how aspects of emotional competence, like emotion knowledge, relate to relational aggression. More specifically, children who are able to identify positive and negative emotions in themselves and others may be associated with the onset of relational aggression (Denham & Couchoud, 1990; Dunn & Hughes, 1998; Lemerise & Arsenio, 2000) although this topic has not been explored to date with relational aggression. Similarly, Denham and Kochanoff (2002)

suggest research is needed to determine how emotion knowledge deficits can possibly lead to social incompetence.

In summary, relational aggression clearly exists across the lifespan, from peer relationships during the preschool years to romantic relationships in the college years. In the preschool, school, and college years, relational aggression is associated with peer rejection, loneliness, feelings of depression, and even bulimia for college students. Researchers argue that parental variables such as psychological control and corporal punishment may increase a grade school age child's risk of becoming relationally-aggressive. For preschoolers, maternal and paternal coercion and lack of parental responsiveness may increase the risk of becoming relationally-aggressive. Other variables that may place a preschooler at risk for using relationally-aggressive behaviors include higher language ability, deficits in perspective-taking, and possibly emotion knowledge.

#### *Preschoolers' Emotion Knowledge*

Emotions are a central part of a preschooler's life. Young children use emotions to express what they are thinking or feeling. Denham and Kochanoff (2002) contend that one of the most important social tasks of a preschooler's development is managing emotions so that coordination of play is possible. During play, arguments may arise in which the preschooler may need to understand what occurred as well as talk about his or her peer's anger or displeasure. Emotion knowledge helps the child deal with and communicate about emotions experienced by themselves and others (Denham, 1998; Denham & Kochanoff, 2002). Overall, emotion knowledge is important for preschoolers because it assists them in social interactions with family and peers. However, Denham and Kochanoff (2002) argue that the finer skills of emotion knowledge, such as

understanding emotion valence, may not occur until middle childhood. Further, changes in emotion knowledge occur from preschool through grade school years.

### *Emotion Knowledge Beyond Preschool*

Throughout the school years, children further develop and refine their emotion knowledge. Specifically, grade school children begin to understand the impact of culture, personal history, family rules, etc. on expression of emotions, or emotion display rules. They also learn how to mask their emotions (dissemblance), a task more difficult for preschoolers. In terms of emotion regulation strategies, grade school children are more adept at generating spontaneous strategies, unlike preschoolers. Preschoolers typically are not able to use cognitive strategies to regulate their own and other emotions, such as remembering a past happy event (Denham & Kochanoff, 2002).

Grade school children have a more sophisticated knowledge of simultaneous and ambivalent emotions than preschoolers. Harter and Whitesell (1989) propose a cognitive developmental sequence based on the valence of two felt emotions and the number of targets toward which the two emotions are directed. In this model, children progress through four levels of understanding beginning at about age five. At Level 0, the child does not understand that two emotions can be felt simultaneously, regardless of valence. Around the age of 7, children progress to Level 1 in which they can comprehend that two emotions of the same valence can be directed towards the same target or person (such as anger and fear towards a class bully). Then, at approximately 8 years, children begin to understand that emotions of the same valence (e.g., sad and angry) can be directed towards different targets at the same time. However, at age 8, children still may have difficulty understanding that they can experience opposite valence emotions at the same

time. At Level 3, around the age of 10, children can experience simultaneous emotions of opposite valence (e.g., happy and sad), yet the emotions are directed towards different events. By age 11, or Level 4, children can experience opposite valences towards the same person (e.g., feeling happy and sad regarding leaving a parent on the first day of school).

#### *Definition of Emotion Knowledge*

According to Gordon (1989) and Saarni (1990), emotion knowledge is one of three components necessary for emotional competence. The other components of emotional competence are expression, such as using gestures to nonverbally express emotion, and regulation, such as coping with distressing or pleasurable emotions. Denham (1998) asserts that the skills of emotional competence typically work in an integrated way, and considers them interdependent.

The terms emotion knowledge and emotion understanding are used interchangeably in the literature. Emotion knowledge or understanding is defined as labeling emotions, identifying emotion-eliciting situations, inferring the causes and consequences of emotion-eliciting situation, and finally understanding that others' emotions may differ from their own (Denham, 1998; Denham & Kochanoff, 2002). According to Denham (1998), and Denham and Kochanoff (2002), there are nine areas of emotion knowledge, including labeling emotional expressions verbally and nonverbally, identifying situations that elicit emotions, inferring the causes and consequences of these emotions, using emotion language to describe their own emotions, recognizing that their own experience of emotions may differ from others, becoming aware of how to self-regulate, developing an understanding of emotion display rules, developing an

understanding of how more than one emotion can be experienced simultaneously, and understanding the complex social and self-conscious emotions, such as guilt and pride. Harter and Whitesell (1989) argue that children do not experience such complex emotions as guilt, pride, and/or shame until approximately the age of 6. The researchers found that four- and five-year-olds can use the emotion words of pride and shame, for example, but cannot describe the actual felt emotions.

For young children, emotions are strong and salient social signals, especially for those with limited language (Denham, 1998). As preschoolers' cognitive and language abilities mature so does their understanding about their own and others' feelings. In a review of the functionalist theories of emotion, Bretherton and colleagues (1986) explain that the ability to discuss emotions serves as a regulating and clarifying function in the social relationships of very young children. Emotion-eliciting social situations allow young children the opportunity to express and reflect on their own and others' emotions.

#### *Emotion Knowledge and Poor Social Interactions*

Young children who have difficulty completing the developmental tasks of emotion knowledge may have poor peer relationships and be more likely to display aggression or other behavior problems (Arsenio et al., 2000; Denham et al., 2002). Denham et al. (2002) studied one hundred twenty-seven children's aggression and emotion knowledge at ages three to four, four to five, and kindergarten. Understanding of emotions at ages three to four and four to five was assessed using a Denham's Affective Knowledge Test (DAKT), a puppet measure, and aggression was assessed using naturalistic observation. Children who had more sophisticated emotion knowledge at ages three and four had the most optimistic trajectories. Additionally, children's emotion

knowledge at different time points predicted angry/aggressive behavior at ages four to five years and in kindergarten. Researchers have shown that preschoolers who have emotion knowledge tend to be more prosocial and are considered popular according to peer ratings (Denham et al., 1990). Further, researchers have shown that preschoolers *with* identified aggression problems have difficulty understanding emotional expressions and situations (Denham & Kochanoff, 2002). Differences in children's emotion knowledge, then, may be an important individual characteristic related to relational aggression in preschoolers.

#### *Assessment of Preschoolers' Emotion Knowledge*

Researchers have used puppets (Arsenio et al., 2000; Denham, 1986; Denham & Couchoud, 1990; Denham et al., 1990; 1994; 2002), observations (Cassidy et al., 1992; Denham et al., 1990), felt faces depicting basic emotions (Denham, 1990; Dunn & Hughes, 1998), and photographs of facial expressions of emotions (Lindsey & Colwell, 2003; Russell, 1990) to assess a child's emotion knowledge. Assessment measures using puppets, felt faces, and photographs are typically accompanied by an interview with the parent and child. One of the most common tests of emotion knowledge in preschoolers is Denham's Affective Knowledge Test (DAKT; Denham, 1986). The test utilizes puppets to measure preschoolers' developmentally appropriate understanding of emotional expressions and situations. Researchers assess a child's understanding of emotion using puppets with detachable faces that depict happy, sad, angry, and fearful expressions. Children are asked to both verbally name the emotions depicted on these faces, and then to nonverbally identify them by pointing. This procedure assesses preschoolers' ability to recognize emotional expressions.

Then, in two subtests of emotion situation knowledge, the (assessor) puppeteer makes standard facial and vocal expressions of happy, sad, angry, or afraid emotions while enacting such emotion-laden stories as fear of a dog, happiness at getting some ice cream, and anger at having to stop play and come inside the house to eat dinner. Children subsequently place a face on the puppet that depicts the puppet's feeling in eight common situations (Denham, 1986; Denham & Couchoud, 1990; Denham, Zoller, & Couchoud, 1994). Finally, children are asked to make inferences of emotions in nonstereotypical, equivocal situations. This subtest measures how well children identify others' feelings in situations where another individual feels differently than the child. All the situations that the puppeteer depicts during this section of the measure easily elicit one of two different emotions in different people, as in feeling happy or afraid to see a large dog. Before the assessment, children's parents report, through forced-choice questionnaire, how their children would feel; these responses determine the emotions expressed by the puppet. For example, if the parent reports that the child would be happy to come to preschool, the puppet is depicted feeling sad. Internal consistency reliabilities are good for this measure, ranging from  $r = .89$  for the affective labeling portion of the measure to  $r = .93$  for the perspective-taking portion of the measure (Denham, 1986). Test-retest reliabilities are also good ( $r = .36, p < .01$ ) (Denham et al., 2002).

#### *Factors Impacting the Development of Emotion Knowledge*

Children learn about emotion primarily through their parents. Parents teach children about emotions by expressing their own emotions, reacting to their children's emotions, and talking with them about emotions (Denham, 1998). Other socializers who impact a child's development of emotion knowledge include day care providers,

preschool teachers, siblings, and peers. Aspects of socialization that promote children's understanding of emotion include parental discussions of emotions in daily life, parental acceptance and encouragement of emotional expression, and the expression of primarily positive emotions (Denham, 1998).

*Parental expressiveness.* Parental modeling of emotions includes expression of emotions, which help in teaching the child about emotions. Denham (1998) contends that parents who are moderately expressive give information to their children concerning the expression of happiness, sadness, anger, and fear as well as information about situations that elicit these emotions and the causes of these emotions. Additionally, words and facial expressions contribute to a child's understanding of the causes and consequences of emotion. In research with 120 preschoolers (ages 4 years to 5 years 11 months), Russell (1990) found that exposing preschoolers to both the emotion word and the congruent facial expression aided to their understanding of causes and consequences of emotion than just facial expression alone.

Children's reactions to maternal negative expressiveness represent an early form of emotional communication. The communication between mother and child provides a foundation for later emotional competence (i.e., emotional expressiveness, responsiveness to emotions, and understanding of emotions) with peers (Denham, 1989; Denham et al., 1994). Mothers' intensity of emotional expression and their ability to resolve situations involving negative emotions differ. Additionally, mothers differ in the way they convey the meaning of negative emotions to their children. Some mothers are non-expressive in their communication of negative emotions with their children, and use intellectualization to explain and recount the emotions. Other mothers fully express

negative emotions, inducing empathy, but also conflict and guilt in their children (Denham, 1989; Denham & Grout, 1993). In a study of social competence of 46 low-income preschoolers, Garner, Jones, and Miner (1994) found that mothers who direct anger towards their children and discourage the expression of negative emotions have less knowledge about situations involving anger specifically.

Maternal expressiveness in the home and paternal expressiveness in the home and research laboratory was associated with children's peer relations in one study (Cassidy et al., 1992). Participants consisted of 61 kindergarten and first grade children. Emotion knowledge was assessed by first showing the children four photographs of a same sex child displaying happiness, sadness, anger, and fear, followed by a 15-item interview. Parental expressiveness was positively associated with children's emotion understanding, which further facilitated the link between expressiveness and peer relations. Taken together, a child's understanding of emotions is influenced by socialization and, in turn, influences the child's relationships with peers.

One important modeling influence that contributes to emotion knowledge is the degree to which mothers express anger toward their children. Denham et al. (1994) conducted a study of socialization and children's understanding of emotion, and found that maternal expression of anger impacted children's emotion knowledge. The researchers investigated basic emotional expressions and situations, emotion language, and children's self-generated causes for happy, sad, angry, and afraid emotions over 2 preschool years. The participants included 47 preschoolers, initial mean age of 41.83 months. Emotion labeling and causes of emotions (specific skills of emotion knowledge) were assessed using a puppet measure that consisted of four flannel faces depicting

happy, sad, angry, and afraid, followed by a perspective-taking task and semi-naturalistic interview embedded in the puppet play. The researchers found that maternal emotional expressiveness predicted children's emotion knowledge. In fact, maternal anger expressed during interaction with the child negatively correlated with the child's understanding of emotion. Children who had sophisticated emotion knowledge had mothers who expressed less anger and children who were less sophisticated in understanding emotions had mothers who expressed more anger.

Denham and Kochanoff (2002) investigated parental socialization of emotion with three-, four-, and five-year-old children. Specifically, the authors looked at parental expression of emotions, parental reactions to their children's emotions, and parental teaching of emotions in predicting emotion knowledge. Mothers who displayed positive emotion, attention to their child's emotion, willingness to allow their child to express emotional upset, and helped their child figure out how to handle their feelings predicted children's emotion knowledge at three and four years of age. Fathers' contribution to children's emotion knowledge was limited for the four-year-old age group. Mothers who express anger and discourage children to express negative emotion may also be related to their knowledge about angry situations.

Maternal depression is also related to preschoolers' understanding of emotions. Raikes and Thompson (2006) investigated family emotional climate, attachment security and preschoolers' emotion knowledge in a longitudinal study. The study examined how attachment security between mother and child and maternal depression at age two predicts mother-child references to emotions in conversations and emotion understanding at age three. The researchers found that maternal depression at the age of two was

negatively related to emotion understanding at age three, demonstrating that children who experience maternal depression at any early age may have difficulty identifying emotions at a later age. Additionally, a secure attachment between mother and child encourages conversations of emotions, which is then related to later emotion understanding.

*Parental teaching/coaching about emotions.* Coaching involves directly teaching a child to explore and understand emotions. Coaching can occur through such avenues as family discussions. Dunn, Brown, Slomkowski, Tesla, and Youngblade (1991) investigated individual differences in young children's understanding of others' feelings and their ability to explain human actions in terms of beliefs in 50 second born children (tested at 33 and 40 months of age), participating with their older siblings and their mothers. Researchers assessed children's understanding of others' feelings using Denham's Affective Knowledge Test (DAKT) puppet measure. The researchers found that family discussions were associated with children's emotion understanding. In this particular study, family discussions contributed to higher emotion knowledge in girls, but not boys. Further, the interaction between a child and their sibling as well as their relationship with other family members additionally contributed to their social understanding. This highlights the importance of other family members in promoting emotion knowledge.

Similarly, Denham, Mitchell-Copeland, Strandberg, Auerbach, and Blair (1997) studied parental contributions to preschoolers' emotional and social competence. Specifically, the researchers looked at the effect of parental modeling, parental reactions to children's emotions, and coaching upon children's emotion knowledge and prosocial behavior. Participants included sixty families, and the average age of children in the

group was 49.8 months. The researchers used the DAKT puppet measure to assess the children's emotion knowledge. The researchers found that parents' coaching about emotions predicted children's emotion knowledge, although the association was marginal. In contrast, guiding and socialization emotion language was actually a negative predictor of both emotional and social competence. The researchers hypothesized that parents may use guiding and socializing language with children who need support, such as children who appear sad or fearful, react in an immature manner to others' emotions, or have difficult peer relationships.

*Parental reactions to children's emotions.* According to Denham (1998) contingency describes parents' behavioral and emotional reactions to their children's emotions, which, in turn, aids in the child's differentiation of emotions. Parents who encourage expression and are able to talk about their own and others' emotions results in positive child outcomes. Positive maternal responsiveness, such as reacting with happiness to a child's happiness, reacting with tenderness to sadness, and with calm when angry, is associated with children's ability to identify emotional expressions and situations, which are skills related to emotion knowledge (Denham et al., 1994). However, maternal negativity, such as tension, sadness, and neutrality is only moderately associated with emotion understanding.

Eisenberg, Fabes, and Murphy (1996) investigated the relationship of parental emotion-related reactions to children's social competence and comforting behavior in 148 third through sixth grade children (98 to 155 months). The researchers found that maternal problem-focused reactions to their children's emotions tended to be positively associated with children's social functioning and coping. In contrast, maternal

minimizing reactions were associated with lower levels of social competence and higher levels of avoidant coping. This study provides further evidence of the importance of contingent responding. Thus, children of parents who use punitive rather than rewarding socialization tend to have lower social competence. Further, less responsive and coercive parenting is also related to higher levels of relationally-aggressive behavior in preschool children (Hart et al., 1998).

*Age and gender influences.* Maternal negative emotional responsiveness negatively predicts boys' emotion understanding (Denham et al., 1994). On average, girls tend to receive more coaching about emotions than boys, and boys may rely more on contingent responding (Denham, 1998). As a result, boys are especially sensitive to punitive socialization practices. The age of the child also impacts their emotion knowledge. Older children tend to have better emotion knowledge (Denham et al., 1994) than younger children. In a study using twenty-six to fifty-four month old preschoolers, Denham (1990) found that older preschoolers could name and recognize emotional expressions. For both younger and older preschoolers, differentiating such negative emotions as sadness, anger, and fear was more difficult. Children's abilities to verbally and nonverbally recognize emotional expressions increase from two to four and a half years of age (Denham & Couchoud, 1990). Five-year-olds tend to experience growth in understanding the causes and consequences of emotions as well as in the complexity of their emotions (Denham, 1998).

#### *Emotion Knowledge and Relational Aggression*

The preschool years are a critical period for a child's emotional and social development. Preschoolers are learning how to express emotions, label their own and

other's emotions, and finally, to regulate emotions. Young children's ability to manage their emotions that occur during social interactions is fundamental for their growing ability to interact and form peer relationships (Saarni, 1990). Unfortunately, some preschoolers may have lower levels of emotion knowledge, which subsequently affects their relationships with peers. As evidenced by the literature, children with less emotion knowledge have more behavior problems and may experience anger or aggression more than peers who have sophisticated emotion knowledge.

Researchers have indicated a growing link between children's understanding of emotions and verbal and physical aggression (Arsenio et al., 2000). Deficits in emotion knowledge have been linked with behavior problems in preschoolers (Arsenio et al., 2000; Denham et al., 1990; Denham et al., 2002). Investigators also indicate that children who can effectively and accurately interpret and recognize emotions are more successful at avoiding particular forms of peer-related aggression (Crick & Dodge, 1994). Denham et al. (2002) suggest that early emotion knowledge may be a social-information processing indicator for examining preschoolers' risk of aggression. Unfortunately, little research has been conducted in this area with preschoolers, and with relational aggression specifically.

According to the literature, relational aggression is more prevalent in the school age years and beyond due to children's cognitive abilities and social networks (Crick, 1996; Crick, 1997; Crick & Grotpeter, 1995; Henington et al., 1998; Rys & Bear, 1997), but evidence suggests that preschoolers also engage in relational forms of aggression although in a less sophisticated form (Crick et al., 1997; Crick et al., 1999; Ostrov et al. (2004). In addition, older children have a better understanding of emotions (Denham et

al., 1994; Harter & Whitesell, 1989). Children who are able to accurately process and organize emotional cues in peer social situations are more likely to be prosocial and accepted by peers, which are important indicators of adjustment (Crick & Dodge, 1994). Further, research with preschoolers indicates a link between poor emotion knowledge and initiation of verbal and physical aggression (Arsenio & Lemerise, 2001), suggesting that preschoolers who inaccurately understand and interpret emotions in social situations may be more likely to use aggression in their interactions with others. Preschoolers with less sophisticated emotion knowledge, then, may be more likely to use relationally-aggressive behaviors.

Specifically, this study will examine if relationally-aggressive preschoolers have lower levels of (or less sophisticated) knowledge of emotions. Researchers have indicated a relationship between children's understanding of emotions and verbal and physical aggression (Arsenio et al., 2000) in preschoolers as young as four. Arsenio and Lemerise (2001) argue that children who proactively aggress (i.e., aggress in order to further their own social goals) are actually very aware of their victim's emotions, and may understand and care about the actions of others but not their own, even at the preschool age level. In contrast, understanding others' emotions may serve as a protective factor against bullying and reactive forms of aggression according to Arsenio and Lemerise (2001). Denham and Burton (2003) also contend that aggressive children may have emotion knowledge, although they may have associated impairments in regulating their emotions. Although some researchers have found a relationship between emotion knowledge and verbal and physical aggression in preschoolers (Arsenio et al., 2000), the relationship between emotion knowledge and *relational* aggression is not documented.

This study proposes to clarify the emotional and behavioral correlates of relational aggression in order to understand appropriate ways to intervene, and perhaps, prevent relationally-aggressive behaviors in young children. Relationally-aggressive children evidence more social and emotional maladjustment than their non-relationally-aggressive peers (Crick & Grotpeter, 1995). Indeed, aggression is related to poor social and emotional outcomes in the preschool years, school age years, and college age years through adulthood. Even further, children who present with aggressive behaviors, whether physical or relational, are more likely to use these types of responding to and interacting with peers in the future (Crick & Dodge, 1994). Thus, the current study seeks to clarify the relationship between emotion knowledge and relational aggression in young children by investigating age and gender differences in relational aggression, the role of positive and negative affect, and patterns of peer rejection and peer acceptance in relational aggression.

## CHAPTER III

### METHODOLOGY

#### Participants

The participants of the study included three and four year old male and female children enrolled in a preschool program in a predominately urban county in southwest Pennsylvania. An a priori power analysis was conducted using the *G\*POWER* computer program (Faul, Erdfelder, Lang, & Buchner, 2007) based on a previous correlational study of emotion knowledge and aggression (Arsenio et al., 2000). The effect size was set at .40, which was necessary for detecting a moderate effect. The results of the power analysis for a two-tailed correlational analysis indicated that a sample size of 71 participants would be necessary to detect a moderate effect (actual power = .95). However, a total of 68 preschool children participated in the study. Two parents requested that their child not participate in the peer assessment of relational aggression only. These two participants were deleted from the final dataset, which resulted in 66 total participants. Tabachnick and Fidell (2007) suggest that this deletion procedure be employed when they are few cases with missing data and the cases are a random portion of the whole sample. See Table 3 through Table 5 for frequencies and percentages of participant characteristics.

Table 3

*Gender Frequencies*

Gender	N	%
Male	36	54.5%
Female	30	45.5%
Total	66	100%

Table 4

*Ethnicity Frequencies*

Ethnicity	N	%
White	59	89.4%
Black	4	6.1%
Other	3	4.5%
Total	66	100%

Table 5

*Age Frequencies*

Age	N	%
3-years-old	28	42.4%
4-years-old	38	57.6%
Total	66	100%

## Measures

### *Preschool Social Behavior Scale*

Preschoolers' social behavior was evaluated through teacher and peer ratings. The Preschool Social Behavior Scale-Teacher Form (PSBS-T) was used in order to assess teachers' perceptions of preschoolers' social behavior (Crick, et al., 1997). This measure was adapted from a previous teacher rating measure, the Children's Social Behavior Scale-Teacher Form (CSBS-T), constructed by Crick (1996). The PSBS-T is a questionnaire consisting of 25 items with four scales: 1) Relational Aggression, 2) Overt/Physical Aggression, 3) Prosocial Behavior, and 4) Depressed Affect (see Table 2). Eight items assess relational aggression, 8 assess overt aggression, 4 assess prosocial behavior, and 3 assess depressed affect. Teachers rate each child on a scale from one (never or almost never true of this child) to five (always or almost always true of this child).

Procedures to classify children as relationally-aggressive were followed according to those used in past research (Crick et al., 1999). Teacher-assessed scores were used to identify extreme groups of aggressive and nonaggressive children. Children with relational aggression scores greater than one standard deviation above the sample mean were classified as relationally-aggressive, and those with scores below one standard deviation were classified as non-relationally-aggressive.

*Reliability and validity of the PSBS-T.* Reliability of the PSBS-T is high, with Cronbach's alpha for the four scales as follows:  $\alpha = .96$  (relational aggression),  $.94$  (overt aggression),  $.88$  (prosocial behavior), and  $.87$  (depressed affect). Crick et al. (1997) performed a principal-components factor analysis to determine if relational aggression is

indeed a separate factor from overt aggression. Results indicated high factor loadings for relational aggression, ranging from .81 to .89.

Crick, Casas, and Mosher (1997) developed the Preschool Social Behavior Scale-Peer Form; PSBS-P, a measure that provides an assessment of peer reports of preschoolers' use of relational aggression, overt aggression, and prosocial behavior. This measure was also adapted from a previous measure developed in prior research with elementary school children (Crick & Grotpeter, 1995). The PSBS-P uses a picture nomination procedure to interview the participating child regarding his or her opinion of peers' tendency to use relational aggression.

Children were asked to point to pictures of participating children in his or her classroom that endorse such items as "Point to the pictures of three children who you like to play with" and "Point to the pictures of three children who whisper mean things about other children." The measure consists of 19 items and contains the following 3 subscales: 1) Peer Acceptance, 2) Peer Rejection, and 3) Relational Aggression (see Table 1). Seven items assess relational aggression, 7 assess overt aggression, and 4 assess prosocial behavior.

The PSBS-P was scored according to the procedures outlined by Crick and Grotpeter (1995). As such, the number of nominations each participating child receives from peers was summed for each item and then standardized within each classroom to account for differences in class size. Each child's standardized scores were summed to yield a total relational aggression score.

*Reliability and validity of the PSBS-P.* Reliabilities for this measure are also high, with Cronbach's alpha for the three scales as follows: .71 (relational aggression), .77

(overt aggression), and .68 (prosocial behavior). Results of a principal-components factor analysis with varimax rotation indicated moderate factor loadings for peer reports of relational aggression, ranging from .64 to .76, confirming that relational aggression as assessed by peers is a separate factor from overt aggression (Crick et al., 1997).

#### *Denham's Affective Knowledge Test*

Denham's Affective Knowledge Test (DAKT; Denham, 1986) was used to assess preschoolers' knowledge of emotions. The DAKT is an assessment measure that uses puppets to elicit common emotions and will be administered to each participant. The DAKT contains two parts, and each participating child completed both parts. The first part of this task assesses participants' accuracy in naming the four basic emotions. Participants received 2 points for correct expressive responses, 2 points for correct receptive responses, and 1 point for accurately identifying the positive and/or negative emotion both expressively and receptively.

The second portion of this measure assesses participants' affective perspective taking by asking participants to accurately name an emotion as role-played by the examiner. The participants' affective perspective-taking abilities was assessed in two parts, using stereotypical and nonstereotypical role-playing vignettes. Participants received 2 points for correct response, or 1 point for identifying the correct emotion valence.

*Reliability and validity of the DAKT.* Cronbach's alpha for the affective labeling portion of the measure = .89. Internal consistency for the affective perspective-taking portion of the measure = .93. Finally, aggregate reliability for affective labeling and affective perspective-taking = .95. Several studies have confirmed the concurrent validity

between the DAKT emotion labeling and situation tasks and overall social competence as measured by peers and teachers (Denham, 1986; Denham et al., 2003; Denham et al., 2002; Denham et al., 1990). The DAKT also demonstrates predictive validity for predicting later emotion knowledge and social competence (Denham et al., 2003).

### Research Design

To address the study objectives, a nonexperimental research design was used to determine the relationships between emotion knowledge and relational aggression in a preschool population. Specifically, the study used Analysis of Variance (ANOVA) to examine the effect of age and sex on relational aggression in addition to the effect of having older siblings on relational aggression. Then, to address the study's main objective, a simple regression analysis was used to determine if emotion knowledge accounts for a statistically significant portion of the variance in preschool relational aggression. Finally, Multivariate Analysis of Variance (MANOVA) was used to determine the effects of (1) depressed affect on relational aggression and emotion knowledge, (2) relational aggression on peer acceptance and peer rejection, and (3) relational aggression (male and female) on opposite and same sex acceptance.

### *Independent Variables*

The three independent variables that comprised this study are emotion knowledge, relational aggression, and depressed affect. Emotion knowledge was operationally defined as emotion labeling of the four basic emotions (happy, sad, angry, and afraid), identifying stereotypical and non-stereotypical emotions, identifying negative versus negative non-stereotypical emotions (i.e., sad and afraid), and identifying positive versus negative non-stereotypical emotions (i.e., happy and angry). The summed score of

these characteristics determined the child's overall emotion knowledge. Relational aggression was operationally defined as the child's total relational aggression score on the peer and teacher forms of the PSBS. Depressed affect was operationally defined as the summed teacher ratings of the child's tendency to display sadness, smile at other children, and appear as if s/he is not having fun (see Table 6).

Table 6

*Depressed Affect Items on the Preschool Social Behavior Scale for Teachers Form (PSBS-T)*

- 
1. This child doesn't have much fun.
  2. This child looks sad.
  3. This child smiles at other kids.
- 

*Dependent Variables*

The following dependent variables that were used in this study include emotion knowledge, relational aggression, peer acceptance/rejection, and opposite and same sex acceptance. The operational definitions of emotion knowledge and relational aggression remain the same as the definitions presented in the independent variables section. Peer acceptance was operationally defined as the total number of ratings the child received for peers enjoying play with him or her, and peer rejection was operationally defined as the total number of ratings the child received for peers not enjoying play with him or her. Opposite sex acceptance was operationally defined as the total number of teacher ratings the child received for being liked by opposite sex peers, and same sex acceptance was

operationally defined as the total number of teacher ratings the child received for being liked by same sex peers (see Table 7 and Table 8).

Table 7

*Acceptance and Rejection Items Included on the Preschool Social Behavior Scale-  
Peer form (PSBS-P)*

- 
1. Point to the pictures of three kids who you like to play with.
  2. Point to the pictures of three kids who you don't like to play with.
- 

Table 8

*Acceptance Items Included on the Preschool Social Behavior Scale-  
Teacher form (PSBS-T)*

- 
1. This child is liked by peers of the same sex.
  2. This child is liked by peers of the opposite sex.
- 

### Procedures

Upon receiving approval from the Duquesne University Human Subjects Institutional Review Board (IRB), the researcher identified preschools within Allegheny County, Pittsburgh, PA using the Pennsylvania Department of Public Welfare Keystone Stars listing available via the internet. Seventeen childcare facilities were contacted, and eight of the facilities participated in the research. The researcher contacted the director of each preschool by phone or e-mail to explain the nature of the study as well as assess his or her interest in participating. Upon receiving approval from the preschool director, the researcher provided the director with a packet of information to distribute to parents of all

three- and four-year-old children at their child care center. The packet included a letter explaining the nature of the study in addition to written consent forms. Parents then returned a signed consent form to their child's teacher or center director.

After written parent permission was received, the researcher supplied each participating child's classroom teacher with a written consent form. At this time, the researcher reviewed the assessment procedures to be used with each individual child. Prior to the administration of the individualized assessments, the researcher met individually with each participating child to discuss the nature of the study as well as allow for the child to provide assent for participation in the study. One hundred percent of the participating children provided their assent. The individual assessments were conducted in an unoccupied room or in a quiet area of the classroom.

#### *Teacher Assessment of Social Behavior*

Preschool teachers were provided with written and verbal instructions regarding how to complete the Preschool Social Behavior Scale-Teacher Form (PSBS-T). Teachers filled out one rating scale per each participating child and completed the rating scale as a group if applicable. Previous research suggests that teachers complete this measure as a group (Crick et al., 1997). Because preschool classrooms generally have more than one teacher (typically two per classroom), researchers suggest that teachers complete the measure as a group to ensure the most accurate information about each child.

#### *Peer Assessment of Social Behavior*

The Preschool Social Behavior Scale-Peer Form (PSBS-P) was administered to the children in two sessions, Session A and Session B. Sessions A and B will be counterbalanced. A picture-nomination procedure was used during the interviews with

each participant. The primary investigator took each participating child's photograph. Each participant was shown pictures of each participating child in their classroom and was then asked the name each child. These procedures were necessary so that the child had time to think about the whole class before responding to the items as well as to confirm that the child recognized the children in his or her classroom. Next, the child was presented with several practice items in order to help the child learn the response format of the measure. The child was shown pictures of three common food items (e.g., carrots, cookies, and apples), and was asked to point the most preferred food, followed by the next preferred, and finally, to the food item least preferred. When the child understood the response format, the examiner continued with the behavioral items. For each item, the research asked the child to point to up to three pictures of peers who fit the behavioral descriptor (i.e., point to the picture of a child who whisper mean things about other children, point to a picture of one more child who whispers mean things about other children, point to of one more child who whispers mean things about other children). The number of nominations each child received from classmates for each item was computed and then standardized with each classroom using z-scores in order to account for differences in the number of children in each classroom.

#### *Assessment of Emotion Knowledge*

Preschoolers' understanding of emotion was assessed using puppets with detachable faces that depict happy, sad, angry, and fearful expressions (Denham's Affective Knowledge Test; DAKT). The administration of the puppet measure required the examiner to make emphatic and clear facial expressions with every request for emotion identification. Denham's Puppet Manual outlines the specific administration

procedures for this measure. Denham noted that examiners should practice emotional facial expressions before administering the assessment to participants. For example, when simulating anger, the examiner should exhale forcefully and make his or her eyebrows go down, and when simulating fear the examiner should inhale forcefully and make the eyebrows go upwards.

The first part of this task assesses participants' accuracy in naming the four basic emotions. The primary investigator asked participants to both verbally (expressive) name the emotions (happy, sad, angry, or afraid) depicted on these faces, and then to nonverbally (receptive) identify them by pointing. Standardized administration procedures according to Denham's Puppet Manual indicate that the expressive tasks be completed before the receptive tasks. The order in which each face is used was randomized and the faces were physically rearranged between the expressive and receptive tasks. In terms of specific administration procedures, children who name a face incorrectly were prompted with the correct answer, and the child then agreed with the corrected answer. For example, if a child said the sad face feels "bad," the examiner said, "yeah, she does feel bad doesn't she? I even think she feels sad. Do you think so?" The child was scored according to his or her first answer, not the prompted one.

The second portion of this measure assessed participants' affective perspective taking by asking participants to accurately name an emotion as role-played by the examiner. Participants' affective perspective-taking abilities were assessed in two parts using stereotypical and non-stereotypical role-playing vignettes. The first portion assessed children's affective perspective-taking through the use of stereotypical vignettes. The examiner made facial and vocal expressions that correspond to happy, sad, angry, or

afraid emotions while enacting various stories that elicit these common emotions such as fear of an approaching dog. After the examiner enacted the story using the puppet, the participant placed a face (happy, sad, angry, or afraid) on the puppet that corresponds to the emotion enacted in the situation. Specifically, the examiner asked the child “How does s/he feel?” while encouraging the child to pick a face for the puppet. During the administration of this task, the child did not receive feedback regarding correct or incorrect responses.

For the second portion of this task, the primary researcher asked the participants to make inferences of emotions in nonstereotypical situations. The researcher interviewed the children’s parents by phone using a 12-item forced-choice questionnaire that asks them how their child reacts in common emotional situations (e.g., “Seeing a big, although friendly dog). The parents were given two emotions from which to choose (e.g., happy or sad, angry or afraid). Based on parents’ responses, the examiner enacted the opposite emotion typically felt by the child using the happy, sad, angry, and afraid facial and vocal expressions. This task assessed their ability to understand another person’s emotion that is opposite what they typically feel in the situation.

#### Data Analysis

1. Are there age (three and four-year-old), sex (male and female), and sibling (with or without older siblings) differences in the use of relational aggression as rated by peers and teachers?

Hypothesis 1: Four-year-old children engage in more relationally-aggressive behaviors than three-year-old children.

Hypothesis 2: Female preschool children engage in relational aggression more than male preschool children.

Hypothesis 3: Children with older siblings are more likely to engage in relational aggression.

Statistical analysis of this research question included a one-way Analysis of Variance (ANOVA). The following assumptions were examined prior to statistical analysis: (1) the dependent variables in each group are on a normal distribution, (2) the population variances are equal (homogeneity of variances), and (3) the observations in each group are independent (Stevens, 1999).

An ANOVA was used to examine difference in relational aggression based on age, sex, and older siblings. The independent variables were age group (three-year-old and four-year-old), sex (male and female), and sibling (with or without older siblings), and the dependent variable was teacher- and peer-assessed relational aggression scores. Analyses were conducted separately for teacher and peer reports of relational aggression. For this analysis, alpha was set at the .05 level of significance.

2. Does emotion knowledge account for a statistically significant portion of the variance in relational aggression in preschool children?

Hypothesis 4: Emotion knowledge accounts for a statistically significant portion of the variance in relational aggression in preschool children.

Statistical analysis of this research question included simple linear regression. The following assumptions were examined prior to statistical analysis: (1) normality of the distribution, (2) linearity between the independent and dependent variable, (3) independence of the errors, and (4) homoscedasticity (constant variance) of the errors

(Stevens, 2002; Tabachnick & Fidell, 2007). Alpha was set at .05 to determine statistical significance.

Regression was used to examine the relationship between preschoolers' knowledge of emotions and relational aggression. The independent variable was emotion knowledge and the dependent variable was teacher- and peer-assessed relational aggression scores. Analyses were conducted separately for teacher and peer reports of relational aggression. For this analysis, alpha was set at .05 level of significance.

3. Does depressed affect account for emotion knowledge and relational aggression?

Hypothesis 5: Preschool children with a depressed affect are more likely than children with a non-depressed affect to use relational aggression and have associated impairments in emotion knowledge.

Statistical analysis of this research question included Multivariate Analysis of Variance (MANOVA). The following assumptions were examined prior to statistical analysis: (1) the dependent variables in each sample are on a normal distribution as delineated by the different levels of the variable, (2) population variances and covariances for the dependent variables are equal for all levels, and (3) sampling of participants is random and their scores are independent.

A MANOVA was used to examine the differences in preschool children with a depressed affect and without a depressed affect based on their emotion knowledge and use of relational aggression. The independent variable was depressed affect and the dependent variables were teacher- and peer-assessed relational aggression scores and emotion knowledge. For this analysis, alpha was set at .05 level of significance.

4. Are there sex differences in peer rejection and peer acceptance between relationally-aggressive and non-relationally-aggressive preschoolers?

Hypothesis 6. Relationally-aggressive preschool girls are more likely than non-relationally-aggressive preschool boys to experience peer rejection.

Hypothesis 7. Relationally-aggressive preschool boys are more likely than non-relationally-aggressive preschool boys and girls to experience both peer rejection and peer acceptance.

Statistical analysis of this research question included a Multivariate Analysis of Variance (MANOVA). The following assumptions were examined prior to statistical analysis: (1) the dependent variables in each sample are on a normal distribution as delineated by the different levels of the variable, (2) population variances and covariances for the dependent variables are equal for all levels, and (3) sampling of participants is random and their scores are independent.

A MANOVA was used to examine differences in peer acceptance and peer rejection based on male and female relational aggression. The independent variable was teacher- and peer-assessed relationally-aggressive boys and girls and the dependent variables were peer rejection and peer acceptance. Analyses were conducted separately for girls and for boys. For this analysis, alpha was set at .05 level of significance.

5. Of relationally-aggressive boys, are there differences between opposite and same sex acceptance.

Hypothesis 8. Relationally-aggressive boys experience acceptance by same sex peers, but not opposite sex peers.

Statistical analysis of this research question included a Multivariate Analysis of Variance (MANOVA). The following assumptions were examined prior to statistical analysis: (1) the dependent variables in each sample are on a normal distribution as delineated by the different levels of the variable, (2) population variances and covariances for the dependent variables are equal for all levels, and (3) sampling of participants is random and their scores are independent.

A MANOVA was used to examine differences in opposite and same sex acceptance in relationally-aggressive boys. The independent variable was teacher- and peer-assessed relationally-aggressive boys and the dependent variables were opposite sex acceptance and same sex acceptance. For this analysis, alpha was set at .05 level of significance.

## CHAPTER IV

### RESULTS

#### Reliability Analyses

Cronbach's alpha values were computed in order to assess the reliability of each measure used in the study. Table 9 summarizes the alpha values for each measure used in the current study including comparisons with prior studies. The alpha values for the current study exhibit the same pattern as the alpha values found in prior research studies. More specifically, Crick et al. (1997) reported an alpha coefficient of .96 for the Preschool Social Behavior Scale – Teacher Form (PSBS-T) and an alpha coefficient of .71 for the Preschool Social Behavior Scale Peer Form (PSBS-P). Although the Cronbach's alpha values for the peer reports of relational aggression were low in both the current and prior study, the values are still considered acceptable for a research study.

Table 9

*Cronbach's Alpha Values for Study Measures*

Measure	$\alpha$ in Current Study	$\alpha$ in Prior Studies
Relational Aggression (Teacher)	.92	.96 (Crick et al., 1997)
Relational Aggression (Peer)	.66	.71 (Crick et al., 1997)
Emotion Knowledge	.89	.95 (Denham, 1986)

## Descriptive Statistics

The average values for the study variables are presented in Table 10. For the group as a whole, it can be seen that emotion knowledge is fairly high in three- and four-year-old preschool children. In contrast, relational aggression was relatively low. This may be attributed to the fact that relational aggression tends to be a low incidence behavior, especially in preschoolers, and it tends to be covert in nature, making it more difficult for young children, in particular, to identify (McEvoy et al., 2003).

Table 10

### *Means and Standard Deviations for Study Measures*

Measure	Mean	Standard deviation	Possible range
Relational Aggression (Teacher)	10.21	5.03	6-30
Relational Aggression (Peer) <sup>a</sup>	.00	.94	-- *
Emotion Knowledge (Total)	48.61	7.68	0-56

*Note.*  $N = 66$ . <sup>a</sup>= Means and standard deviations for

peer-assessed relational aggression is based on z-scores.

\* = Range is dependent on the number of nominations each child receives by peers and the number of students in each classroom.

The average values for the PSBS-T and PSBS-P are presented in Table 11. For the group as a whole, teachers rated three- and four-year-old preschool children as displaying low levels of depressed affect. Additionally, teachers rated them high in both same and opposite sex acceptance.

Table 11

*Means and Standard Deviations for PSBS Subscales*

Measure	Mean	Standard Deviation	Possible range
Depressed Affect <sup>b</sup>	5.48	1.69	3-15
Peer Acceptance <sup>a</sup>	3.35	2.18	-- *
Peer Rejection <sup>a</sup>	1.89	1.53	-- *
Same Sex Acceptance <sup>b</sup>	4.48	.69	1-5
Opposite Sex Acceptance <sup>b</sup>	4.14	.76	1-5

*Note.*  $N = 66$ . <sup>a</sup> = Subscales of the PSBS - Peer Form and

<sup>b</sup> = Subscales of the PSBS - Teacher Form

\* = Range is dependent on the number of nominations each child receives by peers and the number of students in each classroom.

Preliminary Statistical Analysis

Intercorrelations among the study variables are presented in Table 12. Five significant correlations were found between the variables used in the current study. One correlation was fairly low between emotion knowledge and peer acceptance ( $r = .253$ ). The other four correlations were moderate including peer acceptance and peer rejection ( $r = -.316$ ), depressed affect and same sex acceptance ( $r = -.465$ ), depressed affect and opposite sex acceptance ( $r = -.400$ ), and same sex acceptance and opposite sex acceptance ( $r = .652$ ).

Table 12

*Intercorrelations Among Study Variables*

Measure	1	2	3	4	5	6	7	8
1. Teacher Relational Aggression	--	.046	.230	.083	-.083	.189	-.114	-.024
2. Peer Relational Aggression		--	.074	-.088	.137	-.197	.189	-.028
3. Emotion Knowledge			--	.253*	-.018	.059	.002	-.075
4. Peer Acceptance				--	-.316**	.075	-.212	-.038
5. Peer Rejection					--	-.087	-.010	-.053
6. Depressed Affect						--	-.465**	-.400*
7. Same Sex Acceptance							--	.652**
8. Opposite Sex Acceptance								--

\*\* = Correlation is significant at the .01 level and \* = Correlation is significant at the .05 level.

An examination of the correlation matrix revealed a very low correlation between the teacher and peer reports of relational aggression ( $r = .046$ ), indicating little agreement between peer and teacher ratings of preschoolers' relationally-aggressive behavior. Low correlations have been reported in past research as relational aggression is both a low incidence behavior and more difficult to identify due to its covert nature. For example, a study examining the inter-method agreement between peer and teacher reports of relational aggression using the PSBS-T and PSBS-P revealed a low correlation ( $r = .298$ ; McEvoy et al., 2003). As such, subsequent analyses were computed separately for the teacher and peer report measure of relational aggression.

## Statistical Analyses of the Research Questions

### *Research Question 1*

1. Are there age (three and four-year-old), sex (male and female), and sibling (with or without older siblings) differences in the use of relational aggression as rated by peers and teachers?

Hypothesis 1: Four-year-old children engage in more relationally-aggressive behaviors than three-year-old children.

Hypothesis 2: Female preschool children engage in relational aggression more than male preschool children.

Hypothesis 3: Children with older siblings are more likely to engage in relational aggression.

Statistical analysis of this research question included a one-way Analysis of Variance (ANOVA). The following assumptions were examined prior to statistical analysis: (1) the dependent variables in each group are on a normal distribution, (2) the population variances are equal (homogeneity of variances), and (3) the observations in each group are independent (Tabachnick & Fidell, 2007). For this analysis, alpha was set at the .05 level of significance.

### *Tests of Assumptions*

*Normality.* The normality assumption was assessed by a visual inspection of the skewness and kurtosis of the distribution. The independent variables of sex, gender, and older siblings were normally distributed upon examination of the histograms. The dependent variable of peer-assessed relational aggression was normally distributed. However, a visual inspection of the histogram of the teacher-assessed relational

aggression variable revealed a positively skewed distribution. Skewness is a measure of the symmetry of the distribution where the mean of zero is in the center of the distribution. To further evaluate the skewness of the distribution, the skewness coefficient was examined. The skewness coefficient is considered significant if the absolute value of the ratio (skewness/standard error of skewness) is significantly greater than zero (Tabachnick & Fidell, 2007). Using this formula for the teacher-assessed relational aggression variable, the skewness ratio was equal to 4.71 (1.39/.295), which is relatively large.

As such, the variable was transformed according to procedures explained by Tabachnick and Fidell (2007). The authors suggest using the transformation that produces the most normal appearing distribution, skewness and kurtosis values closest to zero, and the distribution with the least outliers. The researcher transformed the variable using square root, logarithmic, and inverse transformation to find the method that produced the most normal distribution. However, the transformations were not effective in significantly changing the skewness of the distribution. Further, a non-normal distribution due to skewness affects the power only very slightly (Stevens, 1999). Therefore, it was determined that the original teacher-assessed relational aggression variable was reasonably normally distributed and could be used in subsequent statistical analyses.

*Homogeneity of variances.* The assumption of homogeneity of variances was assessed via the Levene's test of homogeneity of variance. For the first analysis, sex of the child and teacher-assessed relational aggression, the Levene's test for equality of variances was not significant,  $F(1,64) = 2.413, p = .125$ , indicating that the variances were homogenous. Next, for the analysis of age of the child and teacher-assessed

relational aggression, the Levene's test for equality of variances was not significant,  $F(1,64) = 4.163, p = .045$ , indicating that the variances were homogenous. Finally, for the analysis of older siblings and teacher-assessed relational aggression, the Levene's test for equality of variances was significant,  $F(1,64) = 6.637, p = .014$ , indicating that the variances were not homogenous.

Stevens (1999) explains several methods to deal with a violation of the homogeneity assumption. A simple formula ( $\text{largest/smallest} < 1.5$ ) is used to calculate if the group sizes are equal or unequal. Using the formula for the older siblings variable, results indicate a value equal to 1.5 ( $40/26 = 1.5$ ). These results indicate that the  $F$  statistic would be relatively robust for unequal variances. It should also be noted that violating the assumption of homogeneity of variances is typically not fatal, because ANOVA is a relatively robust statistical procedure (Stevens, 1999).

For the analysis of sex of child and peer-assessed relational aggression, the Levene's test for equality of variances was not significant,  $F(1,64) = .002, p = .962$ , indicating that the variances were homogenous. Next, for the analysis of age of child and peer-assessed relational aggression, the Levene's test for equality of variances was not significant,  $F(1,64) = .396, p = .531$ , indicating that the variances were homogenous. Finally, for the analysis of older siblings and peer-assessed relational aggression, the Levene's test for equality of variances was not significant,  $F(1,64) = .688, p = .410$ , indicating that the variances were homogenous.

*Independence of observations.* The dependent variable observations in the study were independent. The dependent measures were individually administered to each subject by the researcher (Stevens, 2002).

## *Analysis*

A one-way analysis of variance was performed on the independent variables of age, sex, and older siblings and the dependent variable of relational aggression. Analyses were conducted separately for teacher- and peer-assessed relational aggression.

*Age differences in relational aggression.* Results of a one-way ANOVA indicated that four-year-old children exhibited more relationally-aggressive behaviors ( $M = 11.47$ ,  $SD = 5.57$ ) than three-year-old children as rated by teachers ( $M = 8.5$ ,  $SD = 36.63$ ). This difference was statistically significant,  $F(1,64) = 6.07$ ,  $p = .016$ . However, results of a one-way ANOVA indicated no statistically significant differences in peer-assessed relational aggression between three- and four-year-old children,  $F(1, 64) = .173$ ,  $p = .679$ .

*Sex differences in relational aggression.* Results of a one-way ANOVA indicated no statistically significant differences in teacher-assessed relational aggression ( $F(1, 64) = .930$ ,  $p = .338$ ) or peer-assessed relational aggression ( $F(1, 64) = 1.394$ ,  $p = .242$ ) between male and female preschool children.

*Older sibling differences in relational aggression.* Results of a one-way ANOVA indicated no significant differences in teacher-assessed relational aggression ( $F(1, 64) = 2.89$ ,  $p = .094$ ) between children with or without older siblings in their household ( $F(1, 64) = .276$ ,  $p = .601$ ).

## *Research Question 2*

2. Does emotion knowledge account for a statistically significant portion of the variance in relational aggression in preschool children?

Hypothesis 4: Emotion knowledge accounts for a statistically significant portion of the variance in relational aggression in preschool children.

Statistical analysis of this research question included simple linear regression. The following assumptions were examined prior to statistical analysis: (1) normality of the distribution, (2) linearity between the independent and dependent variable, (3) independence of the errors, and (4) homoscedasticity (constant variance) of the errors (Stevens, 2002; Tabachnick & Fidell, 2007). For this analysis, alpha was set at .05 to determine statistical significance.

#### *Tests of Assumptions*

*Normality.* The normality assumption indicates that the residuals are normally distributed around the predicted dependent variable (DV) scores (Tabachnick & Fidell, 2007). To evaluate this assumption, the researcher examined the scatterplot of the residuals and predicted DV scores (teacher- and peer-assessed relational aggression). If the assumption is met, the residuals should form a rectangular shape with scores concentrated near the center of the plot (Tabachnick & Fidell, 2007). An examination of the residuals scatterplot for both the teacher- and peer-assessed relational aggression analyses revealed scores that were clustered on the right side of the plot, indicating negative skewness. In order to determine if the skewness is meaningful, the ratio between the skewness and standard error of skewness was computed using the formula, skewness/standard error of skewness. The skewness coefficient is considered significant if the absolute value of the ratio is significantly greater than zero (Tabachnick & Fidell, 2007). Using this formula for the teacher-assessed relational aggression variable, the skewness ratio was equal to 4.71 (1.39/.295), which is relatively large. For the peer-assessed relational aggression variable, the skewness ratio was equal to .545 (.161/.295), which was reasonably normal. Finally, for emotion knowledge, the skewness ratio was

equal to -6.12 (-1.804/.295), which is large. Thus, the assumption of normality was violated.

As such, data transformations on the emotion knowledge and teacher-assessed relational aggression variables were conducted according to procedures explained by Tabachnick and Fidell (2007). The authors suggest using the transformation that produces the most normal appearing distribution, skewness and kurtosis values closest to zero, and the distribution with the least outliers. For the emotion knowledge variable, the researcher transformed the variable using reflect and square root transformation to correct moderate negative skewness. After the transformation, the skewness ratio changed from -6.12 to 3.07 (.907/.295). The researcher transformed the teacher-assessed relational aggression variable using inverse transformation to correct for substantial positive skewness. After the transformation, the skewness ratio changed from 4.71 to -.763 (-.225/.295). In addition, the residuals scatterplot for both the teacher-assessed and peer-assessed relational aggression variables revealed a scatter of scores that formed a rectangular shape. Thus, the normality assumption was met. The residuals scatterplots using the transformed variables were also used to evaluate the assumptions of linearity and homoscedasticity.

*Linearity.* The linearity assumption indicates that there is a linear relationship between the predictor ( $X$ ) and criterion variable ( $Y$ ). To evaluate this assumption, the researcher examined the scatterplot of the residuals and predicted DV scores (teacher- and peer-assessed relational aggression). If the assumption is met, then there should be a random pattern of residuals in the plot (Tabachnick & Fidell, 2007). An examination of the scatterplots revealed random patterning, and thus, the assumption is met.

*Homescedasticity.* The homescedasticity assumption indicates that the standard deviations of the prediction errors are equal for the predicted dependent variable scores. The standardized residuals should scatter randomly around a horizontal line, and if any pattern or clustering of the residuals occurs, it suggests a violation of constant variance (Stevens, 2002). An examination of the scatterplots revealed random patterning, and thus, the assumption is met.

*Independence of the errors.* The independence assumption indicates that the errors of prediction are independent from one another (Stevens, 2002). The dependent measures were individually administered to each subject by the researcher and thus, the assumption was met.

#### *Statistical Analysis*

Simple linear regression was used to determine if emotion knowledge predicted relational aggression. Analyses were conducted separately for teacher and peer reports of relational aggression. For this research question, the correlation between the predictor and criterion variables was used to determine statistical significance rather than reduce power by analyzing the question through regression analyses. As such, results indicated that there was not a significant relationship between emotion knowledge and teacher-assessed relational aggression ( $R = .191, p = .063$ ); however, this finding approached significance. In addition, there was not a significant relationship between emotion knowledge and peer-assessed relational aggression ( $R = -.093, p = .230$ ).

### *Research Question 3*

3. Does depressed affect account for emotion knowledge and relational aggression?

Hypothesis 5: Preschool children with a depressed affect are more likely than children with a non-depressed affect to use relational aggression and have associated impairments in emotion knowledge.

Statistical analysis of this research question included a Multivariate Analysis of Variance (MANOVA). The following assumptions were examined prior to statistical analysis: (1) the dependent variables in each sample are on a normal distribution as delineated by the different levels of the variable, (2) the population variances and covariances for the dependent variables are equal for all levels, and (3) the sampling of participants is random and their scores are independent (Tabachnick & Fidell, 2007). For this analysis, alpha was set at the .05 level of significance.

#### *Test of Multivariate Assumptions*

*Multivariate normality.* The multivariate normality assumption was assessed via inspection of the histogram plots. The histograms for the dependent variables of relational aggression (both teacher- and peer-assessed) and emotion knowledge were normally distributed.

*Homogeneity of Variance-Covariance.* The homogeneity of variance assumption was assessed via Box's *M* statistic, which is a test that is sensitive to homogeneity of variance and covariance. Results indicated that the covariances were equal for emotion knowledge and teacher-assessed relational aggression (Box's  $M = .478$ ,  $p = .929$ ) and peer-assessed relational aggression (Box's  $M = 2.253$ ,  $p = .542$ ) between the depressed affect and non-depressed affect groups. Thus, the assumption is satisfied.

*Independence of observations.* The dependent variable observations in the study were independent. The dependent measures were individually administered to each subject by the researcher (Stevens, 2002).

### *Statistical Analysis*

A MANOVA was conducted in order to determine if children with a depressed affect or a non-depressed affect differed in their knowledge of emotions and use of relationally-aggressive behaviors. Analyses were conducted separately for teacher and peer reports of relational aggression. For the depressed affect variable, children with scores one standard deviation above the sample mean were considered to have a depressed affect and the remaining children were considered to have a non-depressed affect. For a MANOVA in which the number of groups of the independent variable is two, the Hotelling's  $T^2$  statistic is used to evaluate the findings. For a MANOVA with more than two groups, the Wilks' Lambda test statistic is used (Stevens, 2002). Because the independent variable in this analysis included the two groups of depressed affect and non-depressed affect, the Hotelling's  $T^2$  statistic was examined.

Results of the first analysis, using teacher-assessed relational aggression, indicated that there was not a significant difference between children with a depressed affect and children with a non-depressed affect (Hotelling's  $T^2 = .062$ ,  $F = 1.952$  (2,63),  $p = .150$ ) in emotion knowledge and teacher-assessed relational aggression. Univariate between-subject tests indicated no significant difference between children with a depressed affect and children with a non-depressed affect for emotion knowledge

( $p = .806$ ) or teacher-assessed relational aggression ( $p = .068$ ). However, the latter finding regarding depressed affect and teacher-assessed relational aggression approached significance.

Results of the second analysis, using peer-assessed relational aggression, indicated that there was not a significant difference between children with a depressed affect and children with a non-depressed affect (Hotelling's  $T^2 = .031$ ,  $F = .981$  (2,63),  $p = .381$ ). Univariate between-subject tests indicated no significant difference between children with a depressed affect and children with a non-depressed affect for emotion knowledge ( $p = .806$ ) or peer-assessed relational aggression ( $p = .165$ ). Table 13 presents the means and standard deviations for emotion knowledge and teacher- and peer-assessed relational aggression across the depressed affect groups. These results indicate that three- and four-year-old preschool children with and without a depressed affect display similar emotion knowledge and relational aggression. In addition, Table 14 presents the multivariate analysis summary for emotion knowledge and teacher- and peer-assessed relational aggression across depressed affect groups.

Table 13

*Means and Standard Deviations for Emotion Knowledge and Relational Aggression*

*Across Depressed Affect Groups*

	Emotion Knowledge		Teacher RA		Peer RA	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Depressed Affect	48.22	7.52	12.06	5.41	-.265	.855
Non-Depressed Affect	48.75	7.82	9.52	4.76	.099	.966

Table 14

*Multivariate Analysis Summary for Emotion Knowledge and Relational Aggression*

*Across Depressed Affect Groups*

Dependent Variable	<i>df</i>	Type III SS	MS	F
Emotion Knowledge	1	3.646	1.823	.601
Teacher RA	1	84.107	42.053	3.448
Peer RA	1	1.732	0.866	1.97

*Note:* The independent variable in this analysis was depressed affect.

*Research Question 4*

4. Are there sex differences in peer rejection and peer acceptance between relationally-aggressive and non-relationally-aggressive preschoolers?

Hypothesis 6. Relationally-aggressive preschool girls are more likely than non-relationally-aggressive preschool boys to experience peer rejection.

Hypothesis 7. Relationally-aggressive preschool boys are more likely than non-relationally-aggressive preschool boys and girls to experience both peer rejection and peer acceptance.

Statistical analysis of this research question included a Multivariate Analysis of Variance (MANOVA). The following assumptions were examined prior to statistical analysis: (1) the dependent variables in each sample are on a normal distribution as delineated by the different levels of the variable, (2) the population variances and co-variances for the dependent variables are equal for all levels, and (3) the sampling of participants is random and their scores are independent (Tabachnick & Fidell, 2007). For this analysis, alpha was set at the .05 level of significance.

### *Test of Multivariate Assumptions*

*Multivariate normality.* The multivariate normality assumption was assessed via inspection of the histogram plots. The histograms for the dependent variables of peer rejection and peer acceptance were normally distributed.

*Homogeneity of Variance-Covariance.* The homogeneity of variance assumption was assessed via Box's *M* statistic, which is a test that is sensitive to homogeneity of variance and covariance. Results indicated that the covariances were equal for peer acceptance and rejection between relationally-aggressive (teacher- and peer-assessed) preschool boys and girls. For teacher-assessed female relational aggression, Box's  $M = 8.388, p = .069$  and for teacher-assessed male relational aggression, Box's  $M = 7.689, p = .127$ . For peer-assessed female relational aggression, Box's  $M = 2.227, p = .596$  and for peer-assessed male relational aggression, Box's  $M = 1.186, p = .810$ . Thus, the assumption is satisfied.

*Independence of observations.* The dependent variable observations in the study were independent. The dependent measures were individually administered to each subject by the researcher (Stevens, 2002).

### *Statistical Analysis*

For both the teacher- and peer-assessed relational aggression variable, children with scores one standard deviation above the sample mean were considered relationally-aggressive and the remaining children were considered non-relationally-aggressive. Table 15 provides the number and percentage of boys and girls in each relational aggression group. For the group as a whole, preschool children were rated by teachers and peers as

displaying low amounts of relationally-aggressive behaviors. Further, boys and girls displayed similar amounts of relational aggression.

Table 15

*Frequencies and Percentages of Children Classified by Aggression Group*

Sex	Teacher-Assessed Relationally-aggressive	Teacher-Assessed Non-Relationally-aggressive	Peer-Assessed Relationally-aggressive	Peer-Assessed Non-Relationally-aggressive
Boys	4 (6)	32 (48)	5 (8)	31 (47)
Girls	6 (9)	24 (36)	6 (9)	24 (36)

Additionally, Table 16 provides the means and standard deviations for peer acceptance and peer rejection across relationally-aggressive boys and girls. A qualitative examination of the means reveals that teacher-assessed relationally-aggressive boys appeared to experience less peer rejection and more peer acceptance than non-relationally-aggressive preschool boys. In contrast, teacher-assessed relationally-aggressive preschool girls appeared to experience less peer acceptance than non-relationally-aggressive girls.

Table 16

*Means and Standard Deviations for Peer Acceptance and Peer Rejection Across Relational Aggression Groups*

	Peer Acceptance		Peer Rejection	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Teacher-assessed RA				
RA Boys	4.75	4.11	.50	1.00
Non-RA Boys	2.87	1.77	2.41	1.64
RA Girls	2.33	1.03	2.00	1.89
Non-RA Girls	4.00	2.32	1.42	1.06
Peer-assessed RA				
RA Boys	3.60	2.70	3.00	1.87
Non-RA Boys	3.00	2.08	2.06	1.65
RA Girls	3.00	2.00	1.17	.753
Non-RA Girls	3.83	2.28	1.62	1.35

A MANOVA was conducted in order to determine if children classified as relationally-aggressive were more likely to experience peer acceptance and/or peer rejection. Analyses were conducted separately for teacher and peer reports of relational aggression. Because the independent variable in this analysis has the two groups of relationally-aggressive and non-relationally-aggressive, the Hotelling's  $T^2$  statistic was examined (Stevens, 2002).

Results of the first analysis, using teacher-assessed relational aggression, indicated that there was not a significant difference between relationally-aggressive and non-relationally-aggressive boys (Hotelling's  $T^2 = .186$ ,  $F = 3.07$  (2,33),  $p = .060$ ) on the dependent variables of peer acceptance and peer rejection; however, this finding

approached significance. There was not a significance difference between teacher-assessed relationally-aggressive and non-relationally-aggressive girls (Hotelling's  $T^2 = .122$ ,  $F = 1.64$  (2,27),  $p = .213$ ) on the dependent variables of peer acceptance and peer rejection. Univariate between-subject tests indicated no significant difference between relationally-aggressive and non-relationally-aggressive boys for peer acceptance ( $p = .10$ ). However, univariate between-subject tests indicated that relationally-aggressive boys ( $M = .50$ ,  $SD = 1.00$ ) experience less peer rejection than non-relationally-aggressive boys ( $M = 2.41$ ,  $SD = 1.64$ ), and this difference was statistically significant ( $p = .031$ ). In addition, univariate between-subject tests indicated no significant difference between relationally-aggressive and non-relationally-aggressive girls for peer acceptance ( $p = .10$ ) or peer rejection ( $p = .316$ ).

Results of the second analysis, using peer-assessed relational aggression indicated that there was not a significant difference between relationally-aggressive and non-relationally-aggressive boys (Hotelling's  $T^2 = .074$ ,  $F = 1.218$  (2,33),  $p = .309$ ) nor girls (Hotelling's  $T^2 = .063$ ,  $F = .851$  (2,27),  $p = .438$ ) on the dependent variables of peer acceptance and peer rejection. Univariate between-subject tests indicated no significant difference between relationally-aggressive and non-relationally-aggressive boys for peer acceptance ( $p = .569$ ) or peer rejection ( $p = .256$ ). In addition, univariate between-subject tests indicated no significant difference between relationally-aggressive and non-relationally-aggressive girls for peer acceptance ( $p = .420$ ) or peer rejection ( $p = .432$ ). Results are presented in Table 17 and Table 18.

Table 17

*Multivariate Analysis Summary for Peer Acceptance and Peer Rejection Across*

*Teacher-Assessed Relational Aggression Groups*

Dependent Variable	<i>df</i>	Type III SS	MS	F
<b>Boys</b>				
Peer Acceptance	1	12.50	6.25	2.87
Peer Rejection	1	12.92	6.46	5.07
<b>Girls</b>				
Peer Acceptance	1	13.33	6.66	2.89
Peer Rejection	1	1.63	.81	1.04

*Note:* The independent variable in this analysis was teacher-assessed relational aggression.

Table 18

*Multivariate Analysis Summary for Peer Acceptance and Peer Rejection Across*

*Peer-Assessed Relational Aggression Groups*

Dependent Variable	<i>df</i>	Type III SS	MS	F
<b>Male</b>				
Peer Acceptance	1	1.55	0.77	.331
Peer Rejection	1	3.77	1.88	1.37
<b>Female</b>				
Peer Acceptance	1	3.33	1.66	.670
Peer Rejection	1	1.00	0.50	.635

*Note:* The independent variable in this analysis was peer-assessed relational aggression.

### *Research Question 5*

5. Of relationally-aggressive boys, are there differences between opposite and same sex acceptance?

Hypothesis 8. Relationally-aggressive boys experience acceptance by same sex peers, but not opposite sex peers.

Statistical analysis of this research question included a Multivariate Analysis of Variance (MANOVA). The following assumptions were examined prior to statistical analysis: (1) the dependent variables in each sample are on a normal distribution as delineated by the different levels of the variable, (2) the population variances and covariances for the dependent variables are equal for all levels, and (3) the sampling of participants is random and their scores are independent (Tabachnick & Fidell, 2007). For this analysis, alpha was set at the .05 level of significance.

### *Test of Multivariate Assumptions*

*Multivariate normality.* The multivariate normality assumption was assessed via inspection of the histogram plots. The histograms for the dependent variables of opposite sex acceptance and same sex acceptance were normally distributed.

*Homogeneity of Variance-Covariance.* The homogeneity of variance assumption was assessed via Box's *M* statistic, which is a test that is sensitive to homogeneity of variance and covariance. Results indicated that the covariances were equal for opposite sex and same sex acceptance between relationally-aggressive preschool boys and girls for both teacher-assessed relational aggression (Box's  $M = 2.434$ ,  $p = .611$ ) and peer-assessed relational aggression (Box's  $M = 1.707$ ,  $p = .709$ ). Thus, the assumption is satisfied

*Independence of observations.* The dependent variable observations in the study were independent. The dependent measures were individually administered to each subject by the researcher (Stevens, 2002).

#### *Statistical Analysis*

A MANOVA was conducted in order to determine if relationally-aggressive preschool boys experience same sex, but not opposite sex acceptance by peers. Analyses were conducted separately for teacher and peer reports of relational aggression. Because the independent variable in this analysis included the two groups of relationally-aggressive and non-relationally-aggressive, the Hotelling's  $T^2$  statistic was examined (Stevens, 2002).

Table 19 provides the means and standard deviations for opposite sex acceptance and same sex acceptance across relational aggression groups. These results indicate that both teacher- and peer-assessed relationally-aggressive children display similar amounts of opposite and same sex acceptance.

Table 19

*Means and Standard Deviations for Opposite Sex Acceptance and Same Sex Acceptance Across Relational Aggression Groups for Preschool Boys*

	Opposite Sex Acceptance		Same Sex Acceptance	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Teacher-assessed RA				
Relationally-aggressive	4.00	.816	4.25	.957
Non-relationally-aggressive	4.25	.842	4.59	.615
Peer-assessed RA				
Relationally-aggressive	4.40	.548	4.80	.447
Non-relationally-aggressive	4.19	.873	4.52	.677

Results of the first analysis, using teacher-assessed relational aggression, indicated that there was not a significant difference between relationally-aggressive and non-relationally-aggressive boys (Hotelling's  $T^2 = .032$ ,  $F = .525$  (2.33),  $p = .596$ ) on the dependent variables of opposite sex and same sex acceptance by peers. Univariate between-subject tests indicated no significant difference between relationally-aggressive and non-relationally-aggressive boys for opposite sex acceptance ( $p = .578$ ) or same sex acceptance ( $p = .327$ ). Results are presented in Table 20.

Table 20

*Multivariate Analysis Summary for Opposite and Same Sex Acceptance Across**Teacher-Assessed Relational Aggression Groups for Preschool Boys*

Dependent Variable	<i>df</i>	Type III SS	MS	F
Opposite Sex Acceptance	1	.222	.111	.315
Same Sex Acceptance	1	.420	.210	.987

*Note:* The independent variable in this analysis was teacher-assessed relational aggression.

Results of the second analysis, using peer-assessed relational aggression, indicated that there was not a significant difference between relationally-aggressive and non-relationally-aggressive boys (Hotelling's  $T^2 = .026$ ,  $F = .431$  (2.33),  $p = .653$ ) on the dependent variables of opposite sex and same sex acceptance by peers. Univariate between-subject tests indicated no significant difference between relationally-aggressive and non-relationally-aggressive boys for opposite sex acceptance ( $p = .614$ ) or same sex acceptance ( $p = .374$ ). Results are presented in Table 21.

Table 21

*Multivariate Analysis Summary for Opposite and Same Sex Acceptance Across**Peer-Assessed Relational Aggression Groups for Preschool Boys*

Dependent Variable	<i>df</i>	Type III SS	MS	F
Opposite Sex Acceptance	1	.184	.092	.260
Same Sex Acceptance	1	.347	.173	.811

*Note:* The independent variable in this analysis was peer-assessed relational aggression.

## CHAPTER V

### DISCUSSION

#### Summary of Results

Previous research indicates that preschool children with deficits in emotion knowledge are more likely to evidence peer-related aggression than those with no difficulties in their awareness of emotions (Arsenio et al., 2000; Denham et al., 1990; Denham et al., 2002). Specifically, three- and four-year-old children with poor emotion knowledge are more likely to exhibit behavior problems and may experience anger or aggression more than peers who have sophisticated levels of emotion knowledge. The current research study sought to understand the relationship between preschoolers' knowledge of emotions and teacher- and peer-assessed relational aggression in preschool students. Overall, the results of the current study did not fully support the hypotheses. However, several findings approached statistically significant levels.

Before proceeding to a discussion regarding the findings of this research study, it is important to review prior research examining the agreement between teacher and peer reports of relational aggression. The concordance between such ratings has been low to moderate, with values ranging from .11 to .42. Low correlations have been found in past research as relational aggression is both a low incidence behavior in preschool children and more difficult to identify than physical aggression due to its covert nature (McEvoy et al., 2002). For example, Crick and colleagues (1997) evaluated the agreement between peer and teacher assessments of relational and overt aggression in preschoolers, computing correlation coefficients separately for boys and girls. The researchers found that teacher and peer assessments of relational aggression in boys was much lower

( $r = .11$ ) than the agreement for girls ( $r = .42$ ). In contrast, the agreement between peer and teacher assessments of overt aggression in boys was moderate in degree and statistically significant ( $r = .32$ ). These results suggest that teachers and peers may be more likely to identify overt or physical aggression in boys, because it is gender-typical or characteristic of males, whereas relational aggression is typical of girls due to its emphasis on social relationships (Block, 1983). Further, preschoolers may have more difficulty identifying relationally-aggressive behaviors in their peers, because such behaviors are more covert in nature and may involve verbal and/or nonverbal exchanges that go unnoticed by peers (McEvoy et al., 2003) and perhaps even unpunished by teachers. For example, a preschool child may be reprimanded or placed in time-out for hitting or kicking a peer, but not for deliberately ignoring a peer because he or she is angry. Thus, preschool children may have more difficulty than teachers in identifying relational aggression in their peers.

A more recent study of the inter-method agreement between teacher and peer assessments of relational aggression in preschoolers revealed a low correlation ( $r = .298$ ; McEvoy et al., 2003), which is more consistent with the results found in the current study. Specifically, the correlation between teacher and peer reports of relational aggression was very low ( $r = .046$ ) in this study. As such, consistent with procedures used in prior research (Crick et al., 1997), analyses were conducted separately for teacher and peer reports of relational aggression for each research question.

#### *Summary of the Research Questions*

The first research question examined the effect of age, sex, and having older siblings on teacher- and peer-assessed preschool relational aggression. Specifically, in

this question, the researcher examined three hypotheses. First, the researcher hypothesized that four-year-old children would evidence significantly more relationally-aggressive behaviors as rated by both teachers and peers than three-year-old children. Second, the researcher hypothesized that female preschool children would engage in significantly more relationally-aggressive behaviors as rated by both teachers and peers. Finally, the researcher hypothesized that preschoolers with older siblings would evidence significantly more relationally-aggressive behaviors as rated by teacher and peers than preschoolers without older siblings. Analysis of this research question indicated that in this study, four-year-old children exhibited more relationally-aggressive behaviors than three-year-old children as rated by teachers only. However, there were no significant differences in teacher- and peer-assessed relational aggression between male and female preschool children or preschool children with or without older siblings. Overall, only one hypothesis was supported for the first research question.

The second research question examined the relationship between emotion knowledge and teacher- and peer-assessed relational aggression. Specifically, in this question, the researcher hypothesized that emotion knowledge would account for a statistically significant portion of the variance of relational aggression in preschool children as rated by peers and teachers. Analysis of this research question indicated that emotion knowledge was not significantly related to teacher- or peer-assessed relational aggression in preschoolers. However, for teacher-assessed relational aggression, the relationship between emotion knowledge and relational aggression approached significance. Thus, emotion knowledge may explain some of the variance in relational

aggression in preschool children, but further research is needed to confirm these findings. Overall, the hypothesis was not supported for the second research question.

The third research question examined the relationship of depressed affect with both emotion knowledge and teacher- and peer-assessed relational aggression. Specifically, for this question, the researcher hypothesized that preschool children with a depressed affect would be more likely than preschool children with a non-depressed affect to have poor emotion knowledge and use relationally-aggressive behaviors. Analysis of this research question indicated no significant differences in emotion knowledge and teacher- and peer-assessed relational aggression between preschool children with and without a depressed affect. However, results of the post-hoc univariate analysis, which examined the effect of depressed affect upon teacher-assessed relational aggression, approached significance. These findings indicate that preschool children who display a depressed affect may be more likely than preschool children with a non-depressed affect to use relationally-aggressive behaviors as rated by teachers, but again, additional research is necessary before making any firm conclusions. Overall, although the main hypothesis was not supported for the third research question, one post-hoc univariate finding approached significance.

The fourth research question examined the effect of teacher- and peer-assessed relational aggression on peer rejection and peer acceptance between relationally-aggressive and non-relationally-aggressive male and female preschool children. Specifically, this question hypothesized that relationally-aggressive preschool girls would be more likely than non-relationally-aggressive preschool boys to experience peer rejection. In addition, it was speculated that relationally-aggressive preschool boys would

be more likely than non-relationally-aggressive preschool boys and girls to experience both peer rejection and peer acceptance. Analysis of this research question indicated no significant differences between teacher- or peer-assessed relationally-aggressive and non- relationally-aggressive preschool boys and girls in peer acceptance and peer rejection. However, one finding approached significance for teacher-assessed relational aggression in males. More specifically, the analysis examining the effect of relationally-aggressive versus non- relationally-aggressive males (as rated by teachers) on peer acceptance and peer rejection approached significant levels. Further, the post-hoc univariate analysis was significant, indicating that teacher-assessed relationally-aggressive preschool boys experience significantly less peer rejection than non- relationally-aggressive preschool boys. Overall, although the main hypotheses were not supported for the fourth research question, one finding approached significance, and one post-hoc univariate finding was significant.

The fifth research question examined the differences between teacher- and peer- assessed relationally-aggressive and non- relationally-aggressive preschool boys in opposite- and same-sex acceptance. Specifically, this question hypothesized that relationally-aggressive preschool boys experience acceptance by same-sex peers, but not opposite-sex peers. Analysis of this research question indicated no significant differences in same- or opposite-sex acceptance between relationally-aggressive and non- relationally-aggressive preschool boys as rated by teachers or peers. Thus, the hypothesis was not supported for the fifth research question.

The results of the study indicate that four-year-old children engage in significantly more teacher-assessed relationally-aggressive behaviors than three-year-old

children. Although the study's main objective regarding the relationship between emotion knowledge and teacher- and peer-assessed relational aggression was not statistically significant, the results indicated that emotion knowledge and teacher-assessed relational aggression approached significant levels when compared to peer-assessed relational aggression. In addition, the effect of teacher-assessed relational aggression on peer acceptance and peer rejection also approached significant levels, suggesting that teacher-assessed relationally-aggressive preschool boys may experience both lower levels of peer rejection and higher levels of peer acceptance than non-relationally-aggressive preschool boys. Finally, the study's findings confirmed that teacher-assessed relationally-aggressive preschool boys experience less peer rejection than non-relationally-aggressive preschool boys.

## Conclusions

### *Relevant Literature*

Results of the current study reveal both consistencies and inconsistencies with prior studies of emotion knowledge and relational aggression. Findings from this research confirm the existence of relational aggression in preschool children. Both teachers and peers identified relational aggression in three- and four-year-old preschool children, which is consistent with prior research (e.g., Crick et al., 1997; Crick et al., 1999; Crick et al., 2006; Ostrov et al., 2004). However, previous research had not examined age differences in relational aggression. Results of the current study found that four-year-old children evidence more relationally-aggressive behaviors than three-year-old children as rated by teachers, which has not been documented in prior research. Thus, the current study provides the first evidence that four-year-old children engage in significantly more

relationally-aggressive behaviors than three-year-old children as rated by teachers. These results may be due to differences in cognitive abilities and increasing social and emotional competence. For example, Crick and Rose (2000) contend that relational aggression may increase as children grow older due to increased sophistication in their cognitive abilities and an increasingly complex social network. In contrast, physical aggression, which is typically more common in early childhood, decreases with age (Crick & Rose, 2000).

In addition to the quantitative findings regarding age differences in relational aggression, there are several qualitative observations regarding age differences in emotion knowledge and relational aggression. During the non-stereotypical situation task on the DAKT, in which the child was required to name the opposite emotion that he or she would typically feel, the researcher observed that four-year-old children were better at naming the opposite emotion than three-year-old children. Research indicates that older preschool children are better at naming emotions than younger preschool children (Denham, 1990), and the ability to name opposite valence emotions (e.g., happy and sad) increases with age (Harter & Whitesell, 1989). In addition, relational aggression increases with age due to increases in children's cognitive ability and peer group (Crick & Rose, 2000), and higher language ability is related to relational aggression in preschoolers (Bonica et al., 2003). As such, the role of language may be important to consider when examining emotion knowledge and relational aggression. For example, higher language ability may be associated with both high emotion knowledge and relational aggression.

In terms of the role of sex differences, the current study found no sex differences in relational aggression as rated by teachers and peers. In previous research, Crick and

colleagues (1997) found that preschool girls engage in significantly more relationally-aggressive behaviors than preschool boys as rated by teachers. In contrast, McEvoy and colleagues (2003) discovered in their study that preschool boys engage in relationally-aggressive behaviors more than girls. As such, the extant literature continues to explore sex differences in relational aggression.

The current study found that emotion knowledge did not account for a statistically significant portion of the variance in teacher- or peer-assessed relational aggression in preschoolers. Although prior research has not examined this particular topic, research conducted by Arsenio et al. (2003) indicates that emotion knowledge is related to verbal and physical aggression in preschool children as young as four. In addition, deficits in emotion knowledge have been linked with behavior problems in preschoolers (Denham et al., 1990; Denham et al., 2002). It should be noted that the current findings approached significance for teacher-assessed relational aggression and emotion knowledge and that additional research may be needed to explore the topic.

Findings from this research indicate no significant differences between preschool children with and without a depressed affect in their knowledge of emotions and teacher- and peer-assessed relational aggression. There is no current documented literature that addresses this particular research question; however, prior research by Crick and colleagues (Crick, 1997; Crick et al., 1997; Crick & Grotpeter, 1995) indicates that preschool children who aggress relationally against peers tend to experience depression, isolation, and loneliness. Further, teacher-assessed relational aggression is positively related to a depressed affect in females (Crick et al., 1997). Although the current results are not significant, the post-hoc univariate test approached significance, indicating that

preschool children with a depressed affect may be more likely than preschool children without a depressed affect to evidence relational aggression as rated by teachers, which is consistent with findings from Crick and colleagues' (1997) study. However, further research is necessary before any conclusions are made.

The findings of the current study with regards to teacher- and peer-assessed relational aggression and peer acceptance and peer rejection revealed both consistencies and inconsistencies with prior research. For example, Crick and colleagues (1997) found that peer-assessed relationally-aggressive preschool boys and girls experience high levels of peer rejection. However, in terms of sex differences, these researchers found that teacher- and peer-assessed relationally-aggressive preschool boys experience both peer acceptance and peer rejection, while girls experience peer rejection only. The results of the current study approached significance when examining the effect of teacher-assessed relational aggression on peer acceptance and peer rejection in preschool boys, which is consistent with prior research.

Additionally, consistent with prior research by Crick and colleagues (2006), the current study revealed that teacher-assessed relationally-aggressive preschool boys experience significantly less peer rejection than non-relationally-aggressive preschool boys. Crick et al. (2006) found that teacher-assessed relational aggression predicted future peer rejection for females, but not males, whereas teacher-assessed physical aggression predicted future peer rejection for males, but not females. Thus, preschool girls who engage in relational aggression tend to experience concurrent peer rejection (Crick et al., 1997) and are at risk for future peer rejection (Crick et al., 2006), whereas relationally-aggressive boys are at a lessened risk for peer rejection.

Finally, a prior study of relational aggression in preschoolers (Crick et al., 1997) found that teacher- and peer-assessed relationally-aggressive boys experience same-sex acceptance, which is contrary to the current study's findings. Although the current study found that teacher-assessed relationally-aggressive boys are significantly less rejected than non-relationally-aggressive preschool boys, they do not experience increased levels of peer acceptance. Thus, although relationally-aggressive preschool boys do not experience high levels of peer rejection, they are not necessarily accepted by peers. This is confirmed with further analysis that revealed that teacher- and peer-assessed relationally-aggressive preschool boys do not experience same- or opposite-sex acceptance by peers, which is inconsistent with prior research by Crick and colleagues (1997).

Overall, the results of the current study are generally consistent with prior research, with several findings approaching statistical significance. First, prior research indicated that three- and four-year-old preschool children with poor emotion knowledge are more likely to experience aggression than preschool children with sophisticated emotion knowledge (Denham et al., 1990; Denham et al., 2002). Additional research conducted by Arsenio and colleagues (2003) indicated that emotion knowledge is related to verbal and physical aggression in preschool children as young as four. The current study is similar to these prior studies. Although there was not a significant relationship between emotion knowledge and peer-assessed relational aggression in this study, the relationship between emotion knowledge and teacher-assessed relational aggression approached significance, indicating that emotion knowledge may be related to relational aggression in preschoolers.

Other important findings that approached significance and are consistent with prior studies include the following: preschool children with a depressed affect may be more likely to use relationally-aggressive behaviors (as rated by teachers) than children without a depressed affect, and teacher-assessed relationally-aggressive boys may experience both peer rejection and peer acceptance compared to non-relationally-aggressive boys and girls. Although firm conclusions regarding the nature of emotion knowledge, depressed affect, and peer acceptance and relational aggression in preschoolers cannot be drawn, these results may inform future research.

### *Relevant Theory*

Results of the current study support the relevant theory related to relational aggression and emotion knowledge. Previous studies regarding models of social information-processing (Crick & Dodge, 1994; Lemerise & Arsenio, 2000) suggested that emotional processes should be considered as an important component of information-processing. Children who can effectively and accurately interpret and recognize emotions are more successful at avoiding particular forms of peer-related aggression (Crick & Dodge, 1994). Thus, children with intact or sophisticated emotion knowledge may be more likely to accurately interpret peers' behavior and respond in an appropriate, non-aggressive manner. In other words, preschoolers' emotion knowledge or understanding informs their social information-processing.

More recent research examining the effect of emotion knowledge and aggression in early childhood found that poor understanding of emotions predicted later behavior problems before and during kindergarten (Denham et al., 2002), and deficits in emotion knowledge have been linked with concurrent behavior problems in preschoolers (Arsenio

et al., 2000; Denham et al., 1990; Denham et al., 2002), which suggests that early emotional processing deficits may affect concurrent and later social behavior.

### Limitations

Although the study was implemented according to the procedures outlined in the methodology, the study presents with several limitations. One limitation is the number of preschool classrooms that participated in the study. The researcher used several preschools and each preschool contained a varying number of children within each classroom. As such, some classrooms had a low number of participants which could affect the children's assessment of relational aggression. It would have been ideal for entire classrooms within fewer preschools participate in the study so that children had a large pool of children from which to rate relationally-aggressive behavior. However, in each instance the peer assessments of relational aggression would need to be standardized within each classroom, as was performed in the current study.

Another limitation was the overall size of the sample. Although the final sample size was approximate to the proposed required sample size set forth in the methodology, the number of participants remained relatively small. A larger sample size would have resulted in a wider sampling of relationally-aggressive behaviors, and thus, be more representative of the population being studied.

A third limitation was the data collection methods. Although the relational aggression measures used in the study demonstrate good reliability and validity, the age and developmental level of the rater may have impacted the results. For example, the three-year-old children may have had more difficulty rating relationally-aggressive behaviors in their peers than four-year-old children. Further, the preschool teachers were

more sophisticated raters of relationally-aggressive behaviors than the preschoolers as demonstrated by the reliability analyses.

Another limitation was the very small cell sizes in the MANOVA's involving relational aggression groups (e.g., relationally-aggressive versus non-relationally-aggressive). As found in other studies of preschool relational aggression, the number of identified relationally-aggressive children was very low. As such, the small cell sizes could have made it difficult to find significant effects for the aggression groups in particular.

Finally, although there are several limitations in the study, they do not impact the generalizability of the results to similar populations. The primary method for assessing relational aggression in preschoolers at this time is the PSBS-T and PSBS-P, and it is likely that these measures would be used in future studies of relational aggression in early childhood populations. However, more recent studies have validated observational measures of relational and physical aggression in preschoolers (Crick et al., 2006), and this method may be a useful addition in detecting relationally-aggressive behaviors in young children.

#### Recommendations for Future Research

The results of the current study suggest several additional avenues for future research. First, future research with larger samples is needed before firm conclusions can be drawn regarding the role of emotion knowledge in relationally-aggressive behaviors in preschoolers. In addition, future research would benefit from a broader assessment of the social-emotional correlates of relationally-aggressive behaviors. The PSBS-T and the PSBS-P contained social-emotional indicators, such as peer status and depressed affect.

Future studies may benefit from additional, objective measures of peer status and emotional functioning.

The current study revealed low or poor agreement between teacher and peer reports of relational aggression, which may have implications for future research. Language development is important to consider in the context of both relational aggression and emotion knowledge. For example, researchers have found a positive relationship between language development and relational aggression in preschoolers (Bonica et al., 2003). Further, older preschool children are better at naming emotional expression than younger preschool children (Denham, 1990). Thus, children with higher language ability may have better emotion knowledge and may be more likely to use relationally-aggressive behaviors. As such, the addition of an expressive and receptive language measure may be indicated in future research to further explain the relationship between emotion knowledge and relational aggression in preschool children.

In addition, although the current study used a multi-informant (e.g., teachers and peers) approach to the assessment of relational aggression, future research might include other informants, such as siblings and parents. The current study did not find that preschoolers with older siblings are more relationally-aggressive than preschoolers without older siblings. However, recent sibling research indicates that older sisters use relationally-aggressive behaviors towards their female peers more often than their younger sisters (Ostrov et al., 2006), and research with older children indicates that relational aggression is the most frequently used form of aggression that siblings use towards each other (Crick et al., 1999). Thus, the influence of family environment may impact the use of relationally-aggressive behaviors in young children.

Another direction for future research would be the further investigation of the role of emotions in social information-processing, including the role of emotional regulation or emotional expression, for example (Denham et al., 2002). In this study, only preschoolers' knowledge of emotions was assessed. Clearly, additional research is needed to further explore the specific aspects of emotional competence that contribute to relationally-aggressive behaviors in preschoolers.

Finally, results of the current study contribute to the field of school psychology and early childhood research. Bullying is a timely issue in the schools, from kindergarten through college, because of the increasing news and media coverage of bullying incidents involving both school-age and college-age youth. Bullying has progressed to include such forms as cyber bullying, posting of internet videos to damage a person's image or document physical aggression against a peer, and spreading rumors through text messaging, among others. The increased media attention has highlighted the occurrence of both physical and relational aggression in addition to the damaging effects on children's social, emotional, and academic functioning.

Although relational aggression is a relatively new concept to the field of school psychology, there are many school-wide programs that address social-emotional skills as well as such topics as relational aggression, friendships, and social problem-solving. Examples include *WITS (Walk Away, Ignore, Talk – Use Words, Not Fists, and Seek Help)*, *Second Step (Middle School/Junior High)*, the *Social Aggression Prevention Program (SAPP)*, the *Friendship Group*, *Making Choices: Social Problems Skills for Children* and the *Goodwill Girls Curriculum* (Crothers et al., 2007; Field, Kolbert, Crothers, & Hughes, 2009). In addition to intervening with school-age students on a

primary, secondary, or tertiary level, it is important that social-emotional skills be addressed in early childhood for intervention efforts to be the most successful. As research indicates, poor emotional competence affects young children's concurrent and future social functioning extending into and beyond kindergarten (Arsenio et al., 2000; Denham et al., 1990; Denham et al., 2002; Denham et al., 2003). Thus, emphasizing and addressing early social-emotional skills in young children is important to consider in the context of later social adjustment.

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