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MEDIATING THE RELATION BETWEEN PARENT-CHILD ATTACHMENT
RELATIONSHIPS AND PEER ACCEPTANCE WITH PRESCHOOLERS'
SELF-REGULATION

JESSICA NICOLE LUCAS-NIHEI

160 Pages

Peer acceptance represents the degree to which a child is well liked by peers, and it is a crucial component of the early childhood years (Ladd & Sechler, 2013). Being accepted among peers impacts multiple areas of child development, including academics, behavior, and social-emotional domains. A child who is highly accepted by their peers is viewed as a preferred playmate and can be observed playing with various peers. Young children's earliest peer relationships begin forming during the preschool years. One predicting factor of peer acceptance is the attachment relationship between the parent and child. The security experiences within parent-child attachment relationships help foster the growth of children's social competence, which in turn allows children to begin forming relationships with other children (Raikes, Virmani, Thompson, & Hatton, 2013; Thompson, 2016). Another important predictor of peer acceptance is children's self-regulation, which includes several cognitive and behavioral processes that allow children to manage their emotions, behavior, and thoughts to better acclimate to their environment (Liew, 2012). Self-regulation is linked to both the parent-child attachment relationship and children's peer acceptance (Contreras, Kerns, Weimer, Gentzler, & Tomich, 2000; Gottman & Mettetal, 1986). The purpose of this study was to test the mediating role of preschoolers' self-regulation on the association between parent-child attachment

relationship qualities and preschoolers' peer acceptance. Three mediation models were tested via a structural equation modeling approach using path analysis. In the first mediation model, it was predicted that the model will represent the best fit for the data collected, supporting that children's (girls and boys combined) self-regulation mediates the relation between the parent-child attachment relationship qualities and preschoolers' peer acceptance. Results from the first mediation model indicated that preschoolers' self-regulation mediates the relation of parent-child attachment qualities and preschoolers' peer acceptance. In the second mediation model, it was predicted that older preschoolers will demonstrate stronger self-regulation, compared to younger preschoolers. Results from the second mediation model indicated that children's age significantly predicts preschoolers' self-regulation. In the third mediation model, with sufficient statistical power, it was predicted that girls will demonstrate stronger self-regulation, compared to boys. Results from the third mediation model indicated that children's gender significantly predicts preschoolers' self-regulation. These results contribute to the literature regarding factors that predict peer acceptance and have important implications for children, families, early childhood education teachers, and other professionals who support young children's overall development.

KEYWORDS: preschool, attachment, self-regulation, peer acceptance

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SELF-REGULATION

JESSICA NICOLE LUCAS-NIHEI

A Dissertation Submitted in Partial
Fulfillment of the Requirements
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DOCTOR OF PHILOSOPHY

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JESSICA NICOLE LUCAS-NIHEI

COMMITTEE MEMBERS:

Alycia M. Hund, Chair

Matthew Hesson-McInnis

Steven E. Landau

Amanda Quesenberry

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CHAPTER I: INTRODUCTION

For preschool-age children, one important aspect of their social development is gaining peer acceptance, the degree to which a child is well liked by members of their peer group (Ladd & Sechler, 2013). A well-accepted child is sought out as a preferred playmate, is often well-liked by many of their peers, and can be observed playing with many peers on a frequent basis. The preschool years serve as one of the earliest opportunities for young children to interact with similar-aged peers in a semi-structured setting through play, and they use these opportunities to acquire and build upon a wide range of emerging social skills (Coplan & Arbeau, 2009). As children's play partners begin to expand from their caregivers and siblings to a wide range of different children, play becomes the social context through which children communicate with one another in various social environments (Coplan & Arbeau, 2009). It is through play that children's social skills begin emerging in the formation of peer relationships, communication, and problem solving (Coplan & Arbeau, 2009).

Young children begin forming relationships and interacting with their parents/caregivers during infancy. Children's peer relationships begin in the first years of life by demonstrating unique individual differences and developing preferences for specific peers beginning by the age of 3 years. As children grow older, their peer relationships become more important and have a stronger influence on their overall development (Hay, Payne, & Chadwick, 2004). Peer relationships and peer acceptance are both directly involved in the development of children's social skills (Hay et al., 2004). For young children enrolled in early childhood programs (e.g., preschool, day care), their peer group is composed of their classmates and students from other classrooms within the same building. Peer acceptance influences and predicts young children's social development and their relationships with others (Ladd & Price, 1987; Ladd & Sechler,

2013). Early childhood is crucial for children's social development, as it is filled with numerous opportunities to practice social skills, experience the resulting effects of peers' responses to their own behavior, and acquire new interpersonal skills (Ladd & Sechler, 2013).

There exists a need to study peer acceptance specifically during the preschool years. Preschool-age children experience rapid growth in social, language, and cognitive skills (Coplan & Arbeau, 2009). The social environments undergo complex transitions as preschool-age children's social worlds expand from including only their caregivers and any siblings with the addition of a large peer-group. Also, young children's social skills continuously develop through numerous opportunities to play and socialize with other children in natural play settings (Coplan & Arbeau, 2009). Between 3 and 5 years of age, children typically demonstrate an increase in playing with small- and large-groups and engaging in conversations with their peers. Throughout the preschool years, young children begin to expand their range of play partners and begin shifting their play to mostly within a large group setting (Coplan & Arbeau, 2009).

The child-peer social systems and the parent-child attachment relationship are connected to one another in a transactional fashion, where family relationships influence children's peer relationships, and children's peer relationships influence their family relationships (Ladd & Sechler, 2013). Attachment describes an individual's behavior that serves to seek comfort and support from a prominent person, such as a parent or close friend, during dangerous, stressful, or challenging times (Zajac & Kobak, 2006). In children's earliest experiences within their attachment relationships, they acquire and develop behavioral expectations used to navigate their future relationships with others (Zajac & Kobak, 2006). The parent-child relationship can be used to predict children's future behavior and outlook on how to interact with others. The parent-child attachment relationship is often studied within the context of attachment styles, and the

quality of attachment relationships is used to examine how they map on to an individual's other relationships. The behavioral expectations children develop steadily become organized as internal working models (IWMs), which enable their learning which of their social behaviors are successful in seeking comfort from others (Bowlby, 1969, 1973, 1982; Zajac & Kobak, 2006). Beginning in early childhood, children establish and maintain new relationships with others, such as their classroom teachers and peers; these newly formed relationships can either support or hinder young children's ability to cope with daily challenges and frustrations (Zajac & Kobak, 2006).

Self-regulation is an executive function that involves various cognitive and behavioral processes permitting an individual to successfully manage their emotions, behavior, and cognition to better adapt to their environment (Liew, 2012). Children with deficits in self-regulation face several consequences that affect their social development, such as experiencing increases in their hyperactivity and impulsivity, struggling to restrict their behavior to conform to rules and instructions, and blurting out incorrect or disruptive verbal responses during conversations with others (Barkley, 1997). Many children prefer to play with children whose behavior is like their own, especially regarding their social participation and cognitive quality of play (Coplan & Arbeau, 2009). Some children exclude peers whose behavior differs significantly from their own level socially or cognitively, as well as children are more likely to reject children whose behavior is aggressive or disruptive to the flow of play (Coplan & Arbeau, 2009).

The parent-child attachment relationship qualities and children's self-regulation are key factors to consider for preschoolers' peer acceptance. Attachment theory suggests that the attachment relationship provides characteristics and behaviors within parent-child interactions that foster the development of children's management of their behavior (Contreras et al., 2000).

Children's ability to self-regulate is an important skill to successfully interact with their peers (Contreras et al., 2000; Gottman & Mettetal, 1986). The parent-child attachment relationship influences children's future social relationships and interactions with their peers (Bowlby, 1973; Contreras et al., 2000; Sroufe & Fleeson, 1986). Research focusing on the processes through which the parent-child attachment relationship impacts children's future peer acceptance is lacking.

Attachment theory proposes questions of how the parent-child attachment relationship begins to develop and why it develops in the ways that it does (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969, 1982; Vaughn & Bost, 2016). The earliest experiences between parents and children facilitate the attachment bond, which guides the development of young children's behavior and social relationships over time. These early experiences establish a working model of what children come to expect from their future relationships with others (Vaughn & Bost, 2016). Several aspects of parenting, such as responsiveness, closeness, and low levels of parent-child conflict, positively relate to children's self-regulation (Karreman, van Tuijl, van Aken, & Deković, 2006; Zhang, 2011). Throughout their lives, children's individual differences in self-regulation have implications for the quality of their social behavior and future interactions with others.

Additional research is needed to better understand how parent-child attachment relationship qualities and children's self-regulation impact peer acceptance, given that they are all important contributing factors to children's overall development. The interactions within parent-child attachment relationships serve as the groundwork for children's future relationships with others, such as their peers. Children's interactions with their caregivers and the levels of closeness and conflict experienced within the attachment relationship influence children's ability

to manage their behavior. How young children control their behavior in social settings (e.g., sharing toys, waiting to enter other children's play) impacts how well-liked they are by their peers. The goal of the present study was to test the mediating role of preschoolers' self-regulation on the relation between parent-child attachment relationship qualities (closeness and conflict) and preschoolers' peer acceptance, where the predictor is parent-child attachment relationship qualities, the mediator is preschoolers' self-regulation, and the outcome is preschoolers' peer acceptance.

CHAPTER II: REVIEW OF RELEVANT LITERATURE

Peer Acceptance

Theories of Peer Acceptance

Children's interest in other people begins very early on life. The beginnings of peer relationships for young children first occur in their homes, then at childcare centers (e.g., preschool classrooms, day care centers, early childhood programs), and then possibly through arranged play get-togethers (Gifford-Smith & Brownell, 2003; Rubin, Bukowski, & Parker, 1998). Enrolling in a center-based childcare program, such as preschool or daycare, is one of the first opportunities for children to establish relationships with other similar-aged peers external to their family (Zhang, 2011). Preschoolers begin forming relationships with their peers that gradually grow in significance; as they grow older, children start displaying interest in favorite peers as preferred playmates, and it is these favored interests that later develop into more selective and meaningful friendships (Ladd & Sechler, 2013).

Major developmental changes take place early on in young children's social world and these changes encourage children to grow socially. Children begin discriminating among who is their friend and who is not. Friendships consist of frequent dyadic or small group play that is often positive, energetic, coordinated, and based on fantasy or make-believe play (Gifford-Smith & Brownell, 2003). These important social changes place new demands upon children, such as initiating and maintaining play with new playmates and acquiring conflict resolution skills (Gifford-Smith & Brownell, 2003). The expansion of their social world also creates additional opportunities for young children to foster their social growth (Gifford-Smith & Brownell, 2003).

The preschool classroom is a nurturing environment for young children's social-emotional and behavioral competencies via social and play activities, making the preschool years

a valuable time for young children to develop their social skills (Hay et al., 2004; Raver et al., 2008). Children with impaired behavioral or social skills, such as disinhibited behavior or emotionally explosive outbursts, are more likely to experience trouble in forming relationships with their peers (Bierman, Kalvin, & Heinrichs, 2015; Hay et al., 2004). Establishing foundational skills in forming peer relationships is crucial for young children's future social development, because their peer relationships become more important as children grow older (Hay et al., 2004). Younger children's attempts to be accepted by their peers are influenced by their behavior. Children who elicit more prosocial behavior have a higher probability of being accepted; on the other hand, children who elicit more antisocial or disruptive behavior have a lower probability of being accepted (Ladd & Price, 1987).

Early childhood is an important period for children's social development. Any social, emotional, or behavioral concerns that arise this early may persist further into childhood and increase the risk for negative developmental outcomes (Rispoli, McGoey, Koziol, & Schreiber, 2013). The need to study predicting factors of children's peer acceptance early on should be emphasized, as to better inform preventative and early intervention services targeting multiple domains of children's overall development. For example, preschool-age children who lack impulse control and exhibit noncompliance are more likely to engage in disruptive behavior that often interferes with their peer functioning by the time they reach school-age and are more likely to experience being rejected by their peers (Fantuzzo, Bulotsky-Shearer, Fusco, & McWayne, 2005; Rispoli et al., 2013).

Young children entering preschool experience ecological transitions that require them to adapt or adjust to a novel or altered environment (e.g., transitioning between activities and/or locations) and encounter new interpersonal demands of relating to peers and gaining acceptance

into their earliest peer groups (Ladd & Price, 1987). Successfully navigating these ecological and interpersonal demands are highly salient for children, as their later social development and overall readiness for school rely upon their adjustment during these transitions. Specific social outcomes like experiencing peer rejection may span across multiple years in children's development, where experiencing such negative outcomes may maintain or contribute to future social and school adjustment issues (Ladd & Price, 1987).

A child's peer relationships can profoundly impact their emotional and cognitive development, further emphasizing the importance of studying children's peer relationships. The development of young children's positive peer relationships leads to positive outcomes, such as acquiring and utilizing stronger social skills and problem-solving skills, demonstrating more socially appropriate behavior, and exhibiting less disruptive or disinhibited behavior (Berdan, Keane, & Calkins, 2008). Children's peer relationships can also serve as protective factors that buffer against sources of adversity (Berdan et al., 2008). Hartup (1992) proposed four reasons supporting the importance of further peer relationships research. First, peer relationships supply children with a social environment within which they can acquire and practice using their social skills with similar-aged peers. Second, children's relationships with peers serve as a source of information about their social environments. Third, peer relationships grant children access to emotional and cognitive resources. Finally, peer relationships function as early predictors of children's future relationships with others in different contexts (Hartup, 1992; Waas, 2006). Through early relationships with their peers, young children possess the potential to acquire and strengthen numerous social skills that are key to the success of their relationships as they grow older. For example, early peer relationship experiences grant children opportunities to learn how

to listen to others, share their feelings, problem-solve in situations of conflict, and engage in perspective taking (Waas, 2006).

Methods of Measuring Peer Acceptance

Over the last few decades, several sociometric methodologies measuring children's peer acceptance were designed and have since been modified. Peer acceptance measures were first used to identify children's social acceptance by classifying children as being either popular or unpopular among their peers, based upon their peers' attributions (Moreno, 1934; Newcomb, Bukowski, & Pattee, 1993). However, some researchers (i.e., Gronlund, 1959; Northway, 1946) expressed concern regarding the ethics of children making negative attributions towards their disliked peers. Other researchers (i.e., Lemann & Solomon, 1952; Thompson & Powell, 1951) also believed these methods to be too restrictive in only identifying children who were either well-liked or disliked, while children who were in-between were excluded during this identification process. Peer acceptance measures were modified to examine children's social preference and social impact. Social preference measured a child's likability, or the extent to which their peers liked or disliked them. Social impact measured how well-noticed a child was by their peers. Both categories operationally defined a child's sociometric status as the number of nominations (whether positive or negative) a child received as their peers' friend or preferred playmate (Coie, Dodge, & Coppotelli, 1982). Early on, two-dimensional approaches utilized both positive and negative nominations to differentiate between a child's social preference and their social impact (Newcomb et al., 1993).

Measurement data for peer acceptance are consistently gathered from three sources: teachers, peers, and self. The accuracy and level of detail of the information gathered from these sources vary based on three factors, including the accessibility to information regarding a

specific child, limitations by one's cognitive biases, and nature of the relationship with a specific child. Teachers have limited accessibility to how well children are perceived by others due to the nature of adult-child interactions, where teachers have power over children. However, reports from both the self and peers are thought to be more accurate representations because they can interact on an equal level and possess direct knowledge of their social environment from a child's perspective. The self-report also provides more detailed information regarding how they feel towards their peers, what they value in friends, and what they believe about their social interactions (Newcomb et al., 1993).

All three sources of information are affected by limitations due to cognitive biases. Teachers may be more concerned about children's behavioral regulation and their perception of a child's peer acceptance most likely will be influenced by how well the child regulates their behavior. Teachers possess the receptive and expressive language to describe different social interactions and relationships that children demonstrate at school. In contrast, children often focus on how positive their social interactions with other children are and they may lack the vocabulary to thoroughly describe the quality of their interactions with other children. Similar to the accessibility of information, teachers are limited to the nature of their relationship with children because of the power differential between them and children, which may result in teachers providing information that holds little to no relevance to a child's peer acceptance (Newcomb et al., 1993).

Peer-reports of peer acceptance.

Peer nominations. To measure children's peer acceptance, one of the most commonly used sociometric methodology is peer nominations, where researchers ask the child to identify among their classmates with whom they prefer to play the most and the least (Asher, Singleton,

Tinsley, & Hymel, 1979). A child's peer acceptance score is based on the number of nominations (both positive and negative) they receive. Children's peer acceptance ratings based on peer nominations are greatly impacted by their acquiring or losing peer nominations. When collecting peer nominations, some children may receive multiple nominations (regardless if they are positive or negative), but other children may receive few to no nominations. Differences in the number of nominations overall impact the results. As such, this method is reliable with older children, such as elementary-school age children; however, peer nominations from preschool-age children are unreliable (Asher et al., 1979).

Coie and colleagues (Coie & Dodge, 1988; Coie et al., 1982; Coie & Kupersmidt, 1983) developed and later modified the sociometric classification model, which measures a child's peer acceptance and rejection based on the number of most- and least-liked nominations received from their peers to classify them into one of five acceptance groups: popular, rejected, average, neglected, and controversial. Popular children are those who receive many positive nominations and few negative ones. Rejected children are those who receive many negative nominations and few positive ones. Average children are those who receive an average number of both positive and negative nominations. Neglected children are those who are not liked or disliked by their peers; they often go unnoticed by others, and these children receive few positive or negative nominations. Controversial children receive positive and negative nominations, and they are both liked and disliked by a few of their peers. The standardized scores for peer acceptance and rejection are used to identify children's social preference and social impact; a child's social preference is measured by the difference of the rejection standard scores subtracted from acceptance, and their social impact is measured by the sum of acceptance and rejection (Coie & Dodge, 1988; Coie et al., 1982; Coie & Kupersmidt, 1983; Newcomb et al., 1993).

Peer ratings. One alternative approach to peer nominations with preschool-age children is the rating scale sociometric approach (Roistacher, 1974; Singleton & Asher, 1977), which was first used and deemed reliable with elementary- and middle school-age students. The rating scale sociometric approach has children rate each of their classmates using a Likert-scale based on specific criteria, such as how much they like to play or work with a classmate (Roistacher, 1974; Singleton & Asher, 1977). The rating scale method was later modified for use with preschool-age children, and test-retest reliability was found adequate (Asher et al., 1979).

Compared to peer nominations, peer ratings are more reliable with preschoolers because they provide a rating for each of their peers and an individual child's ratings do not as heavily impact their peers' ratings (Endedijk & Cillessen, 2015). The peer rating system is more effective in letting preschoolers rate each classmate based on how much they like or dislike them, which allows for a more accurate representation of each individual child within the peer-group (Gifford-Smith & Brownell, 2003). The peer rating system also addresses the difficulty for young children to recall specific peers. Presenting preschool-age children with a picture of each of their peers eliminates the need to rely upon them being able to recall all of their peers on their own. It is suggested that the peer rating system is a better alternative peer-report methodology compared to peer nominations (Gifford-Smith & Brownell, 2003).

Self-reports of peer acceptance.

Pictorial Scale of Perceived Competence and Social Acceptance. A self-report measure of peer acceptance is Harter and Pike's (1984) Peer Acceptance subscale of the *Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (Pictorial Scale)*. The *Pictorial Scale* has been demonstrated to be a valid and reliable measure for children's perceived acceptance and social competence among children in preschool through second grade by its

authors (Harter & Pike, 1984; Paguio & Hollett, 1991). Specifically, the Peer Acceptance subscale of the *Pictorial Scale* is composed of six items that are accompanied by two pictures each: one picture depicts a highly accepted child and the other picture depicts a less accepted child. The examiner reads an item to the child while showing the accompanying pictures, and then asks the child which descriptor is more applicable to them and to determine to what extent the statement is true for them. For example, part of one item reads, “This girl/boy has lots of friends to play with, and this girl/boy has hardly any friends. Now, I want you to tell me which of these girls/boys is the most like you.” If the child points to the more competent child, the examiner measures the extent the statement is true by then asking, “Do you have a whole lot of friends to play with or pretty many friends?” The child’s responses are scored using a 4-point scale, where a score of 1 represents lower perceived peer acceptance and a 4 represents higher perceived peer acceptance. The Peer Acceptance subscale is derived from the mean of six items’ scores (Harter & Pike, 1984).

However, in later research (Fantuzzo, McDermott, Manz, Hampton, & Burdick, 1996; Gullo & Ambrose, 1987; Madigan, Winsler, Maradiaga, & Grubba, 2002), the child self-report of Peer Acceptance on the *Pictorial Scale* was deemed as developmentally inappropriate for preschool-age children in regards to its reliability and validity. During the preschool years, it is difficult for young children to accurately rate their peer acceptance and other abilities (Madigan et al., 2002). In fact, children are thought to be unable to accurately rate their perceived peer acceptance and other abilities until approximately third grade (Fantuzzo et al., 1987; Gullo & Ambrose, 1987; Madigan et al., 2002).

Adult-reports of peer acceptance.

Pictorial Scale of Perceived Competence and Social Acceptance. A teacher-report measure of peer acceptance is also available with Harter and Pike's (1984) *Pictorial Scale*. In lieu of the pictures in the child-version, the teachers complete six rating scale items representing a measure of perceived peer acceptance. The Peer Acceptance subscale is composed of items that ask teachers to rate how true six statements regarding peer acceptance are for a specific child, such as "Has friends to play with" and "Gets asked to play by others." The teachers' responses are scored using a 4-point scale, where a score of 1 represents lower perceived peer acceptance and a 4 represents higher perceived peer acceptance. The Peer Acceptance subscale is derived from the mean of six items' scores (Harter & Pike, 1984). Unlike the child's self-report, the teacher-report of Peer Acceptance subscale of the *Pictorial Scale* has demonstrated to be internally consistent and a valid measure. The teacher-report of the *Pictorial Scale* was deemed as valid through comparisons of teacher-reports on the *Pictorial Scale* and other objective measures of children's competence (Gullo & Ambrose, 1987; Madigan et al., 2002). Therefore, teachers can be considered as accurate and reliable reporters of children's perceived peer acceptance using the *Pictorial Scale* (Madigan et al., 2002).

Empirical Research Examining Peer Acceptance

Quinn and Hennessy (2010) examined the importance of peer relationships among preschool students and how they predicted their peer relationships in their first year of formal schooling. This longitudinal study aimed to better understand and evaluate patterns of preschoolers' peer relationships as they transitioned from preschool to school. One research goal was to understand how peer relationships change and persist regarding three aspects: reciprocated friendship, reciprocated best friendship, and social preference. The other research

goal was to examine whether peer relationships in preschool could predict peer relationships, friendship status, and social preference after school-entry. Sociometric interviews were conducted to acquire peer nominations via the picture sociometric technique (McCandless & Marshall, 1957). The picture sociometric technique is a modified peer nomination technique where children are shown pictures of their classmates and point to the pictures of classmates who were their best friends (Asher et al., 1979; McCandless & Marshall, 1957). The preschoolers used this technique to nominate peers they “liked to play with,” “did not like to play with,” and who were their friends and best friends. Moderate to strong positive correlations were observed across social preference and friendships status for the preschool peer relationships. Moderate positive correlations were also observed between all three aspects of peer relationships for the children when they were school-age. As hypothesized, their findings suggest that preschool peer relationships are significant predictors of future school peer relationships, underscoring the importance of understanding factors that predict peer relationships during the early years (Quinn & Hennessy, 2010).

Berdan and colleagues (2008) used the *Pictorial Scale* (Harter & Pike, 1984) and peer nominations to examine whether preschoolers’ perceived peer acceptance and social preference moderated the relation between their temperamental risk and externalizing behavior among preschoolers preparing to transition to kindergarten. Mothers’ reports on the *Child Behavior Checklist (CBCL)* (Achenbach, 1992) measured preschoolers’ externalizing behavior, and mothers’ reports on the *Children’s Behavior Questionnaire (CBQ)* (Rothbart, Ahadi, & Hershey, 1994) measured preschoolers’ temperament. Teachers reported preschoolers’ externalizing behavior on the *Behavior Assessment System for Children, Teacher Rating Scales (BASC TRS)* (Reynolds & Kamphaus, 1992) once the children were in kindergarten. Overall, their findings

suggested that increased levels of perceived peer acceptance served as a protective factor against children's externalizing behavior (Berdan et al., 2008).

Parent-Child Attachment Relationships

Theories of Parent-Child Attachment Relationships

Young children's earliest relationships are with their parents, and it is within these relationships where children's social competency for their relationships with others begins to develop. Parents serve as children's first role models for socialization by providing guidance regarding how to interact with others (Mize & Pettit, 1997; Zhang, 2011). Per attachment theory, children's first relationships serve as predictors of how their future developmental outcomes and relationships with others will be impacted (Bowlby, 1969, 1982; Zajac & Kobak, 2006). During infancy, parent-child attachment relationships provide children with information on how to maintain and utilize their relationships with others to overcome distress and challenges (Bowlby, 1969, 1982; Zajac & Kobak, 2006). Individual differences can be observed within the parent-child attachment relationship.

The concept of attachment security was first described by Ainsworth (1963), where she described it as an individual feeling safe and comforted because of their basic physical and mental needs being met and from knowing that their needs will be met in the future by their parent. A large body of research on attachment is derived from the "Strange Situation" laboratory study, a 20-minute procedure designed for children 12 to 18 months (Ainsworth et al., 1978). From this procedure, three different patterns of attachment behaviors were identified: secure, anxious-avoidant, and anxious-resistant (Ainsworth et al., 1978). Children with secure attachment patterns demonstrate behaviors portraying enjoyment when their parent is present and positive expectations of their availability and responsiveness. Children with anxious-avoidant

attachment patterns demonstrate tendencies to reject or refuse their parent's efforts to provide reassurance and comfort to their children experiencing distress. Children with anxious-resistant attachment patterns demonstrate passive behaviors and difficulties in being comforted by their parents. As infants become older, their behavioral expectations and attachment patterns allow them to identify stable and successful methods of interacting with their parents and other prominent figures, such as teachers and peers. For children with non-secure attachment relationships (i.e., anxious-avoidant or anxious-resistant), they are likely to be less knowledgeable of how to interact with others (Ainsworth et al., 1978; Solomon & George, 2016; Zajac & Kobak, 2006).

Attachment theory states that children's early experiences with their parents influence their capability to establish meaningful relationships with others in the future (Berlin, Cassidy, & Appleyard, 2008; Bowlby, 1979). Meaningful relationships take on different forms throughout children's development. For infants and toddlers, meaningful relationships are mostly with their parents/caregivers. During early childhood and beyond, meaningful relationships extend to siblings and peers. Attachment theory also suggests there exists a causal relationship between parent-child attachment and the quality of children's future relationships with others. The internal working models (IWMs), or the mental blueprints for relationships with others based on the attachment relationship, are acquired from children's early interactions with their parents. Children's IWMs serve as the foundation of the causal relationship between the attachment relationship and children's future relationships (Berlin et al., 2008; Bowlby, 1969, 1973, 1982). IWMs also serve as bridges that span the gap between the parent-child attachment relationship and the child's relationships with others (Bretherton & Munholland, 1999).

The frequent and repeated interactions between infants and their parents are the roots of children's IWMs of how they view their parents, themselves, and their relationships (Berlin et al., 2008; Bowlby, 1973; Vaughn & Bost, 2016). It is suggested that the association between responsive parenting behavior and children's overall development is mediated by children's IWMs of learning new things and implementing this information in new situations (Karreman et al., 2006). Bowlby (1973) described the different perspectives of secure and insecure attachment relationships. Secure attachment relationships lead infants to view their parents as trustworthy and supportive, to view their self-worth positively, and to view their attachment relationship as one that is nurturing and safe (Berlin et al., 2008; Bowlby, 1973). Insecure attachment relationships lead infants to view their parents as unreliable or absent, to deem themselves as unworthy of security and support from their parent, and to view their relationship as inconsistent and unreliable (Berlin et al., 2008; Bowlby, 1973). Children with secure attachment relationships expect to find sensitivity and support from others, whereas children with insecure attachment relationships are less likely to expect or seek support from others (Berlin et al., 2008; Bowlby, 1979). It is believed that IWMs direct how children's new relationships are formed by outlining expectations regarding finding security and emotional support from others, based on the attachment security with their parents (Berlin et al., 2008; Bowlby, 1969, 1973, 1982).

Sroufe and Fleeson (1986/1988) suggested the idea of a coherent working model of attachment relationships. Children use their early experiences from their attachment relationships within the coherent working model to understand how close relationships should be from their perspective and to guide their expectations of others (Berlin et al., 2008; Sroufe & Fleeson, 1986/1988). Similar to Bowlby's IWMs concept (1969, 1973, 1982), the coherent working model is also influenced by attachment security, where secure attachments are more likely to

strengthen children's self-esteem, social skills, and their willingness to explore their environments (Berlin et al., 2008; Sroufe & Fleeson, 1986/1988). When children use their coherent working model of attachment, they formulate their own ideas of how to behave towards others and consider what types of behavior to expect from others. This model also helps children learn what type of people they will seek out relationships with and how to relate to others, through means such as reciprocation, synchronization, and communication (Sroufe & Fleeson, 1986/1988).

Secure attachment relationships and parents' increased responsiveness and sensitivity are associated with one another (Zhang, 2011). Parent sensitivity towards their preschool-age children predicts increases in children's social competence, decreases in problematic behavior, and decreases in parent-child conflict (Driscoll & Pianta, 2011). In addition, parenting behaviors, such as showing warmth, providing emotional support, and establishing attachment security, can serve as protective factors for their children against adversity (Driscoll & Pianta, 2011). Parents who are sensitive towards and involved with their children help increase the opportunities to strengthen children's self-regulatory skills and overall social-emotional development (Driscoll & Pianta, 2011).

Attachment relationships that are secure can directly impact children's positive relationships with others. Parents who are securely attached with their children are more likely to create more social experiences for their children, which in turn, will increase the number of opportunities for children to utilize their social skills and make friends. Securely attached parents also model and teach their children different methods to successfully establish and maintain positive relationships with others. Finally, securely attached parents serve as role models for their children to identify which behaviors that are socially desirable, sensitive, and supportive

when interacting with others. Children who have opportunities to learn these behaviors are more likely to engage in similar behaviors when interacting with others, such as teachers and peers (Cassidy & Berlin, 1999). During the preschool years, children are learning to become more independent and self-reliant. Despite this growing independence, preschool-age children are still reliant upon their attachment to their primary caregiver for support and security. Young children utilize the support and security they receive from their caregivers for assistance in adapting to the rapidly changing physical and social world surrounding them. As young children grow older, their social world continues to expand, along with the number and types of relationships that they form with other adults and peers (Marvin, Britner, & Russell, 2016; Thompson, 2016).

Parent-child relationships vary along several dimensions, including closeness and conflict. Closeness refers to “the extent to which a parent feels that the relationship [with their child] is characterized by warmth, affection, and open communication” (Driscoll & Pianta, 2011, p. 10). The positive relationship between parents and their children is a prominent predictor regarding the overall quality of the parent-child relationships, where parents who show more affection towards their children are more likely to have children who are socially competent and securely attached (Driscoll & Pianta, 2011). The closeness of the parent-child relationship experienced in early childhood can extend at least as far as adolescence (Driscoll & Pianta, 2011). Conflict is “the degree to which a parent feels that [their] relationship with [their] child is characterized by negativity” (Driscoll & Pianta, 2011, p. 9). As early as the preschool years, an increase in parent-child conflict occurs, where Dix (1991) suggested that it occurs as frequently as 3.5 to 15 times per hour on average (Driscoll & Pianta, 2011). The occurrence of conflict between parents and children is considered normative, to a certain extent, during the preschool years.

Methods of Measuring Parent-Child Attachment Relationships

Pianta (1997) emphasized understanding the meaning of what the parent-child relationship represents. He defined the broader term of relationships as “patterns of interactions, expectations, beliefs, and affects organized at a level more abstract than observable behaviors” (Pianta, 1997, p. 14). Using his definition of relationships, Pianta emphasized that bountiful information about relationship characteristics is best acquired through assessments at multiple points in time and across multiple settings (Driscoll & Pianta, 2011; Pianta, 1997). When measuring the parent-child relationship, researchers rely upon the parents’ perspective of how they perceive their relationships with their children. The parent-child relationship can be evaluated via multiple methods such as interviews and coding systems, direct observations of parent and child behaviors, and questionnaires.

Interviews and coding systems.

George and Solomon (1996) suggested using parent interviews and coding systems to rate the parents’ representations of their children. Parents describe their perspective on their relationship with their children. Interviews can be used to reflect parents’ caregiving behavioral systems through their responses describing their caregiving behaviors from both perspectives of themselves and their children.

Child-Parent Relationship Scale.

Pianta’s (1992) *Child-Parent Relationship (CPRS)* is a parent-report scale designed for parents/caregivers of children ages 3 to 12 years that measures the adults’ perceptions of their relationship with their child, specifically focusing on negativity, positivity, and dependence (Pianta, 1992). The *CPRS* includes 26 items that compose three subscales of Conflicts, Positive Aspects of the Relationship, and Dependence, where the parent/caregiver responds to each item

using a 5-point Likert scale ranging from 1 (Definitely Does Not Apply) to 5 (Definitely Applies; Pianta, 1992; Zhang, 2011). The Conflict subscale has 12 items (e.g., “When my child is in a bad mood, I know we’re in for a long and difficult day”). The Positive Aspects of the Relationship subscale has 10 items (e.g., “My child spontaneously shares information about himself/herself”). The Dependence subscale has 4 items (e.g., “My child reacts strongly to separation from me”). Responses are summed to represent the subscale total score, where higher total scores represent higher conflict, positivity, and dependence experienced within the parent-child relationship. Although the Dependence subscale demonstrated low reliability, both the Positive Aspects of the Relationship and Conflict subscales demonstrated good internal consistency in previous research (Pianta, 1992; Zhang, 2011). The Positive Aspects of the Relationship and Conflict subscales of the *CPRS* were deemed as valid and reliable measures of how parents perceive the closeness and conflict experienced in their relationships with their children, respectively (Pianta, 1992; Zhang, 2011).

Child-Parent Relationship Scale Short Form.

Pianta’s (1992) *Child-Parent Relationship Scale Short Form (CPRS-SF)* is a parent-report scale that measures how parents perceive the relationships they have with their children. The *CPRS-SF* includes 15 items that compose two subscales: Conflict and Closeness. The Conflict subscale has 8 items (e.g., “My child and I always seem to be struggling with each other”), and the Closeness subscale (e.g., “My child spontaneously shares information about himself/herself”) has 7 items. Parents respond to the items using a 5-point Likert scale, where a score of 1 represents the response Definitely Does Not Apply and a score of 5 represents the response Definitely Applies. Responses are summed to represent the subscale total score, where higher total scores represent stronger conflict or stronger closeness within the parent-child

relationship. The *CPRS-SF* was deemed a valid and reliable measure of how parents perceive the closeness and conflict experienced in the relationships with their children (Driscoll & Pianta, 2011; Pianta, 1992).

Parenting Relationship Questionnaire – Preschool Form.

To address the lack of well-developed measures that examine parenting and the parent-child relationship, the *Behavior Assessment System for Children, Third Edition Parenting Relationship Questionnaire - Preschool Form (BASC-3 PRQ-P)* was recently updated by Reynolds and Kamphaus (2015). The *BASC-3 PRQ-P* is a self-administered parent-report of multiple variables relating to family and parenting relationships, in the context of a socially and emotionally healthy child between the ages of 2 and 5 years. Since multiple parents or caregivers can complete the *BASC-3 PRQ-P* on the same child, the scores from individual raters can be used to compare their perceptions of their children. There are 60 items that compose five scales on the *BASC-3 PRQ-P*: Attachment, Discipline Practices, Involvement, Parenting Confidence, and Relational Frustration. These scales contain items that are relevant to describing the parent-child relationship and the role of parenting across multiple settings. Based on how well the item's statement relates to what they believe about or their experiences with their children, parents respond to the items using a 4-point Likert scale where a score of 1 is Never and a score of 4 is Almost Always (Reynolds & Kamphaus, 2015).

Empirical Research Examining Parent-Child Attachment Relationships

A recent meta-analysis found a strong positive correlation between parent-child attachment relationships and children's social competence with peers (Groh et al., 2014). The results suggested that securely attached children show stronger levels of peer competence, in comparison to their child counterparts with insecure attachment relationships. The strength of

this positive correlation persisted as the children grew older and with the passing of time between the assessments of attachment and peer social competence (Groh et al., 2014). Securely attached children demonstrated more favorable social competence among their peers for assorted reasons. The secure attachment relationship serves as a model for appropriate and positive social interactions with others (Thompson, 2016). Children with secure attachment relationships demonstrated steep decreases in the conflict they experienced with their peers (Raikes et al., 2013; Thompson, 2016). Securely attached children developed stronger and more effective problem-solving skills (Raikes et al., 2013; Thompson, 2016). These skills can be used in instances of conflict among children and their peers, and securely attached children's problem-solving skills often can resolve conflict quickly. In comparison to their insecurely attached counterparts, securely attached children were less lonely, which contributes to their overall social competence due to increased number of opportunities to interact with others (Groh et al., 2014; Thompson, 2016).

Karreman and colleagues (2006) conducted a meta-analysis that examined the association between parenting and self-regulation in preschool-age children. Parenting was broken down into positive control and parental responsiveness. Positive control was operationally defined as parents engaging in behavior such as setting limits, being direct without exerting assertive power, and providing their children with guidance and instruction. Responsiveness was operationally defined as parents displaying warm, accepting, approving, and affectionate behavior while being involved with their children. Inhibition, or children suppressing their behavior in response to unfamiliar stimuli and their ability to delay their gratification, was used as a measure of self-regulation (Karreman et al., 2006). As hypothesized, parents exhibiting more positive control and less negative control while engaging with their children was

significantly related to their children displaying more self-regulatory behavior, suggesting that positive parental control fosters children's self-regulation. Negative control and children's self-regulatory skills were negatively correlated. Parental responsiveness was not observed to be significantly related to self-regulation. Children are more likely to acquire stronger self-regulation skills when their parents rely on guidance, teaching, and encouragement to manage their children's behavior (Karreman et al., 2006).

A recent study examined whether the closeness and conflict experienced within parent-child relationships with children between the ages of 4½ years and 6½ years are stable or change over time (Driscoll & Pianta, 2011). This study used data collected from the NICHD Study of Early Care. The participating children all came from families with two parents present in the home. There were two data-collection time points: when the children were 4½-years-old and again when the children were 6½-years-old. At both data collection time points, both mothers and fathers completed the *CPRS-SF*. Multiple series of correlations were completed to measure parents' consistency in their reported ratings of closeness and conflict. Parents' ratings of closeness with their children were moderately stable between both time points, where fathers had a higher overall rating for closeness compared to mothers. Parents' ratings of conflict with their children were moderately stable across time, where mothers had higher ratings of conflict for daughters, sons, and overall compared to fathers. Both parents reported increased levels of closeness and decreased levels of conflict with their children by the time they were in first grade. These findings suggest there are individual differences in how mothers and father perceive their relationships with their children regarding parent-child closeness and conflict. This study's findings support the idea that levels of parent-child closeness increase, and levels of conflict decrease during early childhood (Driscoll & Pianta, 2011).

Self-Regulation

Theories of Children's Self-Regulation

Self-regulation is the overarching ability to control, inhibit, and plan one's behavior, emotions, and thoughts to achieve the goals at hand (Ponitz et al., 2008). The strength of one's self-regulatory skills impacts functioning across development and contexts (Ponitz et al., 2008). For young children, strong self-regulatory skills predict increases in effective classroom behavior and socially appropriate behavior (Fabes, Martin, Hanish, Anders, & Madden-Derdich, 2003; Ponitz et al., 2008). Children with stronger self-regulation tend to display more positive social behaviors, such as social engagement/play and following predetermined rules (DuPaul, McGoey, Eckert, & VanBrakle, 2001). Children who struggle with self-regulation are more susceptible to experiencing difficulties across their behavior, social development, and academic functioning (DuPaul et al., 2001). Children with dysregulated behavior are more likely to have impaired social functioning and are at greater risk for antisocial behavior, such as refusing to take turns and frequently changing activities during free playtime (Barkley, 1997; DuPaul et al., 2001).

Young children with weaker self-regulatory skills are at a greater risk of developing problematic behavior while in school, such as difficulty sustaining their attention and controlling their behavior (Fabes et al., 2003; McClelland, Morrison, & Holmes, 2000; Ponitz et al., 2008; Rimm-Kaufman, Pianta, & Cox, 2000). Self-regulation can vary widely in the early functioning of children, which may explain the individual differences in behavior among younger children (Kochanska, Murray, & Harlan, 2000). The beginning development of self-regulation largely takes place between the ages of 2- and 5-years (Karreman et al., 2006). During this time, parents play a significant role in their children's learning how to create and follow rules by providing them with opportunities to internalize these rules into their IWMs (Karreman et al., 2006). Self-

regulation serves as a major predictor of how well children internalize social expectations and moral guidelines (Karreman et al., 2006). Kopp's (1982) model of self-regulation describes development during the first three years. By the end of their first year, infants demonstrate increased awareness of social expectations and needing to comply with parental demands. Compliance to parental demands facilitates young children's learning the behavioral and social expectations of their surrounding environment, which eventually leads to their internalization of social values and norms. By the end of their second year, young children acquire skills in suppressing and regulating their behavior in the absence of their parents. By the end of their third year, young children should be able to regulate themselves based on the demands of their surrounding environment (Karreman et al., 2006; Kopp, 1982).

Self-regulatory skills are imperative to several of children's developmental outcomes, such as their socialization and behavioral performance (Kochanska et al., 2000; Rhoades, Greenberg, & Domitrovich, 2009). Children's ability to engage in a less dominant response by hindering a dominant one serves as a predictor of their future social skills and, inversely, the presence of problem behaviors. Stronger self-regulatory skills are more likely to predict children's more favorable outcomes, including greater prosocial behavior and positive peer relations (Rhoades et al., 2009). Self-regulation and other factors are influenced by children's early experiences, including the quality of parent-child attachment (i.e., security, responsiveness) and impulse control (Kochanska et al., 2000; Olson, Bates, & Bayles, 1990). Children's self-regulation serves as a principal factor that aides them in their performance within a preschool classroom. Because of the rapid changes preschool-age children undergo regarding their inhibition, the preschool years are a crucial developmental period to examine individual differences in young children's self-regulation.

There exists an overlap among different terms that describe similar aspects of self-regulatory skills (Gagne, 2017), including delay of gratification (Metcalf & Mischel, 1999), inhibitory control (Zhou, Chen, & Main, 2012), and effortful control (Kochanska, Murray, Jacques, Koenig, & Vandergeest, 1996; Rothbart, 1989). The delay of gratification in one component of self-regulation involving children waiting for a greater reward, while resisting the impulse to choose a smaller but more immediate reward (Mischel & Ebbesen, 1970). Delay of gratification incorporates self-regulation skills used in controlling one's impulses. Most children desire the greater reward initially, and the amount of time they are willing to wait for the greater reward varies from one child to the next (Gagne, 2017). Inhibitory control includes "control over automatic responses and regulation of behavior" towards some goal (Gagne, 2017, p. 2). Inhibitory control can be measured using behavioral performance tasks that require children to either delay gratification (i.e., *Dinky Toys*) or hinder a dominant response by refocusing their attention on a subordinate response (e.g., *Day/Night Stroop*; Gagne, 2017). Across these multiple related terms, different questionnaire and laboratory behavioral measures are available to assess self-regulation within the frameworks of these three theoretical perspectives. Many researchers implement a multi-theoretical and multi-method approach when measuring self-regulation in early childhood to inform the age-appropriate assessment of young children's self-regulation most effectively (Gagne, 2017).

Methods of Measuring Children's Self-Regulation

Given that self-regulation is such a complex concept with multiple definitions across multiple disciplines, determining which methodologies to utilize as accurate measures of self-regulation can be a challenging task (McClelland, Geldhof, Cameron, & Wanless, 2015). It is suggested that researchers include multiple methods of measuring self-regulation within a single

study (McClelland et al., 2015). Some researchers suggest increasing the number of trials for a self-regulation task is administered to increase the number of observations of a child's performance can be measured (Adolph & Berger, 2006). Others suggest utilizing multiple measures of self-regulation to increase the number of trials to observe children's performance as a more representative method (Duckworth & Kern, 2011; Willoughby, Blair, Wirth, & Greenberg, 2012). Finally, best practices suggest utilizing a multi-method, multi-rater approach to obtain as much information possible regarding children's self-regulation across settings (Blair & Raver, 2012; McClelland, Ponitz, Messersmith, & Tominey, 2010). These multiple methods can include behavior rating scales, direct behavioral observations in the classroom, and direct observations of children completing self-regulation tasks. For multiple raters, researchers can obtain information from children, parents, and teachers (McClelland et al., 2015).

Adult-reports of self-regulation.

Parents and teacher can report information regarding children's self-regulation across different environment via rating scales. Adult-reports of children's self-regulation provide important quantitative and qualitative information regarding children's self-regulation across the home and school settings. However, parent and teacher reports require that the informants make judgments of multiple behaviors across varying lengths of time (McClelland et al., 2015; Putnam & Rothbart, 2006).

Children's Behavior Questionnaire. The *CBQ* (Rothbart et al., 1994) is a caregiver report measure of temperament regarding emotional reactivity, arousability, and self-regulation of children ages 3 to 7 years. This rating scale consists of 195 items across 15 subscales (e.g., Anger Frustration, Impulsivity, Inhibitory Control) and raters respond to the items using a 7-

point Likert scale, where a score of 1 represents Extremely Untrue of Your Child and a score of 7 represents Extremely True of Your Child (Rothbart et al., 1994).

Children's Behavior Questionnaire – Very Short Form. Recognizing a growing need for more time efficient measures, Putnam and Rothbart (2006) created the *CBQ – Very Short Form (CBQ-VSF)* to collect information about children's (3 to 8 years) temperament's higher order factors of surgency/extraversion, negative affectivity, and effortful control (Allan, Lonigan, & Wilson, 2013). This abbreviated measure allows researchers to include a specific measure of children's temperament while taking a quarter of the effort it would take to complete the full-report of the *CBQ*, given that the *CBQ-VSF* only takes about 15 minutes to complete. Items from the *CBQ* that are representative of developmental behaviors and traits across younger children (i.e., 3- to 5-year-olds) and older children (i.e., 6- to 8-year-olds) are included on the *CBQ-VSF* (Putnam & Rothbart, 2006). As an attempt to better describe a child's temperament across multiple settings, in multiple scenarios, and rely upon peer comparison information, the parent- and the teacher-reports of the *CBQ-VSF* were developed (Allan et al., 2013). Both versions of the *CBQ-VSF* include 36 items, where the rater uses the same 7-point Likert scale as on the *CBQ* (Putnam & Rothbart, 2006).

Direct behavioral observations of children's self-regulation.

Children's self-regulatory behavior can be directly observed in naturalistic settings (e.g., home, school) or while performing a specific behavioral task to collect insightful information regarding children's self-regulation. Direct behavioral observations of children are considered more valid and reliable measures because of the decreased risk for item bias from the observer (Ponitz et al., 2008). Potential ways to measure self-regulation include tasks that involve a child conforming to a unique set of instructions, delaying gratification, and resisting temptation

(Barkley, 1997). Ponitz and colleagues (2008) created a table that lists 13 commonly used self-regulation tasks for children, such as the *Bear/Dragon* (Reed, Pien, & Rothbart, 1984) and the *Day-Night Stroop* tasks (Gerstadt, Hong, & Diamond, 1994).

Bear/Dragon. The *Bear/Dragon* (Reed et al., 1984) is a behavioral task measuring children's inhibition of self-regulation through a "Simon Says" game. The researcher explains the rules of the game, which require children to suppress engaging in commanded actions said by the "Naughty Dragon" puppet and engage in the commanded actions said by the "Nice Bear" puppet. The puppets command the child to make gestures, such as "Touch your ears" or "Stick out your tongue" (Carlson & Moses, 2001; Reed et al., 1984). Children's behavioral responses are scored on the Dragon trials using a 4-point scale, where a score of 0 is for Full-Movement (listening to the Naughty Dragon), a score of 1 is for an incorrect movement, a score of 2 is for Self-Corrected Inhibition, and a score of 3 is for Full-Inhibition. Higher scores on *Bear/Dragon* represent strong self-regulation (Carlson & Moses, 2001; Reed et al., 1994).

Head, Toes, Knees, Shoulders Task. The *Head, Toes, Knees, Shoulders Task* (*HTKS Task*; Ponitz, McClelland, Matthews, & Morrison, 2009) is a revised direct behavioral self-regulation task designed for 3- to 7-year-olds that considers developmental and individual differences of young children. In the *HTKS Task*, a researcher asks individual children to play a game where they must do the opposite of what the researcher tells them to do. For an example, when the researcher says, "Touch your toes," children are supposed to touch their head and vice versa. After the teaching trials, the children complete 10 test trials of random instructions saying to touch either their head or toes. Next, the researcher introduces a new set of rules that when the researcher says, "Touch your knees," children are supposed to touch their shoulders and vice versa. After providing the teaching trials for the new set of instructions, the researcher

administers an additional 10 test trials now including commands for all four body parts. Children's performance on the *HTKS Task* is based on their ability to inhibit the physical movement of touching the incorrect body part. Children who correctly point to their body part on the first attempt earned two points, earned one point when they self-correct, and incorrect responses earned zero points. Higher scores on *HTKS Task* indicate stronger self-regulation. (Ponitz et al., 2009).

Day/Night Stroop. The *Day/Night Stroop* (Gerstadt et al., 1994) is a self-regulation task designed for 3- to 7-year-olds to measure a child's performance of inhibiting the tendency to provide a conflicting verbal response instead of the actual response. Children are presented with one of two cards: a moon with a dark background or a sun with a bright background. When children are presented with the moon card, the researcher instructs them to say "day" and when presented with the sun card, the instructions are to say "night." Children complete three practice trials to determine whether the children have successfully learned the instructions and understand the task at hand. Following practice, children complete sixteen test trials where the cards are presented in a predetermined order, where they earn one-point for a correct response and zero points for an incorrect response. Higher scores on *Day/Night Stroop* indicate stronger self-regulation skills (Gerstadt et al., 1994).

Dinky Toys. *Dinky Toys* (Kochanska et al., 2000) is a behavioral task that measures children's performance in delay of gratification. The child begins the task by sitting with their hands on their knees as the researcher presents them with a box full of small prizes. The researcher states that they can select a prize out of the box, but the child needs to tell them which toy they want without touching or pointing to the toy. The child's behavioral response following the instructions is coded on a scale from 0 to 5, where higher scores indicate stronger delay of

gratification. A score of 0 is provided when the child immediately goes to grab a prize, 1 is earned when the child waits at least two seconds before reaching for a prize, 2 is earned when a child touches a prize but does not grab it out from the box, 3 is earned when a child points to the prize, 4 is earned when the child moves their hands from their lap, but does not reach to touch the prizes or box, and 5 is earned when the child waits with their hands on their lap (Kochanska et al., 2000).

Empirical Research Examining Children's Self-Regulation

Ponitz et al. (2009) examined the validity and reliability of the *HTKS Task* with kindergarten-age children and to what extent did the *HTKS Task* performance correlate with parent- and teacher-reports on children's self-regulation. There were 343 children participants, who completed the *HTKS Task*. Parents completed the *CBQ Short Form (CBQ-SF)*; Putnam & Rothbart, 2006) to measure the observed strength of their children's attentional focusing and inhibitory control behaviors and teachers completed the *Child Behavior Rating Scale (CBRS)*; Bronson, Tivnan, & Seppanen, 1995) to measure children's behavioral regulation. Considerable variability was observed on children's *HTKS Task*. Strong construct validity of the *HTKS Task* to the *CBQ-SF* parent-reports and the *CBRS* teacher-reports was found; significant positive correlations were observed between the *HTKS Task* with both the parent- and teacher-reports. Higher *HTKS Task* performance scores in the fall of kindergarten were predicted by higher scores of parent-reports on attentional focusing and inhibitory control in the spring and summer before kindergarten. Also, higher *HTKS Task* performance scores in the spring of kindergarten were predicted by higher scores on teachers' reports of classroom behavior functioning in the spring of kindergarten. To further their success once they begin formal schooling, young

children's self-regulatory skills need to be fostered to improve their academic achievement, social skills, and overall classroom behavior (Ponitz et al., 2009).

Gerstadt and colleagues (1994) utilized the *Day/Night Stroop* to measure the self-regulation of children 3½ - 7 years of age in a longitudinal study. Initially, younger children remembered and adhered to the *Day/Night Stroop* rules across the first few trials; however, their performance accuracy declined for the remaining trials of the task. Significant age effects were observed. Children younger than 5-years had trouble adhering to the rules of the task for its entire duration, and their scores were much lower compared to their older counterparts (Gerstadt et al., 1994). The research study's findings suggest that children younger than 5-years struggle to inhibit their behavior for longer durations of time without additional verbal prompts or reminders. At this age, young children may understand the "rules" of an activity initially, but they struggle with recalling and adhering to more than one rule for the entire duration of an activity. If the *Day/Night Stroop* task is to be used with very young children, it is recommended that the task's rules should be modified to instruct the children to "say the opposite word" of the picture (Gerstadt et al., 1994).

Rhoades and colleagues (2009) conducted a research study that examined the relation between self-regulatory skills and social competence of preschool-age children. Their study aimed to identify whether self-regulatory skills (i.e., inhibitory control) predict young children's social skills and problem behaviors. There were 146 children ages 4- and 5-years of culturally diverse backgrounds from an urban preschool setting who participated. *Day/Night Stroop* (Gerstadt et al., 1994) was used to measure the children's self-regulation and the *Preschool and Kindergarten Behavior Scales (PKBS; Merrell, 1996)* measured the teachers' observations of children's social skills and problem behaviors in school within the last month. As predicted,

results revealed a significant positive correlation between children's self-regulation performance on *Day/Night Stroop* and their social competence. These findings suggest better behavioral adjustment, stronger social skills, and fewer problematic behaviors for preschool-age children with stronger self-regulation (Rhoades et al., 2009).

Integration of Parent-Child Attachment, Self-Regulation and Peer Acceptance

Integration of Parent-Child Attachment and Children's Self-Regulation

Parents serve as crucial role models by guiding their children via modeling socially appropriate behavior and correcting their children's inappropriate behavior (Karreman, van Tuijl, van Aken, & Deković, 2008). How parents control their children's behaviors and show warmth towards their child influences their children's self-regulation (Karreman et al., 2008). The association between parental control and children's self-regulation is a growing area of research (Karreman et al., 2006). Parents who exhibit positive control encourage their children, provide them with teaching moments, and shape their children's behavior which all help their children learn how to problem-solve independently and reinforces children's self-regulatory development (Karreman et al., 2006, 2008; Putnam, Spritz, & Stifter, 2002; Strand, 2002). Positive control behaviors such as setting limits and providing structure are used to guide their children's behavior (Karreman et al., 2008). Parents who are responsive and warm engage in behaviors that show positive affect and acceptance toward their children (Karreman et al., 2008). Parents who establish expectations and boundaries and demonstrate positivity with their children are more likely to raise children with stronger self-regulation by creating an environment in which their children can feel comfortable and initiate interactions with others (Karreman et al., 2008).

On the other hand, parents' behaviors that implement negative control such as verbal/physical punishment and intrusion rely upon power assertion to manage their children's

behavior (Karreman et al., 2006, 2008). It is expected that negative parental control is inversely related with children's self-regulation because parents who are harsh and punitive towards their children's inappropriate behaviors are more likely to create an environment where their children's self-regulation is threatened (Karreman et al., 2006, 2008). Negative parental control decreases children's opportunities to strengthen their self-regulatory skills, and children with disinhibited behavior are at a greater risk of experiencing delays in their development.

Responsive parenting, or parents who display positive affect, acceptance, sensitivity, and warmth towards their children and use enriched language to support and encourage their children's interests, is thought to be crucial in fostering children's development (Karreman et al., 2006; Kochanska & Aksan, 1995; Landry et al., 2011; Lindsey, Mize, & Pettit, 1997; Maccoby & Martin, 1983). Parental responsiveness is positively correlated with children's skill development in self-regulation, problem-solving, social skills, attachment security, and behavior (Karreman et al., 2006; Landry et al., 2011). Responsiveness is also positively associated with secure attachment relationships and early parent-child interactions, allowing children to build trust and form a secure bond with their parents (Ainsworth, 1979; Kochanska & Aksan, 2004; Rispoli et al., 2013). Securely attached children are more likely to seek help from their parents when faced with difficulty and demonstrate stronger emotion regulation (Rispoli et al., 2013). By showing acceptance and encouragement towards their children through responsive parenting, parents foster their children's self-regulatory skills that they use in exploring unfamiliar situations and environment (Karreman et al., 2006).

Integration of Children's Self-Regulation and Peer Acceptance

The relation between children's self-regulation and their peer relationships is supported in research, where children's temperament encompasses their behavioral tendencies, emotional

reactivity, and self-regulatory abilities; these elements work with one another to impact children's social interactions (Contreras et al., 2000; Garner & Waajid, 2012; Rispoli et al., 2013). Young children utilize their self-regulatory skills to meet several interpersonal social demands placed upon them to behave in a more socially appropriate manner, such as resolving conflicts with others in a calm manner, focusing their attention to interact with others, and displaying positive emotional affect (Contreras et al., 2000). Young children need to acquire and develop self-regulatory skills to demonstrate their behavioral readiness to be successful in their classroom environments (Garner & Waajid, 2012). Children's positive emotionality is a part of their self-regulatory skills that influences how well liked they are by their peers (Garner & Waajid, 2012). Children who display more positive emotionality (e.g., happy, pleasant) are more likely to be sought out by their peers for play or conversation (Garner & Waajid, 2012).

In the preschool classroom, the quality of interactions among young children, their peers, and teachers are impacted by children's self-regulation (Rhoades et al., 2009). Conflict, including children taking toys without asking to share or sitting on the carpet in the same desired place as another child, is likely to arise multiple times throughout the school day in the typical preschool classroom. Many children's first impulse may be to aggress, either physically or verbally, towards the peer(s) who created the conflict. Whether children engage in aggressive behavior is dependent upon their strength of inhibition (Rhoades et al., 2009). Children who are better able to self-regulate will resist their dominant urge to rely on aggression and will engage in the subdominant, more appropriate behavior of using their words to express their feelings about the conflict. However, children who struggle with self-regulation may be unable to resist the dominant urge to aggress towards their peers in situations of conflict (Rhoades et al., 2009). Preschoolers who use their words appropriately to address conflict have a stronger tendency to

be viewed favorably by their peers and often will demonstrate stronger social competence, whereas preschoolers who rely upon aggression are more likely to be rejected by their peers and will be less socially competent, in part due to their concerning externalizing behaviors (Rhoades et al., 2009).

Self-regulation is crucial in fostering children's positive peer relationships. Children who demonstrate stronger self-regulation are better in controlling how they express negative emotions (e.g., anger, sadness) and utilizing the necessary social skills to be socially competent with their peers. Children with stronger self-regulation gain increased acceptance among their peers. In contrast, children who are more impulsive and demonstrate less effortful control often act out in an inappropriate manner, respond to situations without thinking, and are less liked by their peers (Spinrad et al., 2006).

Integration of Parent-Child Attachment and Peer Acceptance

Studying attachment security and peer interactions during preschool is important because it is the most relevant developmental period of the emergence of early social skills (Booth-LaForce & Kerns, 2009). Parent-child attachment relationships and young children's peer relationships are positively associated with one another (Lewallen & Neece, 2015). Early positive parent-child experiences help set the foundation for children to acquire and develop prosocial and problem-solving skills (Lewallen & Neece, 2015). Parents' positive interactions with their children and their implementing more sensitive parenting are a few examples to consider when evaluating parent-child attachment relationships. Preschool-age children are learning to explore having new play partners, how to function within a peer-group, and how to initiate interactions with other children (Sroufe, Egeland, & Carlson, 1999; Sroufe, Egeland, Carlson, & Collins, 2005). Children's willingness to seek out peer interactions is dependent upon

their exploratory behaviors within the parent-child attachment relationship. Children who have secure attachment relationships with their parents predict children's self-esteem, social competence, and prosocial behavior (Grimes, Klein, & Putallaz, 2004; Raikes et al., 2013; Thompson, 2016). The parent-child attachment relationship also can function as a model of conflict resolution and preschool-age children can utilize these conflict resolution strategies with their peers.

Young children raised by parents who are direct, responsive, and involved are more likely to demonstrate stronger social competence as they grow older. Securely attached children develop and maintain more positive social relationships and receive more social support from these relationships with adults and peers alike (Grimes et al., 2004; Thompson, 2016). In contrast, young children raised by parents who are hostile and experience conflict more often are at-risk for developing negative social outcomes, such as experiencing peer rejection (Booth-LaForce & Kerns, 2005; Driscoll & Pianta, 2011; Grimes et al., 2004). Overall, children in families who are closer to one another and experience lower levels of relational frustration are more likely to engage in amicable interactions with peers, be preferred play partners, and develop quality peer relationships (Hay, Caplan, & Nash, 2009). In contrast, children in families who experience more frequent negative interactions, higher levels of relational frustration, and increased amounts of conflict are more likely to engage in hostile interactions with their peers and not be preferred playmates (Hay et al., 2009).

Children's families and peers compose one integrated social world, where the quality of children's experiences with their families are intertwined with the strength of the peer relationships and interactions (Booth-LaForce & Kerns, 2009; Sroufe et al., 1999). The quality of early parenting (e.g., attachment, closeness) sets the foundation of the attachment relationship's

security, where these early attachment experiences create a potential blueprint for how children develop their social-emotional functioning external to their family (Booth-LaForce & Kerns, 2009), including individual differences on children's relationships with their peers and their functioning within their peer groups (Booth-LaForce & Kerns, 2009).

Children need to learn how to relate to their same-age peers, as this is imperative to their overall development. Being able to make this connection with their peers lays the foundation for establishing close friendships and intimate partnerships in the future (Sroufe et al., 1999, 2005). Securely attached children have greater chances to engage in positive interactions with their peers, compared to non-securely attached children (Berlin et al., 2008). Due to their increased willingness to explore new situations, securely attached children often are more accepted by their peers (Berlin & Cassidy, 1999; Booth-LaForce, & Kerns, 2009).

The Present Study

The main purpose of this study was to understand the relation among preschoolers' peer acceptance, parent-child attachment relationship qualities, and preschoolers' self-regulation while considering child age and gender. The vast literature on peer acceptance and its associations with attachment relationships and self-regulation established clear connections among these constructs (i.e., Contreras & Kerns, 2000; Contreras et al., 2000; Hay et al., 2009; Ladd & Sechler, 2013; Rispoli et al., 2013; Szewczyk-Sokolowski, Bost, & Wainwright, 2005). The attachment relationship is a strong predictor for many developmental outcomes and future relationships for children, which makes it an appropriate predictor for children's peer acceptance (i.e., Grimes et al., 2004; Raikes et al., 2013; Zhang, 2011). The quality of parent-child attachment relationships influences developmental outcomes such as later relationships (i.e., childhood friends and peers, teachers, their own children; Berlin et al., 2008; Zhang, 2011), skills

related to academics and language, emotional and behavioral competence (Zhang, 2011), social competence, peer competence, and peer acceptance (Booth-LaForce & Kerns, 2009; Grimes et al., 2004; Raikes et al., 2013).

Children's self-regulation is influenced by interactions among caregivers and their children (i.e., Karreman et al., 2006, 2008; Lewallen & Neece, 2015; Olson et al., 1990). Parental characteristics and behaviors relating to forming secure attachments are connected to children developing adaptive regulation (Contreras et al., 2000). Maternal sensitivity and responsiveness are positively related to children's ability to comply with adults' instructions (Olson et al., 1990). For example, parents implementing positively controlling behaviors, like teaching or encouraging their children, is positively correlated with children's self-regulation (Karreman et al., 2006). More specifically, parents and caregivers who are clear, consistent, but nonpunitive when implementing parenting control increases their child's compliance (Olson et al., 1990). In contrast, parents implementing negatively controlling behaviors, such as anger and criticism, is inversely correlated with children's self-regulation (Karreman et al., 2006). Parents and caregivers who frequently rely upon physical punishment to control their children experience decreases in their child's compliance (Olson et al., 1990).

How well-regulated a child is impacts how well-liked they are by their peers (i.e., Berdan et al., 2008; Coplan & Arbeau, 2009; Garner & Waajid, 2012; Ladd & Price, 1987; Rhoades et al., 2009; Spinrad et al., 2006). Young children with self-regulation skills are more likely to demonstrate prosocial behaviors when interacting with their peers (Rhoades et al., 2009). Children develop more effective social skills to utilize when socializing with other children and experience fewer behavioral concerns when they are able to inhibit their behavior as necessary

(Rhoades et al., 2009). When children are able to effortfully control their focus and behavior, they better develop the social skills necessary for them to be well-liked (Spinrad et al., 2006).

The direct association between parent-child attachment and children's peer acceptance can also be examined through mediation. Mediation is the concept where examining a direct effect from a predictor and an outcome can be better explained by instead examining the indirect effect of the predictor affecting outcome through a mediator (Hayes & Preacher, 2014).

Mediation is used to determine associations between existing variables and to what magnitude they exist (Hayes & Preacher, 2014). From a mediation perspective, the indirect effect suggests that parent-child attachment affects children's self-regulation and this effect ultimately influences children's peer acceptance. Given that attachment relationships can predict peer acceptance both directly and indirectly, self-regulation was tested as a possible mediator between the two variables (i.e., Contreras & Kerns, 2000; Lewallen & Neece, 2015; Rispoli et al., 2013).

The present study tested whether children's self-regulation served as a mediator of the relation of parent-child attachment relationship qualities (closeness and conflict) and children's peer acceptance. Complete data from 112 children ages 4 to 5 years, 112 parents/guardians, and 37 lead classroom teachers were included. The parent-child attachment qualities of closeness and conflict were assessed via parent/guardian self-report on the Closeness and Conflict scales on the *CPRS-SF* (Pianta, 1992) and the Attachment and Relational Frustration subscales on the *BASC-3 PRQ-P* (Reynold & Kamphaus, 2015). Child self-regulation was assessed using four behavioral measures including *Bear/Dragon* (Reed et al., 1984), *HTKS Task* (Ponitz et al., 2009), *Day/Night Stroop* (Gerstadt et al., 1994), and *Dinky Toys* (Kochanska et al., 2000), as well as one teacher-report on the Effortful Control dimension of the *CBQ-VSF* (Putnam & Rothbart, 2006). Children's peer acceptance was assessed via teacher-report on the Peer Acceptance subscale of

the *Pictorial Scale* (Harter & Pike, 1984). Additionally, demographic information, such as racial/ethnic identity, highest level of education completed, was collected from parents/guardians and lead teachers to describe the sample.

This study tested three mediation models through path analysis to examine whether preschoolers' self-regulation mediates the association between parent-child attachment qualities (closeness and conflict) and preschoolers' peer acceptance, while taking children's age and/or gender into consideration. In particular, this study sought to address three research questions. The first research question asked whether preschoolers' self-regulation mediates the association between parent-child attachment qualities and preschoolers' peer acceptance. For this first mediation model, it was hypothesized that the proposed mediation model (see Figure 1) would demonstrate a good fit, where parent-child attachment relationship qualities would predict preschoolers' self-regulation, which in turn would predict preschoolers' peer acceptance.

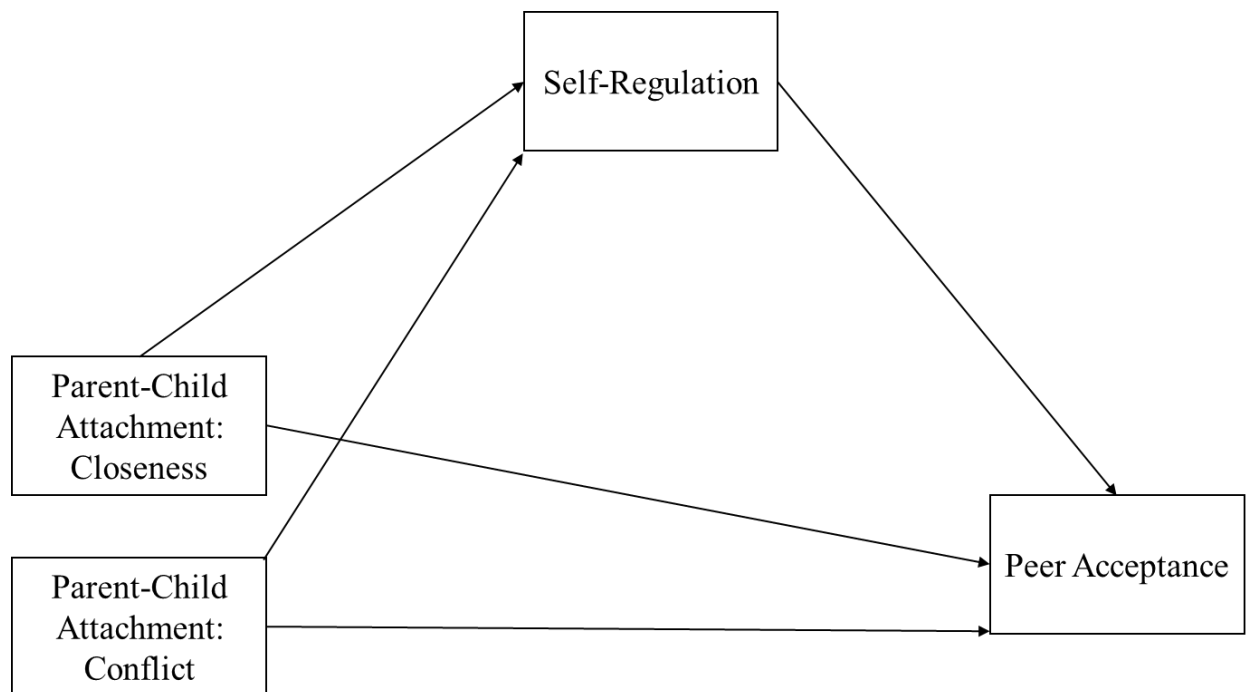


Figure 1. Overview of Hypothesized Mediation Model 1.

The second research question asked whether there exist any age differences to consider in preschoolers' self-regulation within the proposed model. For the second mediation model, it was hypothesized that older preschoolers would demonstrate stronger self-regulation (see Figure 2). Past research supports significant differences in children's self-regulation based on their age (e.g., Gerstadt et al., 1994; Rhoades et al., 2009). Children's age is important for their social, emotional, and behavioral development (Cantalini-Williams, Perron, & Biemiller, 2016). Many children younger than 5 years consistently struggle with demonstrating self-regulatory skills, such as controlling impulses, sustaining their attention for longer periods of time, and memory (Gerstadt et al., 1994; Rhoades et al., 2009). During the preschool and kindergarten years (e.g., children 3 to 6 years of age), young children experience rapid growth in their self-regulatory skills. However, despite this rapid growth, children 4 years or younger still struggle with inhibiting their impulses (Gerstadt et al., 1994; Rhoades et al., 2009). Younger children tend to demonstrate more behavioral concerns compared to their older counterparts (Bulotsky-Shearer, Wen, Faria, Hahs-Vaughn, & Korfmacher, 2012; Cantalini-Williams et al., 2016). Older children have acquired a better understanding of social and behavioral expectations and have further developed their emotional and social skills to be successful in semi-structured settings, including classrooms (Cantalini-Williams et al., 2016).

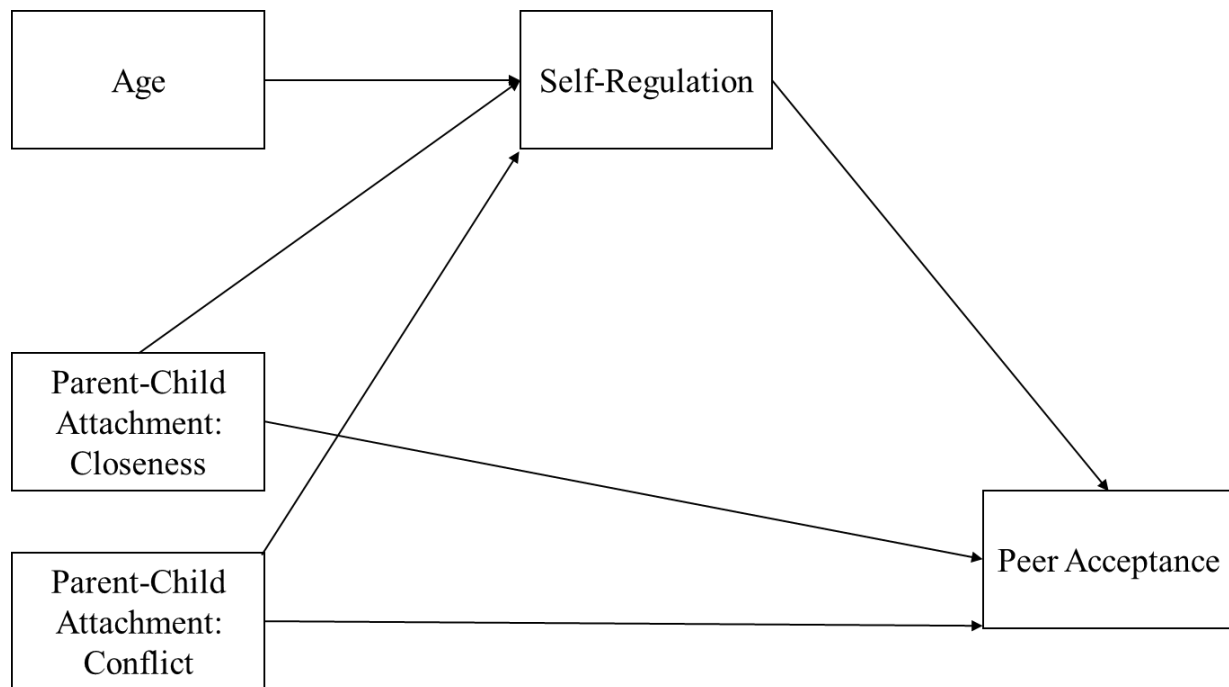


Figure 2. Overview of Hypothesized Mediation Model 2.

Finally, as an exploratory research question, the third research question asked whether there exist any gender differences to consider in preschoolers’ self-regulation within the proposed model. For the third mediation model, it was hypothesized that girls would demonstrate stronger self-regulation (see Figures 3 and 4). Past research also supports significant differences in children’s self-regulation based on their gender (e.g., Kochanska, Coy, & Murray, 2001; Matthews, Marulis, & Williford, 2014; Matthews, Ponitz, & Morrison, 2009). Younger boys, compared to younger girls, typically demonstrate lower levels of self-regulatory skills (Kochanska et al., 2001; Matthews et al., 2009), such as higher emotional volatility, slower declines in negative emotional responses, and higher activity levels (Else-Quest, Hyde, Goldsmith, & Van Hulle, 2006). An association between children’s gender and their self-regulation developmental trajectory can be observed in toddlerhood (Montroy, Bowles, Skibbe, McClelland, & Morrison, 2016), where boys’ self-regulation decreases around 2 years and then

increases, but girls' self-regulation gradually increases without any decline (Vallotton & Ayoub, 2011). The gender gap may continue to grow throughout childhood and adolescence (Matthews et al., 2014).

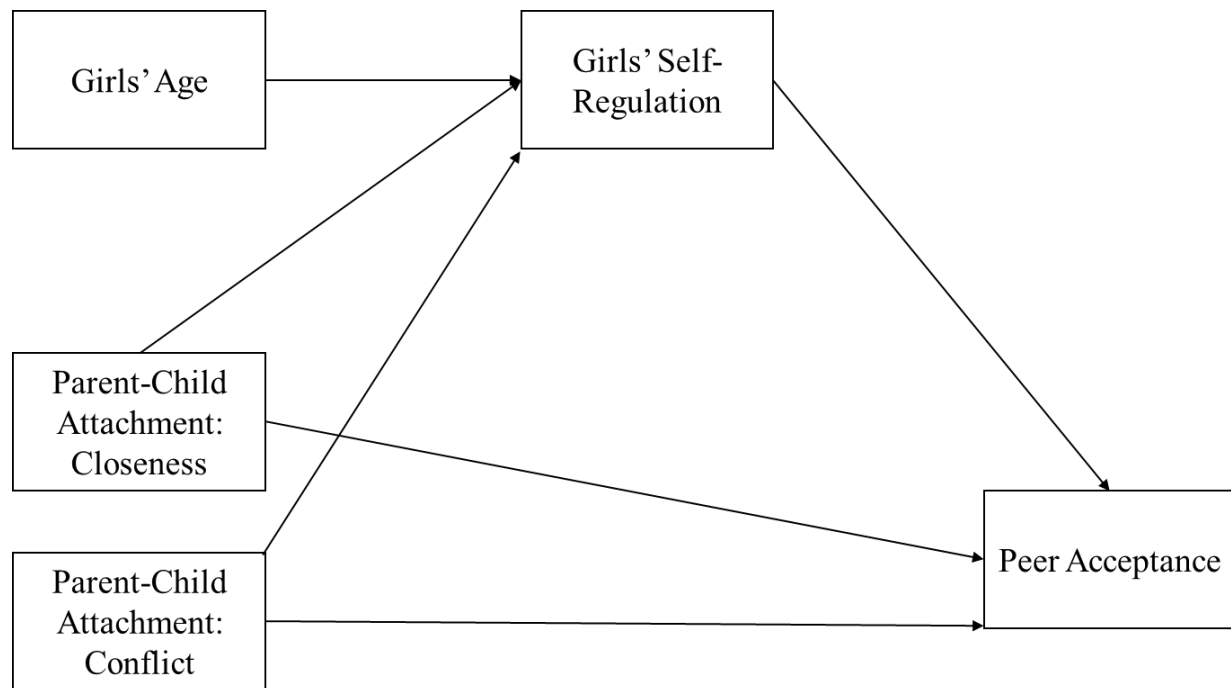


Figure 3. Overview of Hypothesized Mediation Model 3 for Girls.

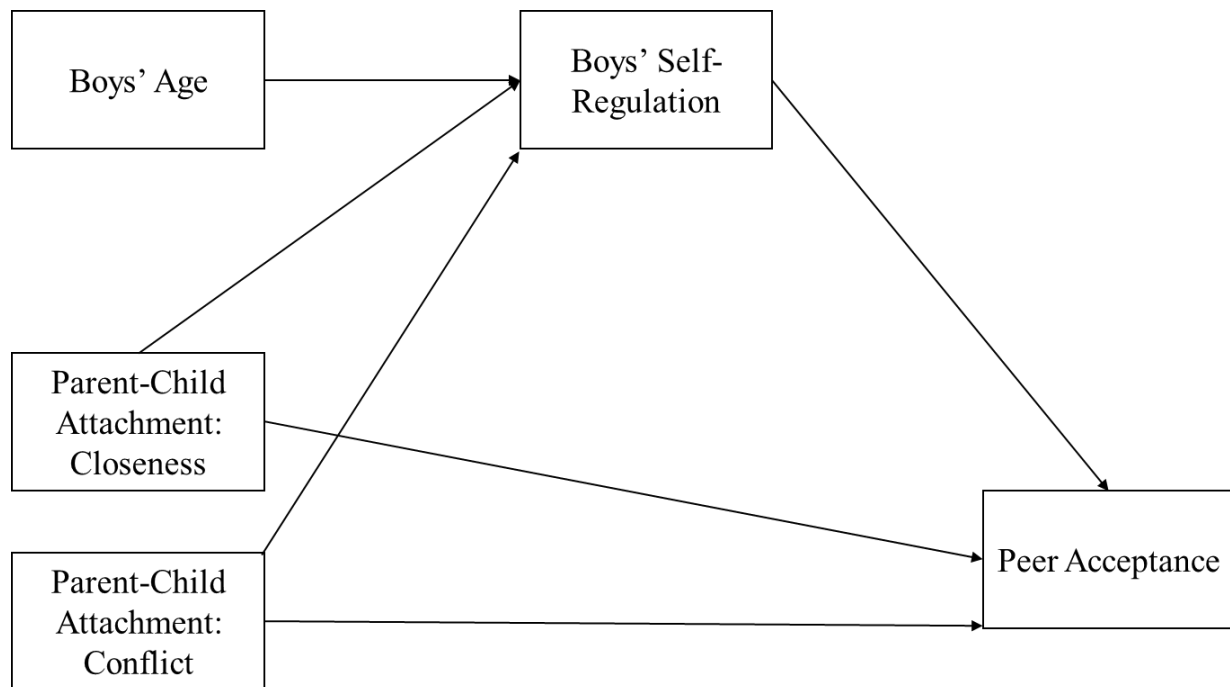


Figure 4. Overview of Hypothesized Mediation Model 3 for Boys.

CHAPTER III: METHOD

Participants

One hundred thirty-four children ranging in age from 48 months to 71 months ($M = 56.18$ months, $SD = 5.32$) were recruited across 42 classrooms from 21 local early childhood programs providing services to a wide-range of children and their families residing in small cities in the Midwestern United States (e.g., Head Start, public pre-kindergarten programs, private pre-kindergarten programs, etc.). Children were recruited from a wide variety of early childhood programs to maximize the overall variance. Parent/guardian reports indicated that 95 (70.9%) children identified as White, 10 children (7.5%) as African American/Black, 7 children (5.2%) as Latino/a, 10 (7.5%) children as Asian/Asian American, and 12 (9.0%) children as Other, which included children identified as biracial. Table 1 reports the number and percentage of the 134 child participants who attended each type of early childhood center.

Table 1

Child Participant Enrollment by Early Childhood Program Type (N = 134)

Early Childhood Program Type	Frequency	Percentage
Head Start	23	17.2
Private	111	82.8
For Profit	47	35.1
Not for Profit	64	47.8

There were 112 children (56 girls and 56 boys) with complete data that were included in the final sample used for data analysis. To be considered a complete case, at least one parent-report measure for closeness, at least one parent-report measures for conflict, at least three (of five possible) self-regulation measures, and the one teacher-report peer acceptance measure needed to be completed. All children received a small toy at the end of each data collection session. The 112 child participants with complete data included in the modeling satisfied the minimum requirement of the a priori sample size determined based on power analysis, where the ratio of the child participants to the number of estimated parameters in the mediation models tested with about eight to 10 child participants per parameter was calculated (Bentler & Chou, 1987). Given there were 14 parameters estimated in the present study, the sample size of 112 was on the low end of the suggested number, with 8 participants per parameter. Family demographic information was collected from 134 parents and guardians (123 mothers, 9 fathers, 1 guardian, and 1 unspecified), where one parent or guardian per child participated. Of the parent/guardian respondents, 102 (76.1%) identified as White, 10 (7.5%) identified as African American/Black, 7 (5.2%) identified as Latino/a, 11 (8.2%) identified as Asian/Asian American, and 4 (3.0%) identified as Other, which included identifying as biracial. Parents and guardians also reported information regarding the highest level of education completed and family annual income, which can be viewed in Tables 2 and 3, respectively. The parents and guardians who participated received one \$5 Target gift card upon return of the data collection packets.

Table 2

Parent/Guardian Education Level (N = 132)

Education Level	Frequency	Percentage
High School Diploma or GED	29	22.0
Associate degree	10	7.6
Bachelor's Degree	41	31.1
Master's Degree	33	25.0
Doctoral Degree	19	14.4

Table 3

Reported Gross Annual Income (N = 130)

Amount	Frequency	Percentage
<\$20,000	15	11.5
\$20,000 - \$34,999	15	11.5
\$35,000 - \$49,999	9	6.9
\$50,000 - \$74,999	10	7.7
\$75,000 - \$99,999	12	9.2
\$100,000 - \$149,999	41	31.5
\$150,000 - \$199,999	17	13.1
\$200,000<	11	8.5

Lead teacher demographic information was collected from the 37 lead teacher participants. Thirty-one lead teachers (83.7%) identified as White, 4 (10.8%) identified as African American/Black, 1 (2.7%) identified as Latino/a, and 1 (2.7%) identified as Other (i.e., biracial). The vast majority of the lead teachers identified as female ($N = 36$). Lead teachers indicated the number of years in their current teaching position, where the minimum was less than one year and the maximum was 20 years ($M = 5.86$, $SD = 5.95$). Their years of experience teaching overall were also indicated, where the minimum was one year and the maximum was 47 years ($M = 13.74$, $SD = 11.26$). Lead teachers also reported information regarding the highest level of education completed (see Table 4). Lead teachers received one \$5 Target gift card per class with participating students.

Table 4

Teacher Education Level (N = 37)

Education Level	Frequency	Percentage
High School Diploma or GED	1	2.7
Associate degree	8	21.6
Bachelor's Degree	27	73.0
Master's Degree	1	2.7

Materials

Child Measures

Data collection sessions with the child participants were video recorded by the research team. Child self-regulation was measured via four direct behavioral observation tasks selected based on extensive empirical literature focusing on inhibitory control and delay of gratification. Child tasks were coded live or via video recordings by trained members of the research team. The video recordings were used to check the research integrity of the protocol (e.g., adhering to the script verbatim) and to check for any observer drift in coding (e.g., incorrect scoring evident over time). The video recordings were also used to assess inter-rater reliability by trained members of the research team.

Bear/Dragon.

Bear/Dragon included a bear puppet, a dragon puppet, and verbal instructions on a script provided by the researchers. The bear puppet was about 15 inches in length with a head, torso, and arms, and the dragon puppet was 11 inches in length with a head, tongue, and torso (Reed et al., 1984). The written instructions asked the child to complete two habituation items (one for each hand puppet) and 12 test items (six for each hand puppet).

Head, Toes, Knees, Shoulders Task.

The *HTKS Task* is an inhibitory control task that did not require any materials other than verbal instructions on a script provided by the researchers (Ponitz et al., 2009).

Day/Night Stroop.

The *Day/Night Stroop* task is an inhibitory control task composed of 20 laminated 4" x 6" cards and verbal instructions on a script provided by the researchers. There are 10 cards with a white moon with a dark background and 10 cards with a bright yellow sun with a white

background. The written instructions asked the child to complete two habituation items and 16 test items (eight for each card type; Gerstadt et al., 1994).

Dinky Toys.

The *Dinky Toys* task is a delay of gratification task that used a clear 4.5” x 8” x 14” box containing small toys, such as stickers, bubbles, cars, necklaces, bouncy balls, etc. (Kochanska et al., 2000) and provided verbal instructions on a script provided by the researchers. The researchers used a timer to measure the child’s response time between the end of receiving the task instructions and their behavioral response. The written instructions prompted the child to sit with their hands in their lap, wait for the “prize box” to be placed on the table, and use their words to tell the researcher which prize they would like (Kochanska et al., 2000).

Parent/Guardian Measures

Parents/Guardians who provided written permission and consent to participate completed parent/guardian data packets that contained a demographic survey, the *CPRS-SF* (Pianta, 1992), and a modified *BASC-3 PRQ-P* (Reynolds & Kamphaus, 2015).

Teacher Measures

Lead teachers who provided written consent to participate received and completed a teacher data packet that contained a demographic survey and a child packet (for each participating student in their class) containing a modified *Pictorial Scale* (Harter & Pike, 1984) and a modified *CBQ-VSF* (Putnam & Rothbart, 2006).

Procedure

After obtaining approval from both the university’s Institutional Review Board (IRB) and Minor Activity Compliance Committee (MACC), the research team sought approval to begin recruitment from local early childhood program directors or principals. All written

director/principal approvals were documented and submitted to the IRB as modifications for each individual site to be officially added to the research study. After IRB approval was obtained for each modification, parent/guardian data packets composed of cover letters, consent/permission forms, demographic surveys, and two parent/guardian rating scales (the *CPRS-SF* and the *BASC-3 PRQ-P*) were sent home with all 4- and 5-year-old children enrolled in general education classes to their parents or guardians. Once any returned completed parent/guardian data packets were collected and processed by the research team, children with permission to participate and their lead classroom teachers were invited to participate. Children provided their verbal assent prior to their participation in the child self-regulation tasks (*Bear/Dragon*, *HTKS Task*, *Day/Night Stroop*, and *Dinky Toys*). Lead classroom teachers received teacher data packets composed of consent forms, demographic surveys, and two teacher rating scales (the *Pictorial Scale* and the *CBQ-VSF*) for each participating student in their class.

All child data collection sessions were conducted by a trained member of the research team, which was composed of a school psychology graduate student (the author of this dissertation) who has completed extensive training in standardized assessment administration and scoring procedures and seven undergraduate psychology students. All members of the research team learned and followed the child data protocol script that clearly stated the administration instructions for each self-regulation task (e.g., the script for each task, what instructions may or may not be repeated). A manual created by the lead researcher (the author of this dissertation) included the scoring instructions for each behavioral task (e.g., distinguishing between self-corrected and correct responses, how to calculate each task's final score). The lead researcher first learned the administration and scoring procedures of the child self-regulation tasks, as described in the researcher's protocol. Then, the lead researcher trained the other

research team members to practice the administration and scoring of the child participants' behavioral tasks while receiving corrective feedback until mastery of following the research protocol's administration and scoring procedures was demonstrated.

All child participants completed the self-regulation tasks in the same order: *Bear/Dragon*, *HTKS Task*, *Day/Night Stroop*, and *Dinky Toys*. The ordering of the child self-regulation tasks was chosen to ensure that the children remained engaged based on the duration each task lasted, how engaging the task materials were, and allowing for breaks during administration, if necessary. The number of child participants with completed data for each self-regulation task is reported in Table 5. Two researchers were assigned as the coders for each child self-regulation task and 22% of the child sessions (selected at random across all child sessions) were coded independently by the two coders for inter-rater reliability purposes. Inter-rater reliability for each measure is reported in the following section.

Table 5

Number of Child Participants Completing Self-Regulation Tasks (N = 134)

Self-Regulation Task	Number of Participants
<i>Bear/Dragon</i>	116
<i>HTKS Task</i>	115
<i>Day/Night Stroop</i>	105
<i>Dinky Toys</i>	119
<i>CBQ-VSF</i>	125

The lead researcher also learned the scoring procedures of the demographic surveys, parent/guardian questionnaires (the *CPRS-SF* and the *BASC-3 PRQ-P*) and the teacher questionnaires (the *Pictorial Scale* and the *CBQ-VSF*), as described in the researcher's protocol. Then, the lead researcher student trained the other research team members to practice the scoring procedures for the parent/guardian and teacher questionnaires while receiving corrective feedback until mastery was demonstrated. With the exception of the coding of the *BASC-3 PRQ-P* parent measure, the entire research team worked together to code, enter, and check the parent/guardian and teacher data. Only the lead researcher coded the *BASC-3 PRQ-P* parent measure due to needing access online scoring software containing client-sensitive information. Finally, the research team worked together to assist with scheduling, data collection set-up and video recording on-site at the local early childhood centers, and administration and scoring procedures for parent/guardian, child, and teacher data.

Child Tasks

Bear/Dragon.

In *Bear/Dragon*, the child was exposed to two hand puppets (a bear and a dragon) worn one on each hand by a member of the research team (Reed et al., 1984). The bear and dragon hand puppets provided instructions to the child to engage in specific movements (e.g., "Touch your ears," "Stick out your tongue"). A researcher instructed the child that they were to comply with the bear's directive commands, but to resist complying with the dragon's directive commands. The child was asked to complete a total of 12 test trials, six for each hand puppet and in a predetermined order. Although all 12 items were scored, only the six test items for the dragon puppet were used for data coding purposes. For the dragon puppet, the items were scored using a 4-point scale, where scores ranged from 0 to 3 (coded as 0 for Full Movement, 1 for

Incorrect Movement, 2 for Self-Corrected Inhibition, and 3 for Full Inhibition). The child's scores on the six dragon trials were summed for their final score, where higher scores demonstrated stronger self-regulation.

Reed and colleagues (1984) found *Bear/Dragon* demonstrated acceptable reliability and validity as a measure of young children's inhibitory control, which is a function of self-regulation. In the original study, *Bear/Dragon* task demonstrated reasonable test-retest reliability, $r = .85$ (Reed et al., 1984). In a later study, the *Bear/Dragon* task demonstrated significant construct validity with the *Day/Night Stroop* task, $r = .25, p < .05$ (Carlson & Moses, 2001). To ensure accuracy of coding, inter-rater reliability was conducted for 30 randomly selected child participants of the present study by having the two trained coders independently code each test trial. Cohen's Kappa was .94, representing strong inter-rater reliability for *Bear/Dragon* for the current study.

Head, Toes, Knees, Shoulders Task.

Using the protocol script, a researcher first introduced the *HTKS Task* to the child with two verbal commands, "Touch your head" and "Touch your toes" (Ponitz et al., 2009). Next, a researcher instructed the child to touch their head when they say toes, and vice versa. A researcher administered 10 test trials where a researcher provided one of the commands in a predetermined order and the child had time to touch the body part. A researcher then introduced the child to two additional commands, "Touch your shoulders" and "Touch your knees," where the researcher instructed the child to touch their knees when they said shoulders, and vice versa, and they received a reminder of the instructions for their head and toes (Ponitz et al., 2009). A researcher then administered the final 10 test trials providing one of four commands (i.e., head, toes, knees, shoulders) in a predetermined order. Each child completed a total of 20 test trials

that involved their responding to the researcher's verbal commands. The child's responses were scored using a 3-point scale, where scores ranged from 0 to 2 (coded 0 for Incorrect Response, 1 for Self-Correction, and 2 for Correct Response). The child's responses were summed across the 20 test trials, where higher scores demonstrated stronger self-regulation.

In a recent study, McClelland and colleagues (2014) determined the *HTKS Task* demonstrated acceptable reliability and validity as a measure of young children's inhibitory control, an aspect of self-regulation. In this study, behavioral self-regulation data was collected from 208 preschool-age children during the fall and spring of the same academic year. The *HTKS Task* showed strong test-retest reliability in preschool-age children, $r = .74, p < .001$ (McClelland et al., 2014). The *HTKS Task* demonstrated strong construct validity with the *Day/Night Stroop* task both in the fall, $r = .40, p < .001$, and in the spring, $r = .37, p < .001$ (McClelland et al., 2014). To ensure accuracy of coding in the present study, inter-rater reliability was conducted for 30 randomly selected child participants by having the two trained coders independently code each test trial. Cohen's Kappa was .92, representing strong inter-rater reliability for the *HTKS Task* in the current study.

Day/Night Stroop.

For *Day/Night Stroop*, all verbal instructions were provided by a researcher using the protocol script. Two cards (one moon, one sun) were used for the teaching trials where a researcher introduced the task by first telling the child to say "day" when they are shown a card with a white moon and then telling the child to say "day" again when presented with the same moon card (Gerstadt et al., 1994). Next, two cards (one moon, one sun) were used for the habituation trials for additional practice before administering the test items. For the habituation trials, the child was asked "What do you say when I show you this card?" for both the moon and

sun cards. If the child responded correctly, then the researcher provided positive feedback (e.g., “That’s right!”) and began the 16 test trials. However, if the child responded incorrectly, then the researcher provided corrective feedback and administered an additional pair of teaching trials for the sun and moon cards to determine whether the child understood the task before continuing on to the 16 test trials. If the child was unable to successfully pass three pairs of teaching trials, then the testing for *Day/Night Stroop* task was discontinued. For the children who successfully passed the teaching trials, the remaining 16 cards (eight moons, eight suns) were used for the test trials. A researcher presented the 16 test trials in the same predetermined order presenting the sun and moon cards eight times each without feedback to the child. Each of the child’s responses were scored as a 1 if correct/self-correct or a 0 if incorrect. The scores from all 16 test trials were summed, where higher scores represented stronger self-regulation. The child’s response time for the entire task was also recorded in seconds.

McClelland and colleagues (2014) found that *Day/Night Stroop* served as a reliable and valid measure of preschool-age children’s self-regulation. In this study, behavioral self-regulation data was collected from 208 preschool-age children during the fall and spring of the same academic year. *Day/Night Stroop* showed strong test-retest reliability in preschool-age children, $r = .41, p < .001$ (McClelland et al., 2014). *Day/Night Stroop* demonstrated strong construct validity with the *HTKS Task* both in the fall, $r = .40, p < .001$, and in the spring, $r = .37, p < .001$ (McClelland et al., 2014). To ensure accuracy of coding in the present study, inter-rater reliability was conducted for 30 randomly selected child participants by having the two trained coders independently code each test trial. Cohen’s Kappa was .92, representing strong inter-rater reliability for *Day/Night Stroop* in the current study.

Dinky Toys.

In *Dinky Toys*, a researcher started the task by asking the child to place their hands in their lap before bringing out a transparent plastic box of small toys (e.g., stickers, bubbles, cars, etc.) to place in front of the child (Kochanska et al., 2000). As soon as the clear box was placed on the table, the child was instructed to tell the researcher which small toy they desired without touching or pointing to it. Another researcher began timing the child's response as soon as they finished providing the instructions. Once the child responded, the researcher with the stopwatch coded their response and noted the child's response time in seconds. The child's response was scored using a 6-point scale (coded as 0 for grabbing the toy, 1 for touching the toy without grabbing it, 2 for pointing to the toy without touching it, 3 for removing their hands from their knees without pointing to a toy, 4 for moving their hands on their lap, and 5 for keeping their hands on their knees; Kochanska et al., 2000). A higher score represented stronger self-regulation.

Dinky Toys is a reliable and valid measure of preschool-age children's delay of gratification, which is an aspect of self-regulation (Murray & Kochanska, 2002). Kochanska Murray, and Harlan (2000) and Murray and Kochanska (2002) demonstrated strong reliability for *Dinky Toys*, $\kappa = 1.0$. In a later study, acceptable construct validity was observed between the *Dinky Toys* and a modified version of *Bear/Dragon* (a cow puppet was used instead of a bear puppet), $r = .31$, $p < .01$ (Dennis, Brotman, Huang, & Gouley, 2007). To ensure accuracy of coding, inter-rater reliability was conducted for 30 randomly selected child participants by having the two trained coders independently code each test trial in the present study. Cohen's Kappa was .88, representing good inter-rater reliability for *Dinky Toys* in the current study.

Parent/Guardian Questionnaires

Parents and guardians who provided consent to participate were asked to complete three forms in the parent data collection packets: a parent/guardian demographic survey, the Closeness and Conflict subscales of the *CPRS-SF*, and the Attachment and Relational Frustration scales of the *BASC-3 PRQ-P*.

Parent demographic information.

Parents/Guardians completed a paper demographic survey that asked about their race/ethnicity, relationship to their child, gender, highest level of education completed, family's gross income level, and their participating children's race/ethnicity, gender, and date of birth.

Child-Parent Relationship Scale Short Form.

Parents/Guardians completed a paper copy of the *CPRS-SF* (Pianta, 1992) to measure parent-child relationship characteristics of closeness and conflict. The Conflict and Closeness subscales of the *CPRS-SF* were used to measure parent-child attachment relationships. The Closeness subscale included eight items (e.g., "I share an affectionate, warm relationship with my child") and the Conflict subscale included seven items (e.g., "My child and I always seem to be struggling with each other"). Parents/Guardians rated the items using a 5-point Likert scale (1 is Definitely Does Not Apply, 3 is Neutral/Not Sure, and 5 is Definitely Applies). The parents/guardians' responses on each subscale were summed. Higher scores on the Closeness subscale represented greater closeness and warmth they experienced with their child. Higher scores on the Conflict subscale represent increased conflict experienced with their child.

Zhang (2011) determined the *CPRS-SF*'s Closeness and Conflict subscales to be reliable measures of the parent-child relationship with acceptable internal consistency, $\alpha = .72$ for the Closeness subscale and $\alpha = .83$ for the Conflict subscale. In another study, Driscoll and Pianta

(2011) identified strong construct validity for the mother-reports on the *CPRS-SF* Closeness and Conflict subscales with the *CBCL* (Achenbach, 1992) Externalizing and Total Problems subscales and the *Social Skills Rating System* (*SSRS*; Gresham & Elliott, 1990) Competence and Problem Behavior subscales. *CPRS-SF* Closeness was correlated in the expected directions with *SSRS* Competence, $r = .35, p < .01$, and Problem Behavior, $r = -.18, p < .01$ (Driscoll & Pianta, 2011). *CPRS-SF* Closeness was correlated in the expected directions with *CBCL* Externalizing, $r = -.18, p < .01$, and Total Problems, $r = -.23, p < .01$ (Driscoll & Pianta, 2011). *CPRS-SF* Conflict was correlated in the expected directions with *SSRS* Competence, $r = -.45, p < .01$, and Problem Behavior, $r = .51, p < .01$ (Driscoll & Pianta, 2011). *CPRS-SF* Conflict was correlated in the expected directions with *CBCL* Externalizing, $r = .58, p < .01$, and Total Problems, $r = .53, p < .01$ (Driscoll & Pianta, 2011). For the *CPRS-SF* subscales, Cronbach's α for the present sample was .53 for Closeness and .80 for Conflict, demonstrating poor and good internal consistency, respectively.

Parenting Relationship Questionnaire – Preschool Form.

Parents/Guardians completed a paper copy a modified *Behavior Assessment for Children, Third Edition Parenting Relationship Questionnaire – Preschool Form* (*BASC-3 PRQ-P*; Reynolds & Kamphaus, 2015) where they were asked to complete the 29 items that compose the Attachment and Relational Frustration scales. The Attachment scale included 14 items that measured how close the parents/guardians felt to their child (e.g., “My child enjoys spending time with me”). The Relational Frustration scale included 15 items that measured the level of difficulty parents/guardians experienced with their children (e.g., “I feel like parenting is harder than it should be”). Parents/Guardians responded to these items using a 4-point Likert scale (1 is Never, 2 is Sometimes, 3 is Often, and 4 is Almost Always). Each scale's items were summed

and calculated into a *T*-score by referencing gender-specific norms established by Reynolds and Kamphaus (2015) using computer scoring software. On the Attachment scale, higher scores indicated the parent/guardian has stronger feelings of closeness, empathy, and understanding on their child's behalf. However, higher scores on the Relational Frustration scale indicated the parent/guardian experiences higher levels of stress regarding managing their child's behavior, their child's affect, and their frustration in parenting situations (Reynolds & Kamphaus, 2015).

Reynolds and Kamphaus (2015) determined the *BASC-3 PRQ-P* Attachment and Relational Frustration scales to be reliable and valid measures of parent-child relationship qualities. The internal consistency of the *BASC-3 PRQ-P* scales were determined using their gender-based norms. For girls, their internal consistencies were acceptable, Attachment $\alpha = .87$, and Relational Frustration $\alpha = .90$. For boys, their internal consistencies also were acceptable, Attachment $\alpha = .88$, Relational Frustration $\alpha = .93$ (Reynolds & Kamphaus, 2015). The *BASC-3 PRQ-P* scale intercorrelation for Attachment and Relational Frustration was $-.29$ for girls and $-.40$ for boys (Reynolds & Kamphaus, 2015). For the *BASC-3 PRQ-P* scales, Cronbach's α for the present sample was $.83$ for Attachment and $.88$ for Relational Frustration, demonstrating good internal consistency.

Teacher Questionnaires

Teachers who provided consent to participate were asked to complete three forms in the teacher data collection packets: a teacher demographic survey, the Effortful Control dimension of the *CBQ-VSF* and the Peer Acceptance subscale of the *Pictorial Scale*.

Teacher demographic information.

Lead teachers were asked to complete a paper demographic survey that asked about their race/ethnicity, highest level of education completed, the number of years holding their current job position, and their total number of years of teaching experience.

Pictorial Scale of Perceived Competence and Social Acceptance.

Lead teachers completed a paper copy of a modified *Pictorial Scale* (Harter & Pike, 1984) as a measure of child's peer acceptance, where lead teachers were asked to complete only the six items on the Peer Acceptance subscale (e.g., "Gets asked to play by others"). The teachers rated how true each statement was for each child participant using a 4-point Likert scale (1 is Not Very True and 4 is Really True). The teacher's responses on the Peer Acceptance subscale of the *Pictorial Scale* were averaged, where higher scores indicated the teacher's perceiving the child as being more accepted among their peers.

Harter and Pike (1984) found that the Peer Acceptance subscale of the *Pictorial Scale* served as a reliable and valid measure of preschoolers' peer acceptance. Data from the teacher- and the child self-reports of the *Pictorial Scale* were gathered, and they demonstrated strong internal consistency, $\alpha = .74$, for preschool-age children. For preschool-age children, the intercorrelations among the Peer Acceptance subscale with the other three subscales were moderately strong, with Cognitive Competence ($r = .56, p < .001$), with Physical Competence ($r = .48, p < .001$), and with Maternal Acceptance, ($r = .64, p < .001$). Cronbach's α for the present sample was .83, demonstrating good internal consistency on the Peer Acceptance subscale.

Children's Behavior Questionnaire – Very Short Form.

Lead teachers completed a paper copy of a modified *CBQ-VSF* (Putnam & Rothbart, 2006) as a measure of children's self-regulation. Lead teachers were asked to complete only the

12 items comprising the Effortful Control dimension of the *CBQ-VSF*, which specifically focuses on children's self-regulation skills such as inhibitory control and attention focusing (e.g., "Approaches places s/he had been told are dangerous slowly and cautiously"). Teachers responded to these items using a 7-point Likert scale (1 is Extremely Untrue, 4 is Neither True nor False, and 7 is Extremely True). Teachers also had the option to mark Not Applicable for any item if they feel as if the situation has not been observed for that student. Responses were averaged to calculate one score for Effortful Control, where higher average scores represented children demonstrating stronger effortful control.

Multiple studies have found the teacher-report of the *CBQ-VSF* Effortful Control dimension to be a reliable and valid measure of preschool-age children's effortful control, which is an aspect of self-regulation (de la Osa, Granero, Penelo, Domènech, & Ezpeleta, 2014; Putnam & Rothbart, 2006). The internal consistency for the Effortful Control dimension of the *CBQ-VSF* was acceptable, $\alpha = .66$ (de la Osa et al., 2014). Construct validity was measured by comparing the *CBQ-VSF* Effortful Control dimension to the *CBQ-SF* Inhibitory Control factor using correlations, and the correlation was strong in the expected direction, $r = .83$ (de la Osa et al., 2014). Cronbach's α for the present sample was .84, demonstrating good internal consistency.

CHAPTER IV: RESULTS

Data were analyzed using IBM SPSS Statistics for Windows version 24.0 (IBM Corporation, 2016) and LISREL computer program version 9.30 (Jöreskog & Sorbog, 2017). The first step was to examine descriptive statistics and correlations for the variables of interest: parent-child closeness, parent-child conflict, self-regulation, and peer acceptance. Four correlation matrices of the variables of interest (i.e., individual parent-child attachment quality, self-regulation, and peer acceptance measures; composite variables for parent-child attachment closeness, parent-child attachment conflict and self-regulation; child gender, and child age in months) were examined to gather preliminary details about the relations among variables. The matrices included the correlations for 1) all children ($N = 134$), 2) all girls only ($N = 64$), 3) all boys only ($N = 70$), and 4) with a smaller subset ($N = 87$) of children while controlling for child's age, along with descriptive statistics (see Tables 6, 7, 8, and 9, respectively).

Regarding parent-child attachment qualities, closeness and conflict were significantly and inversely correlated as expected. Caregivers and children who demonstrate more closeness and warmth within their relationship are less likely to experience conflict. Children's age and conflict within the attachment relationship were also significantly and inversely correlated as expected; as children get older, they experience less conflict with their caregivers possibly due to further development of their skills (e.g., cognitive, language, social-emotional). For example, as children get older, their vocabulary and expressive language expands which allows them to communicate their wants and needs more clearly with their caregivers. Also, children's self-regulation performance (e.g., *HTKS Task*, *Day/Night Stroop*, and self-regulation overall) and children's age demonstrated significant correlations in the expected direction. Research supports children's self-regulatory skills improve with age (i.e., Espy, Kaufmann, Glisky, & McDiarmid, 2001;

Espy, Kaufmann, McDiarmid, & Glisky, 1999; Garon, Smith, & Bryson, 2014; Rhoades et al., 2009). The children's self-regulation tasks also demonstrated significant positive correlations among themselves. As expected, parent-child closeness and child self-regulation overall were both positively correlated with children's peer acceptance.

Table 6

Correlation Matrix and Descriptive Statistics for Individual and Composite Variables Across All Child Participants

Individual/Composite Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age (in months)	--	.01	-.07	-.04	-.17*	-.12	-.17	.18	.24*	.24*	.08	.15	.28**	.13
2. CPRS-SF Closeness	--	--	.53***	.87***	-.33***	-.20*	-.31***	-.08	.00	.04	.03	.18	.11	.20*
3. BASC-3 PRQ-P Attachment	--	--	--	.88***	-.37***	-.32***	-.40***	-.03	.06	.05	-.01	.16	.12	.27**
4. Closeness Composite	--	--	--	--	-.40***	-.30***	-.40***	-.07	.03	.05	.02	.18*	.13	.28**
5. CPRS-SF Conflict	--	--	--	--	--	.50***	.86***	.04	-.12	-.03	-.01	-.08	-.04	-.15
6. BASC-3 PRQ-P Relational Frustration	--	--	--	--	--	--	.87***	.09	.01	.14	.05	.01	.10	-.08
7. Conflict Composite	--	--	--	--	--	--	--	.08	-.06	.07	.02	-.04	.04	-.13
8. Bear/Dragon	--	--	--	--	--	--	--	--	.44***	.28**	.35***	.12	.69***	-.03
9. HTKS Task	--	--	--	--	--	--	--	--	--	.39***	.43***	.26**	.80***	.24*

(Table Continues)

Table 6, Continued

Individual/Composite Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
10. Day/Night Stroop	--	--	--	--	--	--	--	--	--	--	-.08	.05	.53***	-.06
11. Dinky Toys	--	--	--	--	--	--	--	--	--	--	--	.26**	.65***	.19
12. CBQ-VSF	--	--	--	--	--	--	--	--	--	--	--	--	.61***	.35***
13. Self-Regulation Composite	--	--	--	--	--	--	--	--	--	--	--	--	--	.27**
14. Pictorial Scale	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	48	26	28	-2.92	8	27	-1.88	0	0	0	0	2.00	-1.55	1.17
Maximum	71	35	67	1.19	31	74	2.62	18	38	16	5	7.00	1.17	4.00
<i>M</i>	56.18	33.61	54.79	-.001	15.52	46.62	.002	14.23	12.43	10.15	3.33	5.26	-.01	2.88
<i>SD</i>	5.32	1.65	7.93	.97	5.10	8.61	.86	5.82	10.93	5.13	2.12	1.01	.66	.73
<i>N</i>	134	132	134	134	132	134	134	116	115	105	119	125	120	126

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 7

Correlation Matrix and Descriptive Statistics for Individual and Composite Variables Across Girls

Individual/Composite Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age (in months)	--	.11	-.14	-.01	-.22	-.18	-.22	.10	.18	.24	.02	.15	.18	-.05
2. CPRS-SF Closeness	--	--	.50***	.87***	-.39***	-.28*	-.37**	-.09	-.02	.12	-.01	.06	.03	.20
3. BASC-3 PRQ-P Attachment	--	--	--	.87***	-.43***	-.39**	-.44***	.11	.20	.16	.18	.08	.22	.27*
4. Closeness Composite	--	--	--	--	-.47***	-.38**	-.47***	.01	.11	.16	.09	.08	.14	.29*
5. CPRS-SF Conflict	--	--	--	--	--	.64***	.92***	.05	-.18	-.10	-.02	-.11	-.12	-.27*
6. BASC-3 PRQ-P Relational Frustration	--	--	--	--	--	--	.90***	.09	-.13	.16	-.002	-.02	.004	-.24
7. Conflict Composite	--	--	--	--	--	--	--	.08	-.17	.03	-.01	-.07	-.07	-.27*
8. Bear/Dragon	--	--	--	--	--	--	--	--	.53***	.25	.63***	.29*	.80***	-.15
9. HTKS Task	--	--	--	--	--	--	--	--	--	.51***	.50***	.20	.81***	.16

(Table Continues)

Table 7, Continued

Individual/Composite Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
10. Day/Night Stroop	--	--	--	--	--	--	--	--	--	--	.07	-.15	.57***	.01
11. Dinky Toys	--	--	--	--	--	--	--	--	--	--	--	.35*	.77***	.13
12. CBQ-VSF	--	--	--	--	--	--	--	--	--	--	--	--	.50***	.22
13. Self-Regulation Composite	--	--	--	--	--	--	--	--	--	--	--	--	--	.09
14. Pictorial Scale	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	48	26	28	-2.92	8	27	-1.88	0	0	0	0	2.00	-1.55	1.17
Maximum	71	35	67	1.19	31	74	2.62	18	38	16	5	7.00	1.17	4.00
<i>M</i>	56.70	33.73	54.28	-.01	15.65	46.00	-.03	14.50	13.41	9.78	3.59	5.71	.12	3.02
<i>SD</i>	5.55	1.66	7.95	.87	5.04	7.54	.84	5.61	10.76	5.01	2.03	.84	.67	.71
<i>N</i>	64	63	64	64	63	64	64	58	59	55	58	60	59	61

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 8

Correlation Matrix and Descriptive Statistics for Individual and Composite Variables Across Boys

Individual/Composite Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age (in months)	--	-.10	-.004	-.06	-.14	-.06	-.11	.26	.31*	.27	.12	.11	.34**	.27*
2. CPRS-SF Closeness	--	--	.57***	.88***	-.28*	-.14	-.25*	-.08	.01	-.03	.06	.28*	.04	.19
3. BASC-3 PRQ-P Attachment	--	--	--	.89***	-.31**	-.29*	-.36**	-.16	-.08	-.08	-.14	.33**	-.08	.33**
4. Closeness Composite	--	--	--	--	-.33**	-.25*	-.35**	-.14	-.04	-.07	-.05	.34**	-.03	.30*
5. CPRS-SF Conflict	--	--	--	--	--	.40***	.82***	.03	-.08	.05	-.01	-.14	.01	-.07
6. BASC-3 PRQ-P Relational Frustration	--	--	--	--	--	--	.85***	.09	.14	.10	.11	.05	.21	.05
7. Conflict Composite	--	--	--	--	--	--	--	.81	.04	.10	.05	-.04	.14	-.02
8. Bear/Dragon	--	--	--	--	--	--	--	--	.36**	.33*	.11	-.09	.58***	.06
9. HTKS Task	--	--	--	--	--	--	--	--	--	.28	.36**	.23	.79**	.29*

(Table Continues)

Table 8, Continued

Individual/Composite Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
10. Day/Night Stroop	--	--	--	--	--	--	--	--	--	--	-.22	.08	.53***	-.13
11. Dinky Toys	--	--	--	--	--	--	--	--	--	--	--	.15	.54***	.21
12. CBQ-VSF	--	--	--	--	--	--	--	--	--	--	--	--	.53***	.36**
13. Self-Regulation Composite	--	--	--	--	--	--	--	--	--	--	--	--	--	.31*
14. Pictorial Scale	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	48	26	28	-2.92	8	27	-1.88	0	0	0	0	2.00	-1.55	1.17
Maximum	71	35	67	1.19	31	74	2.62	18	38	16	5	7.00	1.17	4.00
<i>M</i>	55.70	33.51	55.26	-.01	15.41	47.19	.03	13.97	11.41	10.56	3.08	4.85	-.14	2.74
<i>SD</i>	5.10	1.65	7.94	.88	5.19	9.5	.89	6.05	11.10	5.27	2.19	.99	.63	.73
<i>N</i>	70	69	70	70	69	70	70	58	56	50	61	65	61	65

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 9

Partial Correlation Matrix and Descriptive Statistics for Composite Variables Across All Child Participants While Controlling for Age

Individual/Composite Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. CPRS-SF Closeness	--	.47***	.86***	-.32**	-.17	-.29**	-.07	-.01	.11	-.07	-.03	-.02	.11
2. BASC-3 PRQ-P Attachment	--	--	.85***	-.45***	-.46***	-.53***	.01	.08	.14	-.03	-.04	.06	.21*
3. Closeness Composite	--	--	--	-.45***	-.36***	-.47***	-.04	.04	.15	-.06	-.04	.02	.19
4. CPRS-SF Conflict	--	--	--	--	.49***	.99***	.12	-.20	-.03	-.03	-.12	-.08	-.25*
5. BASC-3 PRQ-P Relational Frustration	--	--	--	--	--	.84***	.17	-.07	.13	.11	-.06	.10	-.13
6. Conflict Composite	--	--	--	--	--	--	.16	-.16	.05	.04	-.11	.001	-.22*
7. Bear/Dragon	--	--	--	--	--	--	--	.43***	.26*	.38***	.08	.73***	.03
8. HTKS Task	--	--	--	--	--	--	--	--	.34***	.41***	.12	.78***	.19
9. Day/Night Stroop	--	--	--	--	--	--	--	--	--	-.04	-.16	.50***	-.14

(Table Continues)

Table 9, Continued

Individual/Composite Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
10. Dinky Toys	--	--	--	--	--	--	--	--	--	--	.15	.63***	.11
11. CBQ-VSF	--	--	--	--	--	--	--	--	--	--	--	.35***	.31**
12. Self-Regulation Composite	--	--	--	--	--	--	--	--	--	--	--	--	.15
13. Pictorial Scale	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	48	26	28	-2.92	8	27	-1.88	0	0	0	0	2.00	-1.55
Maximum	71	35	67	1.19	31	74	2.62	18	38	16	5	7.00	1.17
<i>M</i>	33.76	55.70	.10	15.46	46.28	-.03	14.33	12.86	9.87	3.69	5.47	1.95	.72
<i>SD</i>	1.67	7.68	.85	5.30	7.82	.84	5.68	10.68	5.20	1.93	.81	.58	.72
<i>N</i>	87	87	87	87	87	87	87	87	87	87	87	87	87

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Data Reduction and Preliminary Analyses

The next step in the analysis process was to create composite scores using multiple similar measures. Composite scores for closeness, conflict, and self-regulation were created by standardizing all components of data that were related to each variable using linear transformations and calculating the average for each composite variable. For preschoolers' self-regulation, data collected from the four child tasks, *Bear/Dragon* (Reed et al., 1984), *HTKS Task* (Ponitz et al., 2009), *Day/Night Stroop* (Gerstadt et al., 1994), and *Dinky Toys* (Kochanska et al., 2000) and the teacher-report of the Effortful Control subscale on the *CBQ-VSF* (Putnam & Rothbart, 2006) were converted to standardized z-scores via linear transformations and averaged to create the composite score based on theoretical notions linking all of the measures (Song, Lin, Ward, & Fine, 2013). Higher scores demonstrated stronger preschoolers' self-regulation. To measure internal consistency of the self-regulation composite, Cronbach's alpha was calculated (Cronbach's $\alpha = .58$). Traditionally, Cronbach's alpha is calculated with measures that include about 30 items per measure, so the low Cronbach's alpha of .58 for the present study's self-regulation composite of five measures may not be representative of its internal consistency. Therefore, the Spearman-Brown formula (Brown, 1910; de Vet, Mokkink, Mosmuller, & Terwee, 2017; Spearman, 1910) was used to predict the internal consistency for the self-regulation composite one would expect if the five measures had six times as many parallel items (i.e., 30 items total). The Spearman-Brown formula predicted a Cronbach's alpha of .89, representing adequate internal consistency, so I utilized this composite in further analyses.

To verify whether any of the five self-regulation measures should be removed from the overall composite to strengthen the composite's internal consistency, item-total statistics were calculated. The item-total statistics were used to measure the self-regulation composite's internal

consistency (overall Cronbach’s $\alpha = .58$) if each individual measure were removed from the overall composite. The item-total statistics are depicted in Table 10. Deleting single items would not strengthen the internal consistency; however, decreasing to include only three of the five measures would improve consistency slightly: *Bear/Dragon*, *HTKS Task*, and *Dinky Toys*. Exploratory analyses using the three measure self-regulation composite were conducted to compare to the primary analyses. The internal consistency of the smaller self-regulation composite was .65. The overall patterns evident in the two sets of analyses were very similar; however, the pathway between preschoolers’ self-regulation predicting preschoolers’ peer acceptance was weaker. Given the similarity overall, these analyses are not discussed further, and the full composite was utilized in all analyses that follow.

Table 10

Item-Total Statistics for Self-Regulation Tasks

Self-Regulation Task	Cronbach’s Alpha if Item Deleted
<i>Bear/Dragon</i>	.43
<i>HTKS Task</i>	.36
<i>Day/Night Stroop</i>	.60
<i>Dinky Toys</i>	.55
<i>CBQ-VSF</i>	.63

For the parent-child attachment closeness composite, data collected from the two parent/guardian-report of the Closeness subscale of the *CPRS-SF* (Pianta, 1992) and the Attachment scale of the *BASC-3 PRQ-P* (Reynolds & Kamphaus, 2015) were converted to

standardized z-scores via linear transformations and averaged (Song et al., 2013). Higher scores demonstrated higher closeness experienced within the relationship among the parent/guardian and child. To measure internal consistency of the closeness composite, Cronbach's alpha was calculated (Cronbach's $\alpha = .69$). Traditionally, Cronbach's alpha is calculated with measures that include about 30 items per measure, so the low Cronbach's alpha of .69 for the present study's closeness composite of two measures may not be representative of its internal consistency. Therefore, the Spearman-Brown formula (Brown, 1910; de Vet et al., 2017; Spearman, 1910) was used to predict the internal consistency for the closeness composite one would expect if the five measures had 15 times as many parallel items (i.e., 30 items total). The Spearman-Brown formula predicted a Cronbach's alpha of .97, representing adequate internal consistency, so I utilized this composite in further analyses.

For the parent-child attachment conflict composite, data collected from the two parent/guardian-reports of the Conflict subscale of the *CPRS-SF* (Pianta, 1992) and the Relational Frustration scale of the *BASC-3 PRQ-P* (Reynolds & Kamphaus, 2015) were converted to standardized z-scores via linear transformations and averaged (Song et al., 2013). Higher scores demonstrated higher conflict experienced within the relationship among the parent/guardian and child. To measure internal consistency of the conflict composite, Cronbach's alpha was calculated (Cronbach's $\alpha = .66$). Traditionally, Cronbach's alpha is calculated with measures that include about 30 items per measure, so the low Cronbach's alpha of .66 for the present study's conflict composite of two measures may not be representative of its internal consistency. Therefore, the Spearman-Brown formula (Brown, 1910; de Vet et al., 2017; Spearman, 1910) was used to predict the internal consistency for the closeness composite one would expect if the five measures had 15 times as many parallel items (i.e., 30 items total). The

Spearman-Brown formula predicted a Cronbach's alpha of .97, representing adequate internal consistency, so I utilized this composite in further analyses.

An important step in the preliminary analyses was to investigate the potential role of nesting of data. Given that many of the children who participated in the study were in the same preschool classes and centers with the same teacher completing the measures, it was important to test the effects of nesting of data. It was possible that data collected for the child participants in a given classroom from a given school or center would be more similar to one another because of shared environmental factors, such as teachers, classrooms, schools/centers, and other contextual factors, compared to child participants from other classrooms and other schools. It is also possible that teacher-reported details would be more similar. It was critical to test the effects of nesting of data because individual lead teachers completed teacher-report rating scales for multiple children participants in their class. Intraclass correlations were conducted to measure the degree of nesting of data for child participants with the same preschool teacher. The variance due to the teacher ($n = 38$) was compared to the overall variance among all classrooms that participated in data collection for the teacher-report measures (i.e., *CBQ-VSF* of the self-regulation composite, *Pictorial Scale* of the peer acceptance composite, and the *CBQ-VSF* predicting the *Pictorial Scale*).

The intraclass correlations were conducted for all 134 participants using the data collected from the *Pictorial Scale* and the *CBQ-VSF*. For the *Pictorial Scale* (peer acceptance measure), the intraclass correlation coefficient was .16, and the corresponding percentage of teacher variance explained was 2.5% ($R^2 = .03$), which indicates low influence of same teacher effects. For the *CBQ-VSF*, the intraclass correlation coefficient was .35, and the corresponding percentage of teacher variance explained was 12.5% ($R^2 = .13$), which indicates low influence of

same teacher effects. Finally, for the *CBQ-VSF*, the intraclass correlation coefficient was .22, and the corresponding percentage of teacher variance explained was 4.7% ($R^2 = .05$), which indicates low influence of same teacher effects. The intraclass correlations calculated for the present study's data did not suggest a need for a multilevel modeling approach. Thus, the hypothesis testing for the present study proceeded using a structural equation modeling approach via path analysis.

Overview of Modeling Approach

With a structural equation modeling approach, it is important to determine how models reflect the data (Hooper, Coughlan, & Mullen, 2008). Various fit statistics can be utilized to describe a model's fit to the data (Hooper et al., 2008). For example, absolute fit indices, such as chi-squared (χ^2), RMSEA, and SRMR, can be used to determine how well an a priori model fits the sample data (Hooper et al., 2008; McDonald & Ho, 2002) and can be used to measure how well each model fits in comparison to no model at all (Jöreskog & Sörbom, 1993). The Chi-squared statistic (χ^2) is the traditional fit statistic used to evaluate the overall model fit and "assesses the magnitude of discrepancy between the sample and fitted covariance matrices" (Hu & Bentler, 1999, p. 2). For chi-squared values, a good statistical fit measures at a low value relative to the number of degrees of freedom and has an insignificant p value (i.e., $p > .05$; Hooper et al., 2008). However, it is recommended that chi-squared not be the only fit statistic utilized to determine statistical fit for a few reasons. Chi-squared values are sensitive to sample size. For larger sample sizes, chi-squared values may incorrectly accept models, where for smaller samples, chi-squared values lack the necessary statistical power to accurately identify a well-fitting versus a poor-fitting model (Hooper et al., 2008). The root mean square error of approximation (RMSEA) can be used to measure how well the model with unknown, but

optimally chosen, estimated parameters fit the population's covariance matrix (Byrne, 1998). Compared to other fit indices, the RMSEA is more informative because it is sensitive to the number of estimated parameters measured in the model. Typically, the RMSEA favors the model with the least number of parameters (Diamantopoulos & Siguaaw, 2000). For the RMSEA, the statistical fit measures as acceptable at a threshold of lower than .06 (Hu & Bentler, 1999) and measures as excellent at lower than .03 (Hooper et al., 2008). The standardized root mean residual (SRMR) is the standardized "square root of the difference between the residuals of the sample covariance matrix and the hypothesized covariance model" (Hooper et al., 2008, p. 54). The SRMR value ranges between 0.0 to 1.0, where it measures as acceptable at a threshold of lower than .08 (Hu & Bentler, 1999) and measures as well-fitting at a threshold of less than .05 (Byrne, 1998; Diamantopoulos & Siguaaw, 2000).

Incremental fit indices, such as NFI, NNFI, and CFI, can be used to compare the chi-squared value to a baseline model, where the null hypothesis states that all variables of interest are uncorrelated (Hooper et al., 2008; McDonald & Ho, 2002). The normed fit index (NFI) evaluates the fit of the model by comparing the chi-squared values of the test and null models, where the null model serves as the worst-case scenario because none of the measured variables are correlated with one another (Hooper et al., 2008). For the NFI, a model serves as a good fit with a threshold of greater than .95 (Hu & Bentler, 1999). One major drawback of the NFI is how sensitive it is to smaller samples ($N < 200$). However, it is recommended that the NFI is not the only fit statistic utilized to determine statistical fit and calculating the non-normed fit index (NNFI) helps account for the NFI's shortcoming. The NNFI is a fit index that prefers simpler models where a good-fitting model measures at a threshold of .95 or higher (Hu & Bentler, 1999). The comparative fit index (CFI) is a revised measure of the NFI that accounts for sample

size and measures well even with smaller sample sizes (Byrne, 1998; Hooper et al., 2008). The CFI assumes that all latent variables are uncorrelated and compares the sample covariance matrix with the null model (Hooper et al., 2008). The CFI is one of the most popularly reported fit statistics due to being one that is least affected by sample size (Hooper et al., 2008). For the CFI, a model serves as a good fit with a threshold of .90 or higher (Hu & Bentler, 1999).

Hypothesis Testing

The current study tested three mediation models via path analysis to describe how preschoolers' self-regulation can account for the association between parent-child attachment relationships and preschoolers' peer acceptance. Testing for mediation was measured via structural equation modeling using path analysis. Multiple fit statistics, including absolute fit indices (i.e., chi-squared [χ^2], root mean square error of approximation [RMSEA], standardized root mean residual [SRMR]) and incremental fit indices (i.e., normed fit index [NFI], non-normed fit index [NNFI], comparative fit index [CFI]) were calculated to determine the fitness of the proposed mediation models.

Table 11 contains the fit statistics, degrees of freedom, and significance values for all tested models. Results from the first mediation model demonstrated that the proposed model served a good statistical fit, supporting the notion that preschoolers' self-regulation mediates the association between parent-child attachment relationships and peer acceptance ($\chi^2 = .00, p = 1.00$). Results from the second mediation model supported significant age-based differences in preschoolers' self-regulation ($\chi^2 [1] = .13, p = 0.72, RMSEA = 0.0, SRMR = .01, NFI = 1.00, NNFI = 1.31, and CFI = 1.00$). Results from the third mediation model supported significant gender-based differences in preschoolers' self-regulation ($\chi^2 [15] = 14.46, p = 0.49, RMSEA = 0.0, girls' SRMR = .11, boys' SRMR = .09, NFI = 0.65, NNFI = 1.03, and CFI = 1.00$).

Table 11

Fit Statistics for All Models

Model	χ^2	<i>df</i>	<i>p</i>	RMSEA	SRMR	NFI	NNFI	CFI
Model 1	.00	0	1.00	--*	--*	--*	--*	--*
Model 2	.13	1	.72	0.0	.01	1.00	1.31	1.00
Model 3 Girls	14.46	15	.49	0.0	.11	.65	1.03	1.00
Model 3 Boys	14.46	15	.49	0.0	.09	.65	1.03	1.00
Model 3C Girls ⁺	14.84	16	.54	0.0	.11	.64	1.07	1.00
Model 3C Boys ⁺	14.84	16	.54	0.0	.10	.64	1.07	1.00

Note. *For Model 1, RMSEA, SRMR, NFI, NNFI, and CFI were not obtained due the model's oversaturation.

⁺For Model 3 Comparison, this model was used to constrain the effect of age, where the estimated parameter for age was equal for girls and boys.

Model 1: Overall Fit

The first mediation model addressed the first research question which asked, “Does preschoolers’ self-regulation mediate the association between parent-child attachment closeness and conflict and preschoolers’ peer acceptance?” It was predicted the proposed statistical model would provide a good statistical fit, where preschoolers’ self-regulation mediates the association between the parent-child attachment relationship and preschoolers’ peer acceptance (see Figure 1). First, the model examined whether the parent-child attachment relationship’s closeness and conflict significantly predict preschoolers’ self-regulation. Next, the model examined whether the parent-child attachment relationship relationship’s closeness and conflict significantly predict

preschoolers' peer acceptance. Then, the model examined whether preschoolers' self-regulation significantly predicts preschoolers' peer acceptance. Finally, the model examined whether the parent-child attachment relationship's closeness and conflict predict preschoolers' peer acceptance through preschoolers' self-regulation.

Figure 5 depicts the statistical representation of Model 1. Several indicators suggested that this model served as a good statistical fit for the present data and the proposed model. First, the χ^2 measured at 0.00 ($p = 1.00$, $n = 112$, $df = 0$), which meets the criteria for fit. Other fit statistics (i.e., RMSEA, SRMR, NFI, NNFI, and CFI) were unable to be estimated due to the model's saturation where the number of equations and the number of estimated parameters is equal to one another: This model must fit the data perfectly. In fitting the data perfectly, it is more important to examine the individual parameter estimates, which demonstrate a strong effect of close parental attachment and self-regulation to predict peer acceptance.

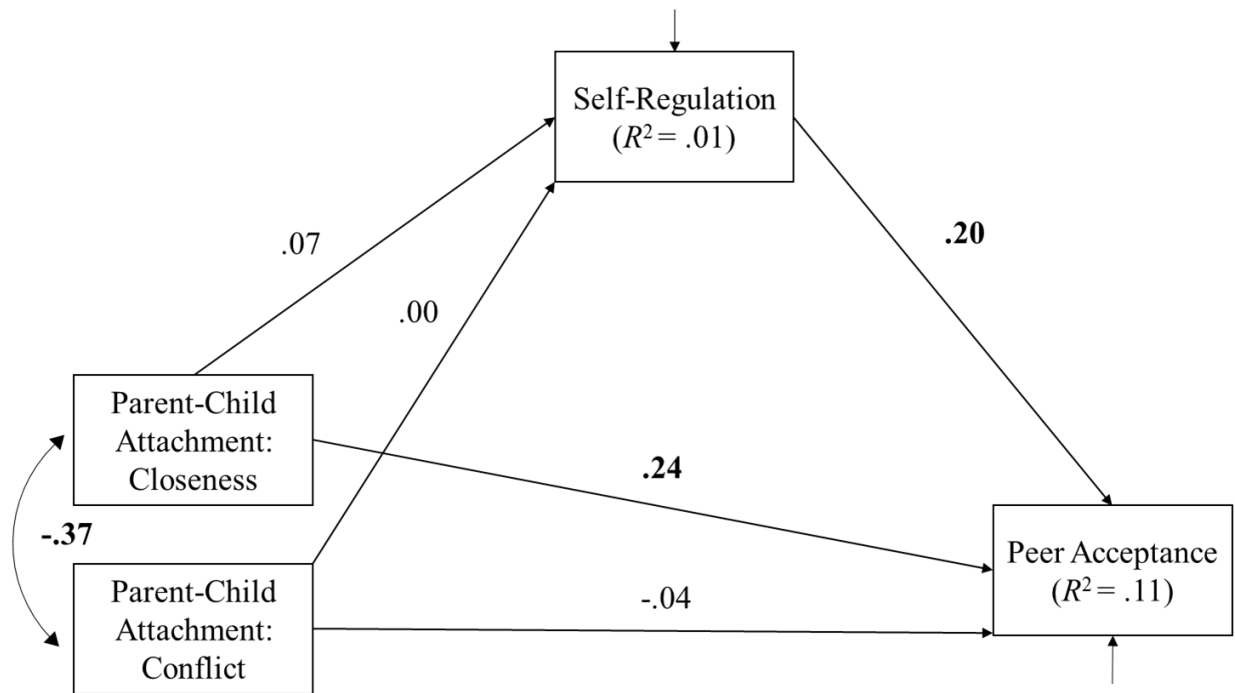


Figure 5. Statistical Representation of Mediation Model 1. Overall Fit of Self-Regulation Mediating Parent-Child Attachment Closeness and Conflict and Peer Acceptance. $\chi^2 = 0.00$, $df = 0$, $p = 1.00$

Model 2: Age Differences

The second mediation model addressed the second research question which asked, “Do any age differences need to be considered in preschoolers’ self-regulation within the proposed model?” It was predicted the proposed statistical model would demonstrate significant age differences in preschoolers’ self-regulation, where older children would demonstrate stronger self-regulatory skills compared to younger children (see Figure 2). Model 2 was the same as Model 1, where preschoolers’ self-regulation was the mediator, parent-child attachment qualities were the predictors, and preschoolers’ peer acceptance was the outcome; however, in addition, preschoolers’ age was a predictor of preschoolers’ self-regulation.

Figure 6 depicts the statistical representation of Model 2. Several indicators suggested that this model supported significant age differences in preschoolers' self-regulation. First, the χ^2 measured at 0.13 ($p = .72, n = 112, df = 1$), which meets the criteria for fit. Second, the RMSEA was 0.0, indicating excellent fit for meeting the threshold criteria of less than .03. Next, the SRMR was .01, also indicating good fit for meeting the threshold criteria of less than .05. Additionally, the NFI was 1.00 and the NNFI was 1.31, both of which met the criteria of at least .95 to demonstrate good fit. Lastly, the CFI was 1.00, which served as another indicator of good fit. Model 2's good statistical fit demonstrates that significant age differences can be observed in preschoolers' self-regulation.

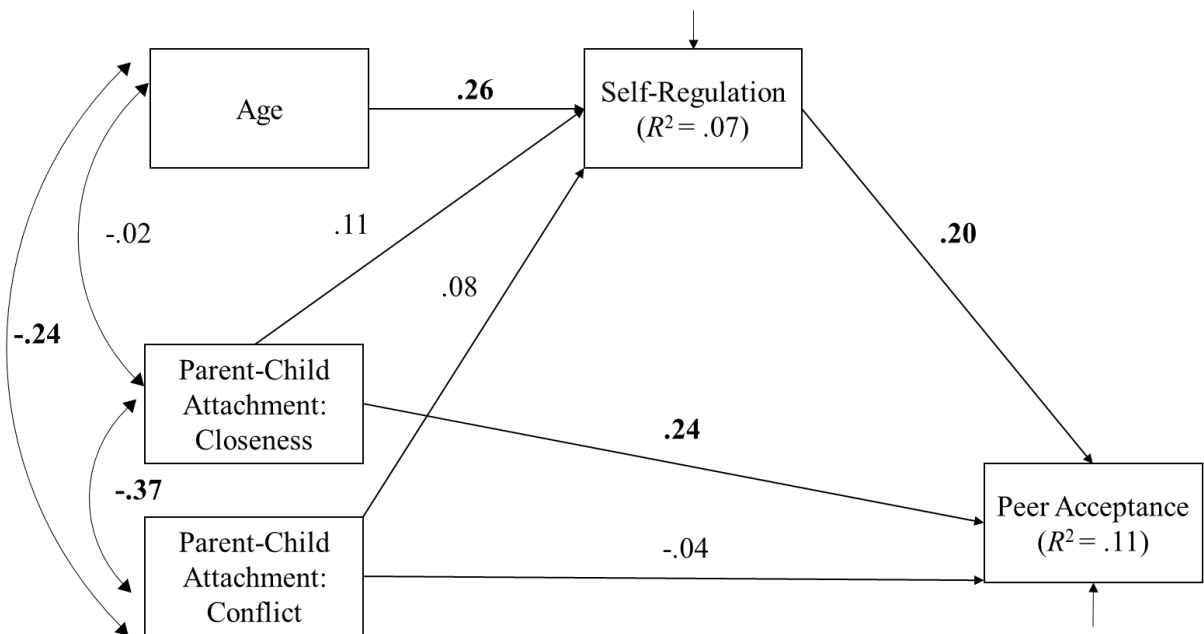


Figure 6. Statistical Representation of Mediation Model 2. Overall Fit of Self-Regulation

Mediating Parent-Child Attachment Closeness and Conflict and Peer Acceptance While

Considering Age. $\chi^2 = 0.13, df = 1, p = .72, RMSEA = 0.0, SRMR = .01, NFI = 1.00, NNFI =$

1.31, CFI = 1.00

Model 3: Gender Differences

The third mediation model addressed the third research question which asked, “Do any gender differences need to be considered in preschoolers’ self-regulation within the proposed model?” It was predicted the proposed statistical model would demonstrate significant gender differences in preschoolers’ self-regulation, where girls would demonstrate stronger self-regulatory skills compared to boys (see Figure 3). Model 3 was the same as Model 2, where preschoolers’ self-regulation was the mediator, parent-child attachment qualities were the predictors, preschoolers’ peer acceptance was the outcome, and age was a predictor of preschoolers’ self-regulation; however, in addition, child’s gender was taken into consideration across the variables.

Figure 7 depicts the statistical representation of Model 3. Several indicators suggested that this model supported significant gender differences in preschoolers’ self-regulation. First, the χ^2 measured at 14.46 ($p = .49$, $n = 112$, $df = 15$), which meets the criteria for fit. Second, the RMSEA values for girls and boys were 0.0, indicating excellent fit for meeting the threshold criteria of less than .03. Additionally, the NNFI values for girls and boys were 1.03, both of which met the criteria of at least .95 to demonstrate good fit. Also, the CFI values for girls and boys were 1.00, which served as another indicator of good fit. However, the girls’ SRMR was .11 and the boys’ SRMR was .09, both of which did not meet the threshold criteria for acceptable fit of less than .06. Also, the NFI values for girls and boys were .65, which did not meet fit criteria. Model 3’s good statistical fit demonstrates that significant gender differences can be observed in preschoolers’ self-regulation.

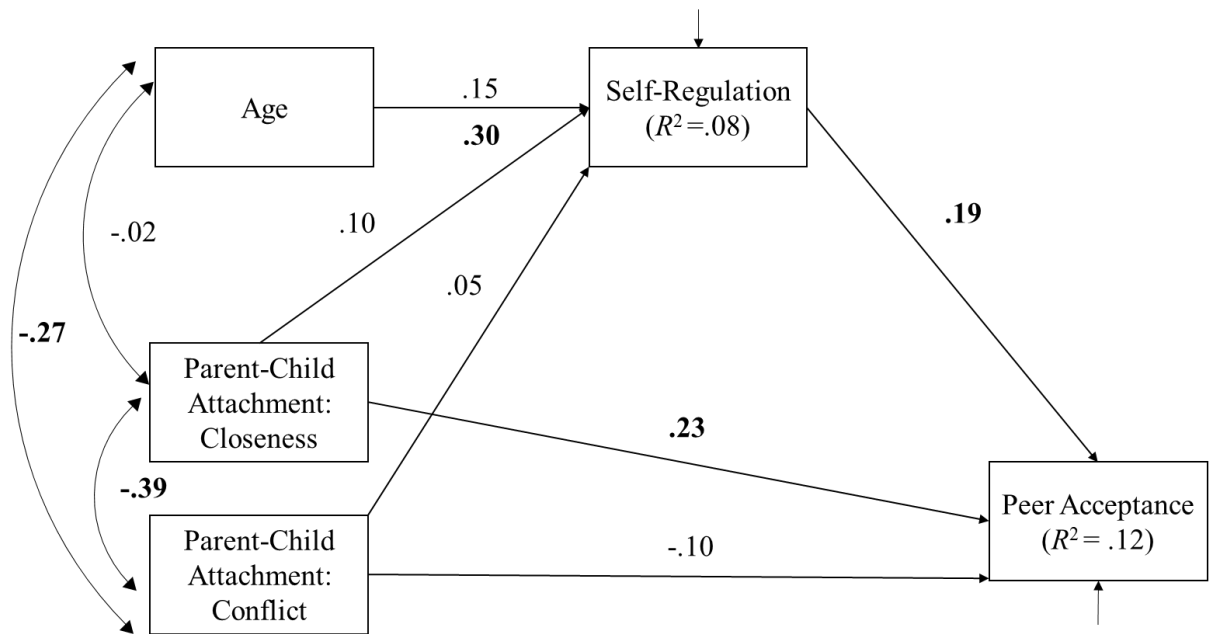


Figure 7. Statistical Representation of Mediation Model 3. Overall Fit of Self-Regulation Mediating Parent-Child Attachment Closeness and Conflict and Peer Acceptance, including the effect of Age on Self-Regulation and including differential Gender effects (parameter estimates for Girls above the arrow, Boys below). $\chi^2 = 14.46$, $df = 15$, $p = .49$, RMSEA = 0.0, NFI = .65, NNFI = 1.03, CFI = 1.00, girls' SRMR = .11 and boys' SRMR = .09

Model 3 Comparison

Model 3 Comparison addressed an exploratory question which asked, “Does age have the same effect on self-regulation for both girls and boys?” It was predicted that a common estimated parameter for child’s age would be measured when the effect of child’s gender was constrained. Model 3 Comparison was the same as Model 3, where preschoolers’ self-regulation was the mediator, parent-child attachment qualities were the predictors, preschoolers’ peer acceptance was the outcome, and age was a predictor of preschoolers’ self-regulation, except in Model 3 Comparison, the effect of child’s gender was constrained to be equal across both girls

and boys, which caused all parameters to be equal for both groups and one less parameter to be estimated in the model.

Figure 8 depicts the statistical representation of Model 3 Comparison. Several indicators suggested that this model provided good fit, supporting a significant effect of children's age on self-regulation for both boys and girls. First, the χ^2 measured at 14.84 ($p = .54$, $n = 112$, $df = 16$), which meets the criteria for fit. Second, the RMSEA value was 0.0, indicating excellent fit. Additionally, the NNFI value was 1.07, which met the criteria of at least .95 to demonstrate good fit. Also, the CFI value was 1.00, which served as another indicator of good fit. However, the SRMR was .10, which did not meet the threshold criteria for acceptable fit. Also, the NFI value was .64, which did not meet fit criteria. Model 3 Comparison's good statistical fit demonstrates that age does have a significant effect on self-regulation for both girls and boys.

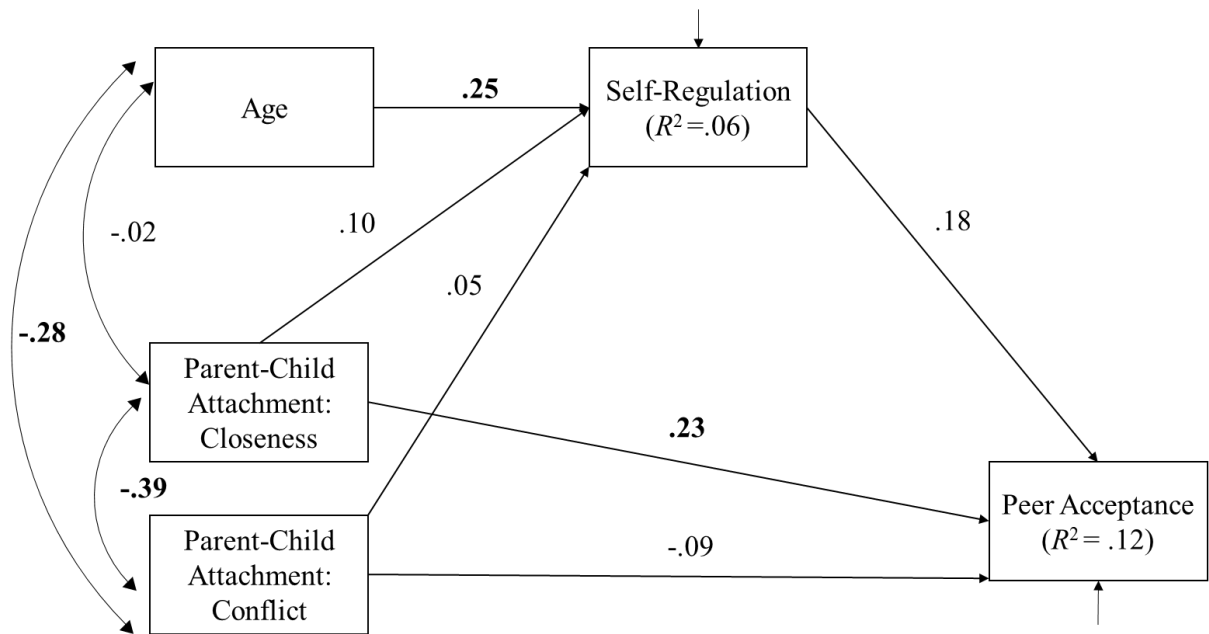


Figure 8. Statistical Representation of Mediation Model 3 Comparison. Overall Fit of Self-Regulation Mediating Parent-Child Attachment Closeness and Conflict and Peer Acceptance While Considering Age and Gender, where all parameter estimates were constrained to be equal. $\chi^2 = 14.46$, $df = 16$, $p = .49$, RMSEA = 0.0, NFI = .65, NNFI = 1.03, CFI = 1.00, girls' SRMR = .11 and boys' SRMR = .10

Model 3's good statistical fit demonstrates that significant gender differences can be observed in preschoolers' self-regulation. Model 3 Comparison's good statistical fit demonstrates that age does have a significant effect on self-regulation for both girls and boys. Although Model 3 Comparison, where the age effects are constrained, is more parsimonious compared to Model 3, both models demonstrate statistical fit, so one model is not preferred compared to the other.

Synthesis of Results

Fit statistics for each of the four mediation models demonstrated good fits, lending support to their respective hypotheses. All four mediation models demonstrated good statistical

fit for χ^2 . With the exception of Model 1 (due to oversaturation), all of the other mediation models also demonstrate good statistical fit for the RMSEA, NNFI, and CFI. The first mediation model received support via good statistical fit overall, which suggests that young children's self-regulatory skills influence the association between parent-child attachment relationship qualities and young children's peer acceptance. Examination of path coefficients revealed a significant inverse correlation was observed for the parent-child attachment relationship qualities of closeness and conflict, suggesting a parent-child relationship demonstrating higher levels of closeness also demonstrates lower levels of conflict and vice versa. A significant positive relation between closeness predicting young children's peer acceptance was observed, which suggests children who are closer to their parents or caregivers may be more well-liked by their peers. Finally, a significant positive relation between young children's self-regulation predicting young children's peer acceptance was observed, which suggests children with stronger self-regulation skills are more likely to get along with and be accepted by their peers.

The second mediation model provided support for significant age-based differences in children's self-regulation. By examining the path coefficient values within the second mediation model, a significant contribution of children's age predicting self-regulation was observed, suggesting that older children are more likely to have stronger self-regulatory skills than are younger children. A significant inverse correlation between children's age and conflict was observed, which indicates the level of conflict within the parent-child attachment relationship decreases as children grow older. Just as in the first mediation model, a significant inverse correlation between closeness and conflict, a significant positive relation between closeness and peer acceptance, and a significant positive relation between self-regulation and peer acceptance were obtained.

The third mediation model provided support for significant gender-based differences in children's self-regulation. By examining the path coefficient values within the third mediation model, a significant contribution of children's age predicting self-regulation was observed only for boys. This result suggests that age plays an important role in self-regulation for boys, where younger boys may struggle to better regulate their behavior compared to older boys. However, for girls, the age-based effects on self-regulation do not have as strong of an impact. Just as in the first and second mediation models, the third mediation model also demonstrated a significant inverse correlation between closeness and conflict, a significant positive relation between closeness and peer acceptance, and a significant positive relation between self-regulation and peer acceptance. Also, just as in the second mediation model, a significant inverse correlation between children's age and conflict was observed in the third mediation model.

The third comparison mediation model provided support for significant age-based differences in both girls' and boys' self-regulation, suggesting that there may be a subtle age effect that is different between boys and girls. Just as in the other three mediation models, the third comparison mediation model also demonstrated a significant inverse correlation between closeness and conflict and a significant positive relation between closeness and peer acceptance. Also, just as in the second and third mediation models, a significant inverse correlation between children's age and conflict was observed.

In summary, the four mediation models tested within the present study demonstrated good statistical fit, where each model supported that children's self-regulation mediates the association between parent-child attachment qualities predicting children's peer acceptance. Children's age has a significant positive relation with children's self-regulation. For boys, their gender significantly impacts their self-regulation; however, the same is not true for girls. In

addition, there may be a subtle effect of age that is unique for boys and girls in predicting self-regulation.

CHAPTER V: DISCUSSION

Summary of Results

This study's main purpose was to examine whether preschoolers' self-regulation mediated the relation between parent-child attachment relationship qualities and preschoolers' peer acceptance. This study also examined whether child age and gender predicted self-regulation. Importantly, the results of this study demonstrated that preschoolers' self-regulation mediates the association between parent-child attachment and preschoolers' peer acceptance. These results support the notion that although the qualities of the parent-child attachment relationship can predict how well-liked children are by their peers, it is important to consider how the parent-child attachment relationship influences how well children regulate their behaviors and emotions which in turn influences how much they are liked by their peers. The findings also revealed significant age effects on children's self-regulation, and significant gender effects on children's self-regulation. In conclusion, these findings suggest that young children's self-regulatory abilities can affect the relationship between parent-child attachment and how well-liked children are by their peers and that children's age and gender also can affect their self-regulatory abilities. Young children's self-regulation possesses the potential to influence the extent to which parent-child attachment directly impacts young children's peer acceptance. Specifically, for a child who lacks closeness and experiences high conflict within their attachment relationship with their caregiver, having stronger self-regulatory skills can help such a child still be better liked by their peers.

Direct and Indirect Links Between Parent-Child Attachment and Peer Acceptance

The parent-child attachment relationship is an important indicator of a child's future relationships (e.g., friendships, student-teacher relationships, romantic relationships with

significant others, and future parent-child relationships); therefore it is a focus for professionals who work with children in different capacities, such as at school, at home, and in the community. Children's peer acceptance, or how well-liked they are by their peers, is also a crucial component to their social functioning as relationships with their peers become more central in importance during childhood and especially during adolescence. The present study validated a direct positive relation between the parent-child attachment relationship quality of closeness and young children's peer acceptance. The direct relation between parent-child closeness and peer acceptance was represented by a significant path coefficient and the overall fit of the model (i.e., 0.24 in Models 1 and 2 and 0.23 in Models 3 and 3 Comparison). The overall mediated model, where self-regulation mediates the association between parent-child attachment and peer acceptance, is consistent with previous literature stating that parent-child attachment relationship qualities is one of many factors contributing to young children's peer acceptance (e.g., Berlin et al., 2008; Booth-LaForce & Kerns, 2009; Grimes et al., 2004; Groh et al., 2014; Hay et al., 2009; Lewallen & Neece 2015; Raikes et al., 2013; Zhang, 2011), as evidenced by the significant validations for parent-child attachment relationship directly to young children's peer acceptance.

The parent-child attachment relationship is a precondition to young children's later relationships with others (Bowlby, 1969; Hay et al., 2009; Raikes et al., 2013). Consistent with social learning theory, the positive or negative nature of interactions within a family are associated with the overall quality of children's interactions with peers (Hay et al., 2009). Children who are securely attached with their parents/caregivers and experience higher levels of closeness and lower levels of conflict are more likely to fare better socially such as being well-liked by unfamiliar peers and having higher quality friendships as they get older. Due to the warmth, responsiveness, and support experienced within close parent-child attachments, these

children interact with their peers more positively and may gain more popularity among peers (Grimes et al., 2004). Children who are securely attached with their parents/caregivers have more opportunities to learn and utilize more effective social skills and develop a stronger sense of self-confidence when it comes to successfully dealing with peer conflict (e.g., frequent eruptions in play due to fighting over toys or following rules; Raikes et al., 2013). In contrast, children with an insecure attachment history who experience limited closeness and high conflict are more likely to struggle socially. Due to the overcontrolling, negative, and critical nature of high conflict parent-child attachments, these children are more likely to develop aggressive behaviors that are harsher and more negative when interacting with their peers (Grimes et al., 2004). Insecurely attached children are at a higher risk to struggle in long-term in peer relationships if they are unsuccessful in learning competent social skills within their attachment relationships to manage conflict across relationship contexts (Raikes et al., 2013).

The present study also validated an indirect positive relation of parent-child closeness through young children's self-regulation to young children's peer acceptance, suggesting both parent-child attachment and children's self-regulation significantly contribute to how well-liked children are by their peers. The direct relation between parent-child closeness to self-regulation was represented by a nonsignificant path coefficient in each statistical model (i.e., 0.07 in Model 1; 0.11 in Model 2; 0.10 in Models 3 and 3 Comparison); the indirect relation of parent-child closeness through self-regulation to peer acceptance represented a significant path coefficient and the overall fit of the model in most of the statistical models (i.e., 0.20 in Models 1 and 2; 0.19 in Model 3). The overall mediated model is also consistent with previous literature stating that parent-child attachment relationship qualities is one of many factors contributing to young children's peer acceptance, as evidenced by the significant validations for parent-child

attachment relationship indirectly through self-regulation (e.g., Contreras et al., 2000; Rispoli et al., 2013; Szewczyk-Sokolowski et al., 2005) to young children's peer acceptance.

Children's self-regulation is a mechanism through which parent-child attachment relationships influence children's peer relationships (Contreras et al., 2000; Szewczyk-Sokolowski et al., 2005). Attachment security and children's self-regulatory skills are two unique and significant predicting constructs relevant to affective components of peer relationships and relationship development in general (Szewczyk-Sokolowski et al., 2005). Self-regulation and temperament are considered to serve as the connection between young children's home environment and their social environments. Attachment security and self-regulation are significantly related to children's peer acceptance, where interactions between parents and their children promote prosocial behaviors (e.g., regulating their emotions, modeling appropriate social skills, seeking warmth and comfort from others, inhibiting impulses) that assist children's learning of the necessary skills to initiate and maintain positive and successful interactions with their peers (Szewczyk-Sokolowski et al., 2005). Attachment relationships marked by high levels of parental responsiveness may lead to children exhibiting fewer concerns with regulating their behavior and emotions, which in turn is more likely to lead greater social competence and greater acceptance by their peers (Rispoli et al., 2013).

Direct Links Between Parent-Child Attachment and Children's Self-Regulation

The parent-child attachment relationship is an important indicator of children's self-regulation, where parenting behaviors and interactions can either positively or negatively impact children's self-regulatory skills; therefore, it is imperative for educators and mental health professionals who work with children to understand these constructs. Children's self-regulatory skills, including inhibitory control, delay of gratification, and attentional focusing, are crucial

components for academic, behavioral, and social functioning. The present study validated a direct positive relation between the parent-child attachment relationship and young children's self-regulation. The direct relation between closeness and self-regulation was represented by a nonsignificant path coefficient and the overall fit of the model, in all of the statistical models (i.e., .07 in Model 1, .11 in Model 2, and .10 in Models 3 and 3 Comparison). The overall mediated model is consistent with previous literature stating that parent-child attachment contributes to young children's self-regulation, including validations for parent-child attachment directly predicting self-regulation (e.g., Karreman et al., 2006, 2008; Landry et al., 2011; Putnam et al., 2006; Strand, 2002).

The use of positive control (e.g., parenting behaviors that are directive and characterized by attempts to teach, encourage, and guide children's behaviors) and responsiveness by parents/caregivers is positively related to children's self-regulation (Karreman et al., 2006, 2008). Children's self-regulatory abilities will benefit from their parents' teaching and guidance through opportunities to practice problem-solving strategies on their own and receiving positive reinforcement after successfully regulating themselves. In contrast, parents/caregivers who implement negative control (e.g., parenting behaviors that assert power and are characterized by harsh criticism, excessive control, and physical punishment) can expect their children to demonstrate self-regulation difficulties (Karreman et al. 2006, 2008). Parents/caregivers who rely on negative control deny their children opportunities to learn and practice self-regulatory skills because they provide negative feedback and harsh criticism, rather than provide teaching moments and encouraging problem-solving in a comforting environment for their children to better regulate themselves (Karreman et al., 2006).

Direct Links Between Children's Self-Regulation and Peer Acceptance

Young children's self-regulatory skills are an important indicator of how well a child gets along with or is well-liked by their peers; therefore it is a focus for professionals who work with children in different capacities, such as at school and in the community. Children with stronger, well-developed self-regulatory skills are more likely to have favorable social competence and have fewer behavioral problems when interacting with their peers. The present study validated the direct relation of self-regulation to peer acceptance represented a significant path between these variables and the overall fit of the model in most of the statistical models (i.e., 0.20 in Models 1 and 2; 0.19 in Model 3). The overall mediated model is consistent with previous literature (e.g., Coplan & Arbeau, 2009; Garner & Waajid, 2012; Rhoades et al., 2009; Spinrad et al., 2006), stating that young children's self-regulation is a contributing factor to young children's peer acceptance, including significant validations for self-regulation directly predicting peer acceptance.

Self-regulation is a foundational skill for fostering young children's peer acceptance and positive peer interactions (Coplan & Arbeau, 2009; Rhoades et al., 2009). Preschool-age children's development of self-regulation is particularly important to the social aspect of children's play, where their status as a preferred playmate will increase for children who can inhibit their aggressive impulses when experiencing peer conflict during play, compared to children who struggle to resist engaging in aggression when faced with play difficulties with other children (Coplan & Arbeau, 2009). One important aspect of self-regulation is positive emotionality, which predicts peer-related competence. Specifically, children exhibiting positive emotionality when dealing with challenges are less likely to demonstrate classroom behavioral problems, such as disobedience, difficulty sitting still, impulsivity, and aggression (Garner &

Waajid, 2012). When children are faced with challenging tasks or situations, like struggling during play or having conflict with peers, children who maintain positive feelings and determination, instead of becoming very upset and giving up, can be expected to exhibit fewer classroom behavior problems and are more likely to be sought out by peers for social interactions (Garner & Waajid, 2012). Young children's self-regulation skills are also imperative to their social-emotional competence, where preschool-age children with greater self-regulation and inhibitory control are more likely to be rated by their teachers as having better developed social skills and social competence (Rhoades et al., 2009).

Children's Self-Regulation, Age, and Gender

Self-regulation is an important social-emotional skill that underlies children's prosocial behaviors when interacting with other children and adults, children's successful and active participation in educational activities, and children's ability to effectively adjust to novel and challenging situations; therefore it is a focus for teachers and other educators to evaluate and target throughout children's development. Two factors that influence a child's self-regulatory abilities are age and gender. Self-regulatory skills begin developing in children around one year of age, remain rudimentary until three years of age, and then rapidly develop between three and five years of age. At as early as one year of age, girls demonstrate greater diversity of self-regulation in behavior and self-control than do boys. The present study validated the direct relation of children's age and gender to self-regulation represented a significant path between these variables (i.e., 0.26 in Model 2, 0.30 in Model 3 for boys and 0.25 in Model 3 Comparison). The overall mediated model is consistent with previous children's self-regulation literature regarding age differences (e.g., Espy et al. 1999, 2001; Garon et al., 2014; Rhoades et

al., 2009) and gender differences (e.g., Else-Quest et al., 2006; Kochanska et al., 2001; Matthews et al., 2009).

Generally speaking, self-regulatory skills (e.g., inhibitory control, delay of gratification, working memory) improve significantly with age for young children starting at age 2 or 3 due to the acquisition of behavioral control and developmental growth in different structures of the brain (Espy et al., 1999, 2001; Garon et al., 2014). Consistent with the extant literature, age was correlated with self-regulation overall ($r [118] = .27, p < .01$) in the present study. Younger children (e.g., 2- to 3-years-old) often demonstrate greater difficulty with inhibiting their behavioral and emotional impulses (Rhoades et al., 2009). For example, younger children in one study demonstrated lower performance on the *Object Retrieval* task, where a child needed to resist directly reaching for a toy behind a transparent door and instead needed to utilize a lever above the toy to release the door to reach the toy (Garon et al., 2014). More often than not, young children with less developed self-regulatory skills are at a much higher risk for decreased social-emotional competence and being less liked by their peers among other negative developmental outcomes (Rhoades et al., 2009).

Typically, girls significantly outperform boys on the effortful control factor of self-regulation (Else-Quest et al., 2006; Kochanska et al., 2001). Table 12 presents the mean self-regulation scores for girls and boys. In the present study, overall self-regulation was higher for girls than for boys, $t (118) = 2.21, p < .05$. Teacher-reported self-regulation also was higher for girls than for boys, $t (123) = 5.23, p < .001$. These findings are consistent with results from other studies, including one in which preschool-age girls were found to be more capable of and/or willing to engage in higher self-regulatory behaviors, such as compliance to adult directives, delaying gratification, suppressing/initiating behavior, and sustained attention (Kochanska et al.,

2001). At the beginning of an academic school year, significant gender differences in favor of girls were observed in children's performance on the *Head, Toes, Knees, Shoulders Task* (Ponitz et al., 2009) and based on teachers' ratings on the *Child Behavior Rating Scale* (Bronson et al., 1995). The boys underperformed on self-regulation, where their performance at the end of the school year was still lower than the girls' performance from the beginning of the school year (Matthews et al., 2009). The apparent gender gap in children's self-regulation shines light onto the question of whether early gender differences in children's self-regulation can be diminished to allow for equal behavioral opportunities (Matthews et al., 2009).

Table 12

Mean Self-Regulation Scores for Girls and Boys

Task or Composite Score	Girls	Boys
<i>Bear/Dragon</i>	14.50 (5.61)	13.97 (6.05)
<i>HTKS Task</i>	13.41 (10.76)	11.41 (11.10)
<i>Day/Night Stroop</i>	9.78 (5.01)	10.56 (5.27)
<i>Dinky Toys</i>	3.59 (2.03)	3.08 (2.19)
<i>CBQ-VSF Effortful Control</i>	5.71 (.84)***	4.85 (.99)***
Self-Regulation Composite	.12 (.67)*	-.14 (.63)*

Note. * $p < .05$. *** $p < .001$ for t -tests.

It is interesting to note that no gender differences were obtained in the child self-regulation tasks in the present study. Gender-based differences in children's self-regulation can potentially be influenced by other factors, such as age of the child and informant of self-

regulation measure (e.g., parent/guardian, teacher, or direct observation of child; Else-Quest et al., 2006). Different methodologies of assessing self-regulation may contribute to conflicting results on whether meaningful gender-based differences exist within young children's self-regulation (Matthews et al., 2009). Teacher- and parent-reports of children's self-regulation can potentially be influenced by observer bias (Matthews et al., 2009; Rothbart, Ahadi, Hershey, & Fisher, 2001). Potential discrepancies in the significance of gender-based effects in delay of gratification tasks, whether direct observation of the child versus adult-report, may also be demonstrated with adult reports demonstrating stronger child gender effects (Duckworth & Seligman, 2006; Matthews et al., 2009). It is recommended for future self-regulation to continue implementing multi-method, multi-informant measures of children's self-regulation to further assess potential gender differences (Matthews et al., 2009). It is important to acknowledge that self-regulation is a diverse concept that includes different skills or aspects that are either a blend of cognitive and behavioral (e.g., inhibitory control, working memory, attention control) or emotional (e.g., emotional reactivity) in nature (Matthews et al., 2009). Also, meaningful gender-based effects may have a larger influence in certain aspects or skills of self-regulation (e.g., inhibitory control, activity level, emotionality, attention shifting) compared to others (e.g., attention-focusing, perceptual sensitivity; Else-Quest et al., 2006).

Implications for Schools

The present study examined the closeness and conflict experienced within parent-child attachment relationships, preschoolers' self-regulation, and preschoolers' peer acceptance. Many of these factors can be examined within the early childhood classroom setting. The relationship between parents/guardians and children lays the foundation for young children's behavior and relationships with others (Berlin et al., 2008; Bowlby, 1979). Young children who experience

warmth, security, and responsiveness from their caregiver more than likely will develop effective regulatory skills when it comes to their emotions and behavior (Olson et al., 1990; Vaughn & Bost, 2016). In contrast, young children who experience high conflict and negativity with and lack of follow through from their caregiver to address their needs are more than likely to have deficient self-regulatory skills and struggle to control their misbehavior (Karreman et al., 2006, 2008). In the classroom environment, young children are learning how to play and interact with other children while learning the behavioral expectations of their classroom and other settings. Children with stronger self-regulation are better able to follow classroom rules, calm down after something exciting or upsetting, learn and exhibit behaviors that help them get along with their peers, and control their impulses. Together, the foundation of the parent-child attachment relationship and strength of young children's self-regulation influence how well-liked they are among their peers (Coplan & Arbeau, 2009). A child with a strong, close, and secure attachment relationship and more effective self-regulation skills may be seen as a friend who is fun or easy to play with, whereas a child with a conflict-ridden, insecure attachment relationship and weaker self-regulation skills may be seen as unpleasant to play with and is not sought after as a playmate (Grimes et al., 2004).

During the preschool years, children may display a range of challenging behaviors (e.g., disruption, physical aggression such as biting or hitting, or verbal aggression such as crying or tantruming), some of which may or may not be considered developmentally appropriate (LeBel & Chafouleas, 2010). In fact, an estimated one of every five preschoolers demonstrate some behavioral and/or emotional concerns (LeBel & Chafouleas, 2010). Early childhood education teachers can effectively address some of these challenging behaviors by implementing effective classroom management strategies (e.g., creating supportive environments, creating structured

classroom schedules, and facilitating engaging classroom activities) as part of their general classroom supports. However, early childhood education teachers and effective classroom management strategies alone may be insufficient in addressing all challenging classroom behaviors (e.g., aggression, noncompliance, and frequent disruptions) and more intensive supports and interventions may be warranted. Young children demonstrating patterns of difficult behaviors are detrimental to their opportunities for optimal learning and hinder their ability to engage in prosocial behaviors with their peers (LeBel & Chafouleas, 2010). It is crucial to provide social-emotional and behavioral interventions early on in children's development to directly target behavioral and/or emotional concerns and decrease their negative impact in the future, along with supporting other domains of children's functioning such as academics and mental health (LeBel & Chafouleas, 2010).

The attachment relationship established in infancy and early childhood tremendously influences children's development of social-emotional and behavioral skills (National Association of School Psychologists [NASP], 2014). Children with parents and families who are involved and engaged in their children's education, regardless of which capacity, have demonstrated favorable outcomes, such as improved behavior both at home and at school and increased academic achievement (Minke & Anderson, 2005). During their early years, children's home and classrooms (e.g., day care, preschool, etc.) are where they spend the majority of their time. More specifically, time spent in their home environment is related to children's behavior at school, engagement in learning and social opportunities, and academic achievement (NASP, 2014). Effective parenting strategies (e.g., teaching appropriate behaviors, establishing clear expectations, implementing consistent family structure and routines, praising appropriate behavior) help decrease the prevalence of children's behavioral concerns at home and across

other settings (Minke & Anderson, 2005; NASP, 2014). It is crucial that efforts to include parents/caregivers in education encourage strategies that foster strong parent-child relationships that demonstrate support and warmth, rather than create unintended opportunities for conflict or embarrassment to arise (Minke & Anderson, 2005).

The preschool years may serve as young children's earliest opportunity to interact with other similar-age peers socially and to work on initiating and maintaining positive relationships with their peers, which is a crucial component of their social development. As early as toddlerhood, preschool-age children begin to discriminate who among their peers they view as preferred and nonpreferred playmates (Hay et al., 2009; Ladd & Sechler, 2003; Rhoades et al., 2009). Young children who are accepted by their peers and establish friendships have a more positive attitude towards school and higher academic performance (Lindsey, 2002). On the other hand, younger children who experience rejection from their peers have a negative attitude towards school, make more attempts to avoid/refuse to go to school, and demonstrate lower academic achievement (Lindsey, 2002). In the early emergence of young children's friendships, preschoolers demonstrated preferences for peers who are similar to them (e.g., age, gender, racial background, etc.), with whom they experience little conflict, and with whom they feel connected. These are important contributing factors in establishing friendships (Lindsey, 2002). It is crucial that efforts of early interventions address concerns and offer supports for young children's social-emotional skills and behaviors as a means to improve children's peer acceptance and ability to form and maintain friendships (Lindsey, 2002).

Collaborations Among Parents/Guardians, Teachers, and School Psychologists

The present study examined parent-child attachment relationships, preschoolers' self-regulation, and preschoolers' peer acceptance, where data were collected from various early

childhood education programs (e.g., daycares, preschools, and pre-kindergarten classrooms). The results highlight the importance of considering 1) the role of parents/caregivers in supporting and contributing to their children's development outside of the home setting, such as their behavior at school and the relationships they form with others, 2) what parents/caregivers and educators can do to support children's behavior and self-regulation throughout their development, and 3) what teachers and school psychologists can do to foster young children's social functioning (e.g., forming peer relationships, social skills, etc.). With the goal of enhancing children's overall development and competence in mind, it is important to recognize that this goal cannot be achieved at home or at school alone. It is through partnerships formed between families and educators working as active and equal partners where children, families, and teachers often acquire important benefits (NASP, 2019).

Many early interventions focus on strengthening young children's academic and cognitive skills, but additional early interventions fostering young children's prosocial skills, mental health, and social-emotional/behavioral development still are needed (LeBel & Chafouleas, 2010). Despite mandates advocating for special education services for preschool-age children (i.e., Individuals with Disabilities Education Act [IDEA], Part B), limited resources are available to assess, identify, and provide interventions to support preschoolers' needs with regard to social-emotional functioning and mental health. Many early childhood education teachers and staff lack the comprehensive training, resources, and support to successfully address young children with behavioral difficulties in early childhood education classrooms (LeBel & Chafouleas, 2010). Due to the lack of appropriate training and resources, when dealing with preschoolers who are more disruptive, early childhood education teachers may resort to less effective strategies such as implementing less classroom instruction and providing less positive

feedback to students (LeBel & Chafouleas, 2010). In these instances, children with disruptive and/or challenging behavior may, in turn, “like school less, learn less, and attend [school] less” (Raver & Knitzer, 2002, p. 3). Fortunately, school psychologists are trained to effectively intervene with difficult behaviors early on in children’s development through prevention and intervention practices and are available to young children, their families, and early childhood educators for behavioral consultation (LeBel & Chafouleas, 2010).

Children’s success academically, behaviorally, socially, and emotionally is largely influenced by biological and environmental factors; the environments in which children live, learn, and develop within can have either positive and productive or negative and unfulfilling effects on their overall development (Sheridan, Clarke, & Christensen, 2014). The home environment, including a child’s family and the child-rearing practices, is one of the most crucial to a child’s development. It is important for school psychologists, teachers, and educators to specifically target children’s learning and development within their home and family contexts by involving and engaging families in their child’s overall development and learning as much as possible.

Roles of teachers, school psychologists, and other school personnel.

Prekindergarten programs focus on building young children’s social development, physical growth, emotional development, and cognitive development. Some prekindergarten classrooms may function within a public school under the supervision of a public-school administrator and funded by state or federally allocated funds (e.g., public prekindergarten programs/classrooms). Some prekindergarten classrooms may function within a standalone center where they can offer specialized education programs (e.g., private prekindergarten, Montessori, Waldorf) and are mainly funded by private donations and tuition fees (Education

Bug, 2020). Head Start programs are federally funded centers that focus on increasing school readiness of young children from disadvantaged families and typically serve children from birth to 5-years-old, pregnant women, and their families by providing services such as education, family and community partnerships, health (e.g., oral health, hygiene, nutrition), and program management and operations (Administration for Children and Families, 2019). Many churches and religious schools offer preschool programs that follow their philosophy in determining curriculum and may incorporate religious content and/or training to various degrees (GreatSchools Staff, 2014).

Given the diverse nature of early childhood programs in the United States, many early childhood programs lack personnel who possess sufficient knowledge and training to provide early childhood mental health services (Giordano, Garro, Rosen, & Gubi, 2017). Historically, school psychologists' roles in early childhood have been limited to identifying students who may need and qualify for special education services (Albritton, Mathews, & Boyle, 2019). In fact, there is an insufficient number of school psychologists who are adequately prepared to serve young children via comprehensive assessment, prevention, or intervention (Giordano et al., 2017). In recent years, school psychologists' roles in early childhood have expanded beyond psychoeducational assessments to also include activities like providing early childhood service delivery across tiered systems of support, consultation for individual students and school-wide programs, collaboration with early childhood educators and families, intervention, completing other assessment related activities (e.g., screening, progress monitoring, classroom quality evaluation, etc.), family engagement and support, and kindergarten transition (Albritton et al., 2019; McIntyre & Garbacz, 2016). The different roles, functions, and activities of school

psychologists in early childhood may differ based on whether they work in Head Start, public/district preschool, or private preschool (Albritton et al., 2019).

Although many early childhood education systems and setting may not utilize school psychologists through more traditional means (e.g., Response to Intervention), they can serve as consultants in many ways. First, school psychologists work to “build and sustain school-family partnerships and improve family-school collaboration” (NASP, 2019, p.6). School psychologists implement strategies to create opportunities for families and educators to create partnerships. To identify and acknowledge different concerns across young children’s environments, school psychologists working with early childhood programs or centers and the families to conduct a program evaluation to identify strengths, needed resources and supports, and other areas of need on behalf of both educators and families. By serving as consultants to support two-way communication and coordination between homes, schools, and/or communities, school psychologists can host ongoing training seminars focused on establishing consistent and effective communication between home and school. School psychologists can also provide training for families and educators on the benefits for school-family collaboration and sharing current research on the most effective cooperative processes and evidence-based interventions and programs targeting academics, behavior, and mental health (NASP, 2019).

A major role of school psychologists in early childhood is participating in school-based multidisciplinary teams to assist with identifying developmental delays and other disabilities in early childhood for young students determined eligible to receive special education services under IDEA legislation (Slentz, 2010). It is considered best practice for school psychologists to recognize parents and other caregivers as their primary clients who take on the responsibility of fostering long-term development in children (Sheridan et al. 2014). Parents/caregivers and

classroom teachers make referrals to school-based multidisciplinary teams for early identification and screenings. School psychologists, social workers, speech language pathologists, and other specialists work together to conduct a brief screening assessment of young children's domains of functioning (e.g., cognitive, communication, social-emotional, adaptive) to determine whether a more comprehensive assessment is warranted. The brief and comprehensive assessments often are provided by the public school district or cooperative but are also available at external agencies. For preschool age children ages 3 to 5 years, the local public school districts are required to provide the necessary preschool special education services once eligibility has been determined (Slentz, 2010).

School personnel (e.g., teachers, administrators, and school psychologists) are responsible for creating opportunities for initiating school-family partnerships by providing a positive environment, supporting the efforts of families, working with all families, and promoting a view of education as a shared responsibility (NASP, 2019). First, school personnel need to create an environment that welcomes all families by seeking and integrating input from many families about how to convey and promote school-family partnerships and emphasizing the value of effective partnerships. It is crucial that teachers and other school personnel create a positive environment where these partnerships are valued as a means to create a safe, positive space in which families and educators can positively interact with one another. For example, efforts on behalf of educators need to be made to include and work with all families to overcome barriers and challenges to the partnerships, such as families under high distress (e.g., economic disadvantage, children with challenging and/or disruptive behavior), linguistic diversity, families with limited literacy skills, families who hesitate or feel uncomfortable engaging with schools, and so on. It is important that school personnel implement multiple strategies when working with

families and continuously seek out and incorporate feedback from families for future improvement (NASP, 2019).

It is important for teachers and other school personnel to recognize and understand that families come in “a variety of configurations and have diverse perspectives, expectations, and communication styles” (NASP, 2019, p. 4). Teachers and other school staff need to be culturally responsive and implement an ever-developing diversity-focused orientation, which will require training, mentorship, and dedicated time throughout their professional careers. For example, classroom teachers can create learning activities and events that invite preschoolers’ family members to share their experiences (e.g., celebratory events for loved ones; inviting family members to share their cultural backgrounds through presentation of dress, food, and traditions; inviting family members to present about their profession if it aligns with curriculum subject matter). By creating such events that provide opportunities for families to be more engaged in their preschoolers’ education, teachers and school personnel can establish and maintain improved communication and relationships with their students’ families. Additionally, it is necessary within school-family partnerships that efforts are made to better understand others’ intentions and behaviors and addressing any biases. For example, if a parent misses a meeting at the school (e.g., either needing to stay home with a sick younger sibling or not being able to miss work), a teacher can give the parent the benefit of the doubt instead of immediately assuming the parent does not care about how their student is performing or acting at school.

It is important for teachers and families to implement effective strategies to prevent and effectively intervene with young children’s disruptive behavior (Watson, Watson, & Gebhardt, 2010). Younger children tend to engage in tantrums and other disruptive behaviors (e.g., yelling, name-calling, slamming doors) when there is little to no structure, there are sudden changes and

transitions made without warning, or when adults provide unrealistic demands outside of young children's developmental level (Watson et al., 2010). To better support preschool-age children's behavioral and emotional regulation as a means to prevent tantrums, it is recommended that teachers provide semi-structured schedules and routines for children to follow to provide consistency; provide reminders that verbally prompt children about upcoming transitions; implement strategies to teach and model skill building alongside the children (e.g., asking for help if something is too difficult or overwhelming, teaching alternative strategies to stacking blocks to make a taller tower); and provide opportunities for preschoolers to learn and practice adaptive coping skills (e.g., deep breathing, using their words to express their feelings, taking a break, "lemon squeezes" for muscle relaxation) to help them manage frustration and feeling upset (Watson et al., 2010). With some adaptation for the home environment, these same strategies can be implemented in the home environment by young children's parents and caregivers.

Roles of families in engaging in school-family partnerships.

Family participation and engagement improve when their participation is clearly advocated for and respected by the educators of early childhood programs/centers (NASP, 2019). It is recommended that multiple opportunities and events for family participation are made available to provide equitable opportunities for families to engage in a way that aligns with their circumstances (e.g., family constellation, financial situation), beliefs and culture, and expectations (NASP, 2019). It is also recommended that educators within early childhood programs/centers understand that all families will not be able to attend or participate in every event or school function. Family members should also be included as equal members on school teams (e.g., multidisciplinary assessment teams, problem-solving, school improvement, etc.) and

allow for different means of participation (e.g., in-person vs. virtual, scheduling meetings either before, during, or after the school day). Educators need to work with families to offer support prior to and throughout their participation and involvement in school teams to allow for their equal participation (NASP, 2019). For example, the teacher, school psychologist, or school principal must explain parents' educational rights and responsibilities under IDEA 2004.

Parent engagement refers to the conceptually and practically wider relationship-based process by which significant caregivers bond with their child and form partnerships with educators across systems and contexts to foster their child's academic, behavior, and social-emotional development and learning (Sheridan et al., 2014). The focus of parent engagement is to utilize the relationships formed among the child, the parents and other caregivers, and the educators to target enhancing children's adaptive development and education. Parents and significant caregivers described as engaged are those who interact with their children and their learning in a warm, sensitive, and supportive manner. Children who have well-connected and highly engaged parents/caregivers are more likely to demonstrate more favorable outcomes (i.e., strong prosocial behaviors, multiple and higher quality friendships, and increased peer acceptance).

Supporting Preschool-Age Children with Early Interventions

The purpose of early education is to foster young children's development of a wide range of skills necessary for them to be successful as they transition to kindergarten and prepare them for overall success in life (Committee for Children, 2011b). Preparing young children for school extends further than literacy, language, and number skills. Young children's readiness for school also includes building and strengthening abilities to manage and cope with their emotions; to cooperate with directions and rules; to form relationships with parents/guardians, peers and

teachers (Committee for Children, 2011b). Young children’s behavioral and social-emotional skills are just as important as their academic skills. Various evidence-based interventions and strategies are available for all children, and not just children with concerns, to benefit from during the preschool years from a variety of settings (e.g., home, early childhood programs, community services and resources; Committee for Children, 2011b).

Interventions targeting self-regulation.

Several effective and evidence-based classroom interventions, such as *Tools of the Mind* (Bodrova & Leong, 2007) and *Second Step Early Learning* (Committee for Children, 2011a) are available for early childhood education teachers and other early childhood school personnel to implement to support young children’s self-regulation. These programs focus on improving young children’s self-regulatory skills through play-based activities and/or general classroom instruction.

Tools of the Mind. *Tools of the Mind* (Bodrova & Leong, 2007) is a comprehensive early childhood curriculum built upon the work of Vygotsky with the purpose of promoting young children’s self-regulation and academic skills together by focusing on self-regulation and related social-emotional skills in education settings (Baron, Evangelou, Malmberg, & Melendez-Torres, 2017). In *Tools of the Mind*, early childhood teachers conduct assessment and implement scaffolding to tailor learning activities so that young children build their self-regulatory skills through meaningful play interactions with their peers. The *Tools of the Mind* curriculum aims to equip young children with cognitive “tools” for learning, such as inhibitory control, working memory, and cognitive flexibility that they can utilize to acquire and maintain academic knowledge and self-regulation (Baron et al., 2017; Diamond, Lee, Senften, Lam, & Abbott, 2019).

In *Tools of the Mind* classrooms, there is an increased use of peer social interaction for learning, where two children work together helping each other by working cooperatively in learning the academic material together or teaching/checking the other. Classrooms focus on hands-on learning opportunities rather than teacher-led/whole group instruction. Social pretend play (e.g., role-playing interactions at the doctor's office or at the grocery store) is an important component for developing young children's self-regulation and other executive functioning skills. Make-believe play fosters all three core executive functions of inhibitory control, working memory, and cognitive flexibility (Diamond et al., 2019).

The effectiveness of *Tools of the Mind* curriculum has been tested empirically with several large-scale studies. For example, Solomon et al. (2018) implemented two different play-based curricula within 20 largely urban daycare programs with 3- to 4-year-old children. Their findings indicated that children initially rated with higher hyperactivity and inattention who received the Tools of the Mind curriculum demonstrated greater improvements in their behavior. These findings suggest that *Tools of the Mind* promotes quality play and may be more effective in classrooms with children who demonstrate greater self-regulation difficulties (Solomon et al., 2018). In another study comparing *Tools of the Mind* and a school district's Balanced Literacy curricula to which preschoolers were randomly assigned, children who received the *Tools of the Mind* curriculum outperformed the children who received the district's Balanced Literacy curriculum on four different inhibition tasks varying from minimal to high difficulty (Diamond, Barnett, Thomas, & Munro, 2008). Additional information and resources are available on the *Tools of the Mind* homepage (Tools of the Mind, 2020).

Second Step Early Learning. The *Second Step Early Learning* program is designed to emphasize the importance of fostering young children's self-regulation skills, increase their

school readiness, and increase their social success by strengthening their social-emotional competence and self-regulation. With the *Second Step Early Learning* program, preschoolers are taught self-regulatory skills through components including Brain Builder games, Skills for Learning, Emotion Management and Problem Solving, and Transition to Kindergarten (Committee for Children, 2011a). The Brain Builders are short, five-minute games specifically designed to enhance executive functioning skills: focusing their attention, using their memory, and managing their behavior. The Skills for Learning include sustaining their attention, listening, using self-talk, and being assertive. The Emotion Management and Problem Solving component helps children acquire and refine their skills in managing their strong emotions and apply the program's problem-solving steps to address conflict calmly and safely. Finally, the Transitioning to Kindergarten component is designed as a summary for preschoolers to review the skills and concepts they have learned throughout the *Second Step Early Learning* program and reflect upon how they will utilize these skills in kindergarten (Committee for Children, 2011a).

Upshur, Heyman, and Wenz-Gross (2017) conducted a study using a classroom randomized efficacy trial in Head Start and community preschools, where different classrooms were assigned to implement either *Second Step Early Learning* curriculum as the intervention condition or the curriculum as usual as the control condition. One purpose of this study was to determine whether children in the intervention condition would demonstrate stronger executive functioning skills, such as attention, working memory, and inhibition, as measured by their performance on *HTKS Task* (Ponitz et al., 2009) and *Backward Digit Span* (Davis & Pratt, 1995) at the beginning and end of the preschool year compared to the performance of children in the control condition (Upshur et al., 2017). At the end of the preschool year, children in the intervention condition demonstrated highly significant improvements in their executive

functioning skills compared to the children in the control condition, which supports that the *Second Step Early Learning* curriculum significantly impacts young children's development of self-regulation and executive functioning skills (Upshur et al., 2017).

Interventions targeting parent-child attachment.

Several effective and evidence-based behavioral parent training interventions, such as *Positive Parenting Program (Triple P)*; Sanders & Turner, 2019) and *Parent-Child Interaction Therapy (PCIT)*; Eyberg & Boggs; 1998), are available to support parents. These programs focus on improving parenting effectiveness and confidence and developing positive relationships with their children.

Positive Parenting Program. The *Positive Parenting Program (Triple P)* is a parent training program designed for parents/caregivers of children and teenagers ranging from single visit consultations to group courses and workshops to private sessions; the program is offered through face-to-face or online sessions. Parents who participate in *Triple P* have opportunities to learn and practice skills to assist with raising happy and confident children, managing misbehaviors, establishing rules and routines for the whole family to respect and follow, reinforcing positive behaviors and punishing negative behaviors, engaging in self-care as a parent, and restoring confidence in one's parenting techniques. The program focuses on building relationships, utilizing effective communication, encouraging children's appropriate behaviors, and managing children's behaviors, emotions, and development by adaptive means (Triple P America, n.d.).

A meta-analysis of 55 research studies evaluating *Triple P* confirmed the efficacy of the program in enhancing parenting skills, decreasing children's problem behavior, increasing parental well-being, and positively impacting the parent-child relationship (Nowak & Heinrichs,

2008). Another research study found that families who received differentiated levels of intensive *Triple P* demonstrated significant decreases in coercive parenting and parental stress (Sanders et al., 2008). Another systematic review and meta-analysis of 116 studies evaluating *Triple P* confirmed the significant short-term effects of positive impact upon children’s social, emotional, and behavioral outcomes, parental practices, and parenting satisfaction and efficacy (Sanders, Kirby, Tellegen, & Day, 2014). Additional research demonstrating the evidence-base and effectiveness of Triple P is available on The University of Queensland Australia’s *Triple P* Evidence-Based webpage (The University of Queensland, 2019).

Parent-Child Interaction Therapy. *Parent-Child Interaction Therapy (PCIT)* is an evidence-based treatment designed for use with parents/guardians of children ages 3 to 7 with behavioral problems (PCIT International, 2018). The treatment is conducted using coaching sessions where the parents/guardians and the child are in a playroom while the therapist is in an observation room watching the parent/guardian—child dyads either via one-way mirrors or live video feed. Therapists coach parents/guardians in the moment using a “bug in the ear” device, where therapists provide guidance for what to say and provide feedback (positive and/or constructive) to the parents/guardians. *PCIT* is implemented across two treatment phases: Child-Directed Interaction (CDI) or Parent-Directed Interaction (PDI; PCIT International, 2018).

In the CDI phase of *PCIT*, the focus is establishing and building rapport within the attachment relationship by helping children feel calm and secure with their parents/guardians, as well as for the child to learn to feel good about themselves. Parents/guardians work on providing praise, saying reflective statements, engaging in imitation, providing descriptions, and demonstrating enjoyment. They are coached to avoid using negative talk (e.g., no, don’t, stop, quit, not), giving commands, or asking questions during the CDI Phase. Outcomes during the

CDI phase include decreases in frequency, severity, and/or duration of children's tantrums and negative attention-seeking behaviors (i.e., whining, bossiness); increases in children's attention span, self-esteem, prosocial behaviors (i.e., sharing, taking turns), and feelings of safety, security, and attachment to their primary caregiver (PCIT International, 2018).

In the PDI phase of *PCIT*, the focus is to teach parents/guardians the skills to manage their children's most challenging and difficult behaviors while staying calm, consistent, and confident in their parenting. Parents/guardians learn skills such as giving effective direct commands, gaining compliance from their children, and promoting respect for house rules. Outcomes during the PDI phase include decreased frequency, severity, and/or duration of aggression, destructive behaviors, and defiance; increased compliance with adult directives and respect for rules; and improvements in children's behavior in public and parents' feeling calm and confident when implementing discipline, such as the timeout procedure (PCIT International, 2018).

Abrahamse and colleagues (2012) found that after 37 families received *PCIT* treatment, positive effects were observed with regard to preschoolers' disruptive behavior; most parents reported significant decreases in their children's behavior problems. Bagner and Eyberg (2007) conducted a randomized controlled trial to examine the efficacy of *PCIT* (either immediate treatment or waitlist control group) working with young children with intellectual impairments and comorbid Oppositional Defiant Disorder. Their findings indicated that mothers in the immediate treatment group engaged in more positive interactions with their children, their children demonstrated increased compliance and decrease disruptive behaviors, and mothers reported lower parental stress related to their child's behavior (Bagner & Eyberg, 2007). *PCIT* also demonstrated to be effective in improving young children's behavior, improving parents'

positive parenting skills (i.e., labeled praise, behavior descriptions, reflections) when interacting with their children, and increasing their children's emotional regulation (Rothenberg, Weinstein, Dandes, & Jent, 2019). Additional research demonstrating the evidence-base and effectiveness of *PCIT* is available on the PCIT International website (PCIT International, 2018).

Interventions targeting peer acceptance.

Many effective, evidence-based interventions and mental health services exist that can assist young children with acquiring and maintaining social skills. One example is positive psychology, which is the scientific study of our strengths and virtues that allow individuals and communities to thrive due to its emphasis on emotions, traits, and institutions that are positive in nature (Molony, Hildbold, & Smith, 2014). Specifically, positive psychology can be implemented as a universal approach in schools to foster children's academics, behavior, and social-emotional functioning (Molony et al., 2014). Positive psychology utilizes a strengths-based approach by focusing on multiple positives for an individual (e.g., character strengths, resiliency) and targeting positive emotions and positive individual differences, rather than focusing on the absence of any problems or concerns, to prevent mental health distress (Molony et al., 2014). Children's character strengths--positive traits reflected in thoughts, feelings, and behaviors that directly benefit others and society--can serve as protective factors against adversity, stress, and trauma. Examples of character strengths include hope, kindness, social intelligence, self-control, and perspective taking (Molony et al., 2014).

School psychologists and classroom teachers can assist children and families with recognizing and utilizing children's character strengths. School psychologists can work and consult with teachers and families to facilitate conversations and activities geared towards helping identify and develop children's character strengths. Teachers can serve as role models

for students by being optimistic, putting forth hard work, encouraging their students' best efforts, and treating everyone with respect, including students, staff, and families (Molony et al., 2014). Examples of positive psychology interventions targeting character strengths include: creating natural, everyday opportunities for children to utilize their character strengths and encourage them to reflect on how it feels to use them; facilitating transitions (e.g., daily transitions, transitioning to next grade or to a different school building) by increasing students' self-confidence via their character strengths; displaying students' character strengths on a bulletin board either in their classroom or throughout the school building; and utilizing children's strengths to improve positivity and the school's welcoming climate is by acknowledging and appreciating children's individual differences (Molony et al., 2014).

Another effective, evidence-based intervention to assist with children's social skills is schools adopting social-emotional learning (SEL) curricula and programs as part of the school system's educational goals (Molony et al., 2014). According to the Collaborative for Academic, Social, Emotional Learning (CASEL) program, SEL is "the process through which children and adults understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions (CASEL, 2019). CASEL states that SEL programs should embody five core competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2017). The self-awareness competency addresses recognizing our emotions and thoughts and how they influence our behavior and developing a well-grounded sense of self-confidence. The self-management competency address regulating our emotions, thoughts, and behaviors as deemed necessary across different situations by managing our stress and controlling our impulses. The social awareness competency addresses our ability to use perspective taking

and empathizing with others, especially those different from us and understand the social norms for behavior. The relationship skills competency focuses on establishing and maintaining healthy and rewarding relationships with others through clear communication, effective listening, cooperation, conflict resolution, and teamwork. The responsible decision-making competency targets our ability to make good decisions about our behavior, how we interact with others based on ethics, safety considerations, and social norms, and understanding that our actions have consequences (CASEL, 2017).

The 2013 CASEL Guide: Effective Social and Emotional Learning Programs – Preschool and Elementary School Edition is a systematic framework that serves to evaluate the quality of classroom-based SEL programs designed for use with preschool and elementary school students (CASEL, 2013). For a SEL program to be included in the 2013 CASEL Guide, the program must 1) be well-designed for classrooms that promote students’ social and emotional competencies by providing opportunities to practice skill building across multiple years, 2) offer high-quality training and other implementation supports (e.g., initial training sessions, ongoing support and consultation) to foster intervention integrity, and 3) be evidence-based with one or more carefully conducted evaluation documenting improvements in students’ behavior and/or academics (CASEL, 2013). The *Incredible Years* (Webster-Stratton, 2013) and *Second Step Early Learning Program* (Committee for Children, 2011) are a few examples of quality SEL programs that were included in the 2013 CASEL Guide.

The Incredible Years. The *Incredible Years* is an intervention program containing a group of intertwining, comprehensive, and developmentally designed programs focused on working with parents, teachers, and children to foster children’s emotional, social, and academic competence and to prevent, decrease, and treat any behavioral and emotional concerns (Webster-

Stratton, 2013). Each component of The *Incredible Years* targets decreasing young children's risk factors and increasing their protective factors. The *Incredible Years* programs were specifically designed for implementation with families experiencing economic disadvantage, or who have involvement with child protective services and/or foster care system; families of children with social and emotional behavioral problems (e.g., diagnoses of Conduct Disorder, Attention-Deficit/Hyperactivity Disorder (ADHD), anxiety and/or depressive disorders, Global Developmental Delays, or language delays; Webster-Stratton, 2013).

For the parent program component, the *Incredible Years* Preschool Basic (3 – 6 years) and Advanced Parenting Program (4 to 12 years) are suitable for preschool-age children. The parent programs involve 12 to 20 weekly two-hour group sessions where parents complete lessons with video vignettes to teach and practice skills through role-plays, to discuss their success and challenges utilizing the skills, and to receive homework and handouts for use outside of the sessions. The *Incredible Years* Preschool Basic program strengthens parent-child relationships and interactions by addressing topics including building children's social skills, emotional regulation, and school readiness skills, utilizing praise and incentives to encourage cooperative behavior, implementing positive discipline through rules, routines, effective limit setting, and handling misbehavior. The Advance Program builds upon the topics and lessons learned in the Preschool Basic Program and further extends by targeting parents' interpersonal conflicts such as increasing effective communication, problem-solving, and management of anger and depression. (Webster-Stratton, 2013). Randomized control trials using these programs have demonstrated improvement in parent-child interactions via building positive relationships and attachment, parental functioning, decreases in harsh parenting, and increases in nurturing parenting (O'Connor, Matias, Futh, Tantham, & Scott, 2013; Webster-Stratton, 1990).

For the child program component, the Dinosaur Social Emotional Skills and Problem-Solving Curriculum: Small Group Dinosaur Child Treatment Program (4 to 8 years) and Classroom Dinosaur Prevention Program (3 to 8 years) are suitable for preschool-age children. In the child programs, there are 18 to 22 sessions delivered for an hour twice weekly either as a small-group intervention (Dinosaur Treatment) or as classroom-wide prevention (Dinosaur Prevention) program. During the session, the facilitators implement different lesson plans that include circle time activities, small-group practice activities such as games and role-plays, discussions with puppets, and video vignettes. The Small Group Dinosaur Curriculum can be implemented by counselors, therapists, and/or special education teachers working with children with conduct problems, ADHD, and/or internalizing problems in small groups of about six students. The Classroom Dinosaur Curriculum is designed to be implemented with teachers as a prevention program for a classroom of students. Both of the Dinosaur Curriculum programs address topics such as making new friends, learning school rules, teaching behaviors to be successful in school classrooms (e.g., listening, raising your hand, concentration, cooperation), recognizing and understanding feelings, problem-solving steps, using manners and being friendly, and how to talk with friends (Webster-Stratton, 2013). These programs demonstrated increases in children's emotion regulation and social competence (Webster-Stratton & Reid, 2004; Webster-Stratton, Reid, & Hammond, 2004).

For the teacher program component, the Incredible Beginnings Program (for teacher of 1- to 5-year-olds) and *Incredible Years* Teacher Classroom Management Program (for teachers of 3- to 8-year-olds) are programs suitable for early childhood education teachers. Both teacher programs are meant to be implemented as six full-day training workshops for classroom teachers, where the workshop days are monthly to allow the teachers to practice and build upon the skills.

During the monthly workshops, teachers have opportunities to learn and practice different classroom management strategies, learn various principles to foster creative learning environments and foster their students' social-emotional learning, and to participate in group discussions where they can share and reflect on their successes and challenges. The Incredible Beginning Program includes topics focusing on toddlers and preschoolers specifically, such as building positive relationships with students and managing separation anxiety, promoting language development, social coaching, emotion coaching, being a proactive teacher, and implementing positive behavioral management. The *Incredible Years* Teacher Classroom Management Program addresses the topics of building positive relationships with students; preventing behavioral problems as a proactive teacher; the importance of teacher attention via coaching and praise; motivating students through incentives; decreasing inappropriate behavior; and fostering emotional regulation, social skills, and problem-solving in children (Webster-Stratton, 2013). These programs demonstrated improvements in teacher-student relationships, proactive and effective classroom management skills, strengthened teacher-parent partnerships (Aasheim, Drugli, Reedtz, Handegård, & Martinussen, 2018; Hutchings, Martin-Forbes, Daley, & Williams, 2013).

Second Step Social-Emotional Learning. *Second Step Social-Emotional Learning* (Second Step) is an intervention that allows schools to transform into supportive and successful learning environments that possess the necessary tools to help students in Pre-K through Grade 8 be successful and flourish (Committee for Children, 2020). The *Second Step Early Learning* program was designed for prekindergarten students to provide them with skills for lasting success, such as listening, paying attention, managing their behavior, and getting along with others. This program kit includes color photo weekly theme cards, a teaching materials notebook,

a “Join in and Sing” CD, colorful posters, boy and girl puppets, listening rule cards, feelings cards, and take-home activities and family letters. Educators such as classroom teachers, social workers, school psychologists, and school counselors can serve as the program facilitator, where they deliver the unit lesson weekly and implement unit activities daily. The *Second Step Early Learning* has five unit topics, including 1) skills for learning, 2) empathy, 3) emotion management, 4) friendship skills and problem-solving, and 5) transitioning to kindergarten (Committee for Children, 2020).

Upshur et al. (2017)’s randomized efficacy trial of *Second Step Early Learning* curriculum also focused on whether children in the intervention condition would demonstrate stronger social-emotional skills, such as emotional knowledge and prosocial behavior, as measured by their performance on the *Emotion Matching Scale* (Izard, Haskins, Schultz, Trentacosta, & King, 2003) at the beginning and end of the preschool year compared to the control condition (Upshur et al., 2017). Children who received the *Second Step Early Learning* curriculum also demonstrated significant improvements in their social-emotional skills at the end of the preschool year, relative to the children in the control condition (Upshur et al., 2017).

Limitations and Future Directions

The present study provided several important contributions to the field by demonstrating how preschoolers’ self-regulation influences the relation between caregiver-child attachment and how well-liked children are by their peers. However, there are limitations that could be addressed in future research to provide empirical clarity that would expand our conceptual understanding of these topics. One limitation of the present study was the sample size and composition. Despite the number of child participants with full cases of data demonstrating sufficient statistical power for the analyses conducted, the sample size was limited and lacked enough diversity to serve as

an accurate representation of the larger population as a whole (e.g., geographic regions, racial and ethnic diversity, socioeconomic status). All participants were recruited from small Midwestern cities, and the participants were mostly White (children 70.9%, parents/guardians 76.1%, and teachers 83.7%). In the future, it may be helpful to expand the geographical area for recruitment to include families from rural, suburban, and urban areas. Such efforts could also potentially add to the racial and ethnic representation and socioeconomic diversity of the sample. The parent/guardian participants were 91.8% mothers, which limited the present study's data to effectively contribute to father-child attachment research literature. The literature would greatly benefit from comparing parent-child attachment relationships across multiple parents/caregivers per child.

Also, the limited sample size made it difficult to conduct more complex analyses with different components of the data. For example, a larger and more representative (e.g., geographic location, type of early childhood center or program children are enrolled in) data sample would allow for additional analysis of the potential influence of contextual factors. Researchers could examine differences in caregiver-child attachment, children's self-regulation, and peer acceptance based on families recruited from suburban towns compared to urban cities or rural areas, or based on type of early childhood center (e.g., public vs. private vs. Head Start, etc.). In addition, with a larger sample size, more complex analysis of the data would allow for determining whether any gender-based differences in children's self-regulation exist. Gender effects on children's self-regulation was examined as an exploratory research question in the present study. Given that there were only 56 girls and 56 boys with full data cases who participated in the present study, there was insufficient statistical power to run more complex statistical analyses to further examine gender-based differences in children's performance of

self-regulation as related to other variables of interest. In the future, further expanding recruitment efforts to include a larger number of child participants would contribute to the statistical power in analyzing gender effects on preschoolers' self-regulation, in addition to the overall variability in the data and statistical power of the research study.

In the present study, data were collected from parents/guardians, lead teachers, and children at one point during the preschool year via rating scales and direct observations. In future research, modifying the design to be a longitudinal study would be helpful in adding to the overall richness of the data by looking for any significant changes in the variables of interest (e.g., decreases in parent-child conflict, improvements in children's self-regulation or peer acceptance) as the children complete their preschool year(s) and transition through kindergarten. Also, considering young children undergo rapid development overall during the preschool years, implementing a longitudinal study design would more effectively contribute to available literature on attachment relationships, young children's self-regulatory skills, and shifts in the meaningfulness of children's peer relationships. For example, in future research, it would be interesting to measure children's self-regulation at multiple points of time throughout the school year (e.g., beginning, middle, end) to further explore any age-related effects or age-related changes in children's self-regulation due to development.

Another limitation of the present study included the study's design for gathering data from parents/caregivers and teachers. The present study collected data for attachment relationships and peer acceptance based on reports from parents/guardians and teachers, respectively. The data were based on adults' perceptions of children's behaviors and relationships with others, which may have limited the scope and perhaps biased the measures of parent-child attachment relationship qualities and peer acceptance. To address the limitation of

indirect measures of parent-child attachment relationships, future research could conduct direct observations of interactions between children and parents/guardians either in the home and/or daycare setting to assess various attachment qualities, such as dependency, communication skills, response to physical comforting, and fearfulness. To address the limitation of indirect measures of children's peer acceptance, future research could conduct direct observations of children in their preschool or daycare classrooms and note how they interact with their peers, how many peers they are seen playing or talking with, and so on. Also, future researchers could implement peer sociometric ratings, such as peer nominations or rating-scale sociometric measure (Asher et al., 1979). When implementing peer nominations, researchers can present photographs of all preschoolers in the classroom to child participants and ask them to point to their best friend, most preferred playmates, or least preferred playmates. When implementing the rating-scale sociometric measure, researchers can present photographs of all preschoolers in the classroom to child participants and ask them to rate each classmate on a Likert-scale to identify criteria such as how much they enjoy playing with or how well they get along with each of their classmates (Asher et al., 1979).

Another potential design limitation of the present study is how children's self-regulation was measured by behavioral tasks targeting only two self-regulatory abilities (e.g., inhibitory control, delay of gratification). Self-regulation is the overarching ability for an individual to control and manage their behaviors, emotions, and thoughts through abilities such as delaying gratification, controlling impulses, paying attention, and using working memory (Committee for Children, 2011b; McClelland et al., 2010). In the present study, the child participants completed *Bear/Dragon*, *HTKS Task*, and *Day/Night Stroop*, which mainly measured children's inhibitory control; child participants also completed *Dinky Toys*, a task that measured delay of gratification.

It may be helpful to consider other behavioral tasks (e.g., working memory, attention shifting) to measure a child's self-regulation skills overall. For example, the Picture Memory subtest on the *Wechsler Preschool and Primary Scale of Intelligence – Fourth Edition* (WPPSI-IV; Wechsler, 2012) can be administered to assess 3- to 5-year-olds' working memory with visual materials. On Picture Memory, the researcher presents stimulus pictures on a page where the child is prompted to memorize the pictures, and then the child is asked to identify the memorized pictures on subsequent pages (Wechsler, 2012). To assess 3- to 5-year-olds' attention, researchers can use the *Track It Task* (Fisher, Thiessen, Godwin, Kloos, & Dickerson, 2014), where the child is required to visually track a colored shape target (e.g., red triangle, blue square, green diamond) moving along a random trajectory along with two distracter objects (e.g., the other two non-target colored shapes) on a three-by-three grid. While tracking the target object, the child is asked to identify which of the grid locations the target was last seen in prior to disappearing (Fisher et al., 2014).

Another potential design limitation of the presenting study is that only closeness and conflict measured with regard to parent-child attachment relationship qualities. Although closeness and conflict are major components to describe the relationship between parents and their children, it may be beneficial in future research to include additional factors to obtain a more comprehensive representation of the parent-child attachment relationship. In the current study, parent/guardian participants completed the Closeness and Conflict subscales and the Attachment and Relational Frustration scales on the *BASC-3 PRQ-P*. For a more detailed perspective of the caregiver-child relationships, the full *BASC-3 PRQ-P* (Reynolds & Kamphaus, 2015) can be administered so that caregivers can also complete the Discipline Practices,

Involvement, and Parenting Confidence scales to obtain measures of additional qualities of the attachment relationship and interactions between caregivers and children.

It is recommended that future research studies continue examining how young children's self-regulation has mediating effects on the association between the caregiver-child attachment and children's peer relationships. It is also recommended that in future research continue exploring gender-based differences in young children's self-regulation, to further tease apart which self-regulatory skills (e.g., behavioral, emotional) are more influenced by gender in early childhood. Research focusing on the caregiver-child attachment relationship needs to be expanded to include more extensive studies examining attachment relationships with fathers, caregivers who are non-parent family members (e.g., grandparents), and additional types of caregivers, such as adoptive parents, stepparents, and foster parents. In addition to expanding attachment relationship by exploring different attachment relationships, future research can further assess different qualities within the caregiver-child relationship that go beyond closeness and conflict and examine how these other qualities impact children's behavioral self-regulation, peer relationships, and developmental outcomes.

Conclusion

The purpose of this study was to examine whether preschoolers' self-regulation serves as a mediator of the association between parent-child attachment relationship qualities and preschoolers' peer acceptance. This study also sought to determine whether there are significant age-differences and gender-based differences in preschoolers' self-regulation. Overall, the findings of this study supported preschoolers' self-regulation having a mediating effect on parent-child attachment qualities and preschoolers' peer acceptance. Additionally, this study validated significant effects of age and gender on children's self-regulation. The caregiver-child

attachment relationship lays the foundation for young children's relationships with peers and teachers. Parents and guardians can support young children's behaviors and social skills by establishing expectations of appropriate behaviors through effective commands, reinforcement, and consequences and modeling prosocial behaviors when interacting with others. Given that young children's self-regulation influences the extent to which the caregiver attachment relationship impacts children's relationships and interactions with their peers, it is crucial that caregivers teach and model behavioral self-regulatory skills for their children to learn and practice utilizing at home and in other settings. In addition, early childhood teachers can foster young children's social skills by creating and adhering to consistent classroom routines, providing their attention and praise for prosocial classroom behaviors, implementing effective classroom management techniques, and creating opportunities for their students to learn and practice effective social skills such as initiating play, following rules, having conversations with peers, and problem-solving. Families and early childhood education personnel can work together via school-family partnerships to identify potential concerns and necessary resources to support children's development. Families, teachers, and other professionals working with preschool-age children can best serve and support young children through early intervention implemented universally, with smaller groups, and with individual children as necessary. Early intervention efforts can benefit the development of all students, and not just students who are demonstrating areas of need or concerning behaviors. Classroom-wide curricula and interventions are available to target multiple areas of children's functioning to teach them different skills. Early childhood teachers and other school personnel can offer parent training and additional resources to support families' involvement with their children and the schooling.

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