

PARENT AND TEACHER INFLUENCES ON PRESCHOOL CHILDREN'S  
EMOTION REGULATION, PRE-ACADEMIC  
AND SOCIAL SKILLS

by

LATOYA M. SMITH

A THESIS

Submitted in partial fulfillment of the requirements  
for the degree of Master of Science  
in the Department of Human Development and Family Studies  
in the Graduate School of  
The University of Alabama

TUSCALOOSA, ALABAMA

2009

Copyright LaToya M. Smith 2009  
ALL RIGHTS RESERVED

## ABSTRACT

The purpose of the present study is to examine parent and teacher influences on preschool children's emotion regulation, pre-academic and social skills. Parent-reported child behavior (i.e., effortful control and negative affectivity), parent-child relationship, and family emotion expressiveness were highly correlated with children's emotion regulation ability. Parents' reports of their parenting practices were also correlated with children's social skills. Teacher-reported teacher-child relationship was correlated with children's pre-academic and social skills. Teachers' reports of social skills were also correlated with children's pre-academic skills.

In multiple regression analyses, children's behavior significantly predicted emotion regulation abilities. Parent-child relationship, family emotion expressiveness, and parenting practices did not predict children's emotion regulation abilities. Teacher-child relationship predicted children's teacher-reported pre-academic and social skills. Parents' reports of children's emotion regulation also predicted their pre-academic skills. However, parent-child relationship did not predict children's pre-academic skills or social skills.

Results indicate that the development of child behavior characteristics (i.e., effortful control) contributes to children's development of emotion regulation. In turn, appropriate emotion regulation skills contribute to academic success. Results also indicate that teacher-child relationship quality may be an important factor of preschoolers' early academic and social competence due to children's reliance on teachers as a secure base of support as they explore, ask questions, and maintain greater involvement in classroom activities.

## LIST OF ABBREVIATIONS AND SYMBOLS

$M$	Mean: the sum of a set of measurements divided by the number of measurements in the set
$SD$	Standard Deviation: the measurement of the distribution of data about a mean value
$p$	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
$B$	The unstandardized regression coefficient
$\beta$	Beta: the standardized regression coefficient
$R^2$	Squared multiple correlation coefficient: the proportion of variability in a data set that is accounted for by the statistical model
$F$	Computed value of $F$ test
=	Equal to

## ACKNOWLEDGMENTS

I am pleased to have this opportunity to thank the many colleagues, friends, and faculty members who have helped me with this research project. I am most indebted to Dr. Hyun-Joo Jeon, the chairman of this thesis, for sharing her research expertise and wisdom regarding children's emotion regulation. I would also like to thank the rest of my committee members, Dr. Maria Hernandez-Reif and Dr. Stuart Usdan for their invaluable input and support of both the thesis and my academic progress. I would like to thank the teachers and parents from The University of Alabama's Children's Program for agreeing to participate in the study. This research would not have been possible without the support of my friends and fellow graduate students and of course of my family who never stopped encouraging me to persist. Finally, I'd like to thank my husband and daughter for their patience and understanding throughout this process.

## CONTENTS

ABSTRACT .....	ii
LIST OF ABBREVIATIONS AND SYMBOLS .....	iii
ACKNOWLEDGMENTS .....	iv
LIST OF TABLES .....	vi
1. INTRODUCTION .....	1
2. METHOD .....	13
a. Participants .....	13
b. Procedures .....	13
c. Measures .....	14
d. Data Analysis .....	19
3. RESULTS .....	21
4. DISCUSSION .....	23
REFERENCES .....	27
TABLES .....	31
APPENDIX .....	38

## LIST OF TABLES

1. Demographic Characteristics of Participants .....	32
2. Descriptive Statistics for all Variables.....	33
3. Correlations among Variables of Interest .....	34
4. Regression Analysis Predicting Emotion Regulation .....	36
5. Regression Analysis Predicting Pre-academic and Social Skills.....	37

## Parent and Teacher Influences on Preschool Children's Emotion Regulation, Pre-academic and Social Skills

Children's ability to manage their emotions is a critical developmental milestone during the preschool years, and, if not mastered, may prevent children's later academic and social development throughout grade school (Birch & Ladd, 1997; Howes, Hamilton, & Matheson, 1994; Pianta, Nimetz, & Bennett, 1997; Pianta & Stuhlman, 2004; Smith et al., 2006). The development of emotion regulation heavily depends upon children's relationship with their primary caregiver at home and may also be affected by their relationship with teachers. Parents play a vital role in helping children internalize adaptive emotion regulation strategies. Positive emotion regulation strategies are developed if children have positive relationships with their parents, witness parents expressing positive emotions in the home, and are exposed to positive parenting practices. Children who have effective emotion regulation skills are likely to keep positive relationships with their teachers. In turn, positive teacher-child relationships help children achieve academic and social competence. Few studies have examined both parent and teacher influences on preschool children's emotion regulation, pre-academic and social skills. The current study will contribute to this gap within the research literature.

Emotion regulation is defined as the process that serves to manage emotional arousal and support adaptive social and non-social responses (Calkins, 1994; Calkins, Smith, Gill, & Johnson, 1998; Stansbury & Zimmermann, 1999). Stansbury and Zimmermann (1999) argued that this process facilitates a person's ability to move from a negative emotional state to a positive or neutral emotional state. The development of emotion regulation is one of the most important tasks for children to learn during their preschool years (Calkins et al., 1998; Dennis,



2006; Diener & Mangelsdorf, 1999; Graziano, Reavis, Keane, Calkins, 2007; Kopp, 1989; Smith, Calkins, & Keane, 2006). Emotion regulation becomes critical as preschoolers begin to gain independence and a separate identity from their primary caregiver (Calkins et al., 1998). Children are considered to be successful at regulating their emotions if they are able to persist through challenges, have a moderate level of frustration tolerance, and comply with adult instructions (Dennis, 2006). Emotion regulation is also demonstrated when a child is able to delay specific activities, and monitor their own behavior (Calkins et al., 1998). Children are expected to increasingly be able to control/manage impulsive reactions as they begin to interact more with peers and comply with demands of teachers in more structured preschool environments. Research shows that children with higher emotion regulation achieve higher levels in emergent literacy, vocabulary, and math in their pre-kindergarten year (McClellan et al., 2007). If preschoolers are able to manage their emotions, they will also be able to gain self-confidence, which allows them to form appropriate relationships with their peers and teachers and make a successful transition to kindergarten (Graziano et al., 2007).

Infants usually use strategies such as self-soothing, support-seeking, or distraction behaviors to help them regulate their emotions (Stansbury & Zimmerman, 1999). As children grow, they rely less on external sources, such as parents to help them regulate their emotions and use more internal regulatory capacities (Dennis, 2006; Karreman, van Tuijl, van Aken, & Dekovic, 2006; Kopp, 1989). Child behavior characteristics, such as effortful control, are also used to help children regulate their emotions as they adapt to increased interactions with parents, preschool teachers, and peers (Eisenberg, Zhou, Spinrad, Valiente, Fabes, & Liew, 2005; Fox & Calkins, 2003; Spinrad et al., 2007).

Children have been described as developing emotion regulation strategies through four phases (Stansbury & Zimmerman, 1999). First, they use self-comforting regulation strategies, including attempts to reduce the intensity or negativity of an emotional situation. These strategies are similar to the basic, innate reflexes of infants, such as thumb sucking, and may also include children seeking physical or verbal comfort from parents. Second, they use instrumental regulation strategies, or attempts to remove or change the negative aspects of an emotion-eliciting situation, such as stating or restating a request, or giving reasons why a caregiver should grant the request. Third, they use distraction regulation strategies, or attempts to redirect attention to something other than the emotion-eliciting situation. For example, children may initiate or participate in an alternative activity directed by parents. Last, they use cognitive regulation strategies, or attempts to reinterpret the negative aspects of a situation without actually changing the situation itself. Examples include children asking for explanations of a denied request, bargaining, or redefining the situation (Stansbury & Zimmerman, 1999).

By the end of infancy, children begin to develop effortful control by integrating both control of attention and inhibitory control which help them comply with adult demands, delay gratification, and manage impulses (Fox & Calkins, 2003; Rothbart, Ellis, Rueda, & Posner, 2003; Spinrad et al., 2007). Effortful control usually begins during the first year of life and continues throughout the school age and is believed to play a fundamental role in emotion regulation (Eisenberg, Zhou, Spinrad, Valiente, Fabes, & Liew, 2005; Fox & Calkins, 2003; Spinrad, et al., 2007). Children who are high in effortful control are believed to be able to voluntarily control their attention and inhibit negative behaviors or initiate positive behaviors as needed (Valiente et al., 2006).

Inhibitory control is a primary aspect of emotion regulation, which gives children the ability to stop inappropriate behavior and use more adaptive responses (McClelland et al., 2007). It develops rapidly during early childhood, beginning around six months of age, and children usually are able to successfully use rules to inhibit a dominant response by age four (Fox & Calkins, 2003). Children who successfully develop inhibitory control are also less impulsive and less prone to frustration than those failing to develop inhibitory control.

Research has shown that attentional and inhibitory control is related to decreases in negative emotionality in infancy and a higher level of self-control of emotions in older children (Fox & Calkins, 2003; Spinrad et al., 2007). Effective emotion regulation reflects decreases in negative affect characterized by anger/frustration, fear, sadness, or distress to limitations (Diener & Mangelsdorf, 1999; Komsis et al., 2006). Children who are high in negative affectivity have a tendency to respond intensely to changes in the environment or to emotion evoking situations. They also have a reduced ability to soothe themselves (Komsis et al., 2006).

Preschooler's acquisition of effortful control skills, such as paying attention, following instructions, and inhibiting inappropriate actions, supports their socio-emotional development and may impact their early academic success (Graziano et al., 2007; Grolnick, Bridges, & Connell, 1996; McClelland, Connor, Jewkes, Cameron, Farris, & Morrison, 2007; Spinrad et al., 2007). Being able to pay attention and follow instructions gives children the ability to voluntarily sustain focus or shift attention, access their working memory, and complete tasks (Eisenberg et al., 2001; McClelland et al., 2007). The transition to more formal preschool environments may be problematic for children who have not mastered these basic skills (McClelland et al., 2007; Stansbury & Zimmermann, 1999).

Parents need to help children successfully master the progression from self-comforting strategies to cognitive regulation strategies, as well as, help them develop the ability to pay attention and inhibit their behavior. Development of appropriate emotion regulation strategies depends heavily upon the relationship established with the primary caregiver (Diener & Mangelsdorf, 1999; Pianta, Nimetz & Bennett, 1997; Smith et al., 2006; Spinrad, et al., 2007). The parent-child relationship can be viewed as being positive or conflictual (Pianta, 1992). Positive parent-child relationships are characterized by responsiveness, sensitivity, and availability. On the other hand, parents' conflictual relationships with their children are marked by low levels of sensitivity and availability. Parents' responsiveness consists of warm, accepting and affectionate behavior (Connell & Prinz, 2002; Karreman et al., 2006; Smith et al., 2006; Spinrad et al., 2007). Children with caregivers who are responsive to their needs develop adaptive emotion regulatory strategies.

When mothers are sensitive and children trust in their availability and support; a positive relationship develops (O'Conner & McCartney, 2007; Spinrad et al., 2007). However, if the parent-child relationship is characterized by low levels of maternal sensitivity and children's uncertainty of maternal availability, a negative relationship is established. Children with positive parent relationships are usually able to manage their emotions more effectively and are able to display more appropriate emotions than those with negative relationships because they are adapted to having their needs met on a consistent basis (Smith et al., 2006). Children who are in conflictual parent-child relationships usually have caregivers who are physically or emotionally unavailable to them (e.g., because of depression, etc.) which, in turn, causes the children to be less likely to develop adaptive emotion regulation strategies.

Diener and Mangelsdorf (1999) examined how children's behavioral strategies differed when mothers were unavailable versus when mothers were available. They found that the effectiveness of emotion regulation strategies varied as a function of maternal involvement. Children used more adaptive strategies when mothers were more involved with helping them through an emotional situation. Diener and Mangelsdorf also found that when mothers became involved, children expressed more positive affect (e.g., smiling or laughing) than negative affect (e.g., fear or anger). This finding supports the idea that toddlers' emotion regulation skills improve with the support of their caregivers (Kopp, 1989; Spinrad et al., 2007).

The quality of parent-child interaction during the preschool age is beneficial for children's development of emotion regulation and accounts for a significant proportion of variance in kindergarten teacher ratings of their academic performance, social skills with peers, and overall child behavioral problems and competence scores (Pianta et al., 1997). Irrespective of socioeconomic status and ethnicity, warm and emotionally responsive parent-child interaction quality was associated with children's school readiness, which included higher ratings on social skills and receptive communication ability (Connell & Prinz, 2002).

Much of the research has been conducted under the assumption that parental caregiving practices, such as emotional expressiveness in the home, support or undermine young children's development of emotion regulation (Ashiabi, 2000; Calkins et al., 1998; Denham, 1998; Eisenberg et al., 2001; Halberstadt, Cassidy, Stifter, Parke, & Fox, 1995; Saarni, 1987). These studies have shown that children are relatively better in emotional regulatory abilities when parents encourage them to express emotions in appropriate ways (Ashiabi, 2000; Calkins et al., 1998; Denham, 1998; Eisenberg et al., 2001; Halberstadt et al., 1995; Saarni, 1987). Children's abilities to express their emotions develop over the first few years of life as they internalize the

emotional regulatory strategies displayed by their parents (Calkins et al., 1998; Eisenberg et al., 2001; Halberstadt et al., 1995). Children learn how to cope with their own emotions, as well as how to react to others' emotions, through observing parental displays of emotions. Parents influence the emotional development of children as they model, coach, and reinforce appropriate or inappropriate emotional displays (Ashiabi, 2000; Eisenberg et al., 2001; Halberstadt et al., 1995; Spinrad et al., 20007).

Family emotion expressiveness in the home was associated with children's social skills and emotional understanding of others (Eisenberg et al., 2001). Parental expressions of punitive emotions, for example, are transferred to children, who in-turn, use these negative emotional responses when they interact with peers (Chang, Schwartz, Dodge, & McBride-Chang, 2003).

Parents also play an important role in enhancing emotion regulation skills by providing rules and giving children space to internalize these rules (Karrenman et al., 2006). The parenting style used to manage children during the transition from infancy to toddlerhood allows parents an opportunity to model and reinforce the child's behavior. Parents usually use harsh, firm/responsive, or lax parenting strategies when disciplining their children. Harsh parenting practices include insensitivity to the emotional needs of children and strict control over their behavior (Shumow, Vandell, & Posner, 1998). Harsh parenting was negatively associated with children's pre-academic skills and overall school adjustment (Shumow et al., 1998). Firm/responsive parenting practices include high demands for self control coupled with high levels of sensitivity, emotional warmth, and involvement. Children whose parents use firm/responsive parenting practices have been associated with high pre-academic skills and emotion regulation abilities (Shumow et al., 1998). Lax parenting practices are characterized by

high sensitivity and warmth, but low expectations for self control and discipline. Children with lax parents were more likely to act out behaviorally (Shumow et al., 1998).

Efforts of the parent, either to exert control over the child, or to support competent self-management, as the child seeks autonomy and independence, affect children's emotion regulating ability. (Calkins et al., 1998; Karrenman et al., 2006). Positive control includes parental behavior such as attempts to teach, encourage and guide children's behavior. Maternal positive guidance, characterized by efforts to reinforce and support children's attempts at autonomy, may contribute to the development of appropriate emotion regulatory behavior (Calkins et al., 1998; Karrenman et al., 2006). Moreover, maternal behaviors have been related to children's ability to engage in adaptive and functional emotion regulating strategies. Children are more likely to exhibit higher levels of emotion regulation if parents use positive controlling strategies such as encouraging them to work through their problems themselves and rewarding them when they are successful at regulating their own emotions.

Negative control includes harsh parental discipline practices, including anger, criticism, and physical discipline, that have been linked to children's behavioral problems (Calkins et al., 1998; Chang et al., 2003; Connell & Prinz, 2002; Karrenman et al., 2006). Mothers' negative and controlling behaviors were shown to inhibit the development of children's autonomy when mothers were unavailable (Calkins et al., 1998). Mothers who demonstrated controlling behavior in contexts that did not require the regulation of emotions, had children who employed less adaptive emotion regulation strategies in situations where they had to regulate their own emotions. This finding suggests that these children may not have developed optimal internal emotion regulation strategies because they are overly dependent upon their mother's significant control over their behavior. Children of parents who use negative control and dismiss children's

feelings have problems managing their emotions and difficulty expressing their own emotions (Ashiabi, 2000; Karrenman et al., 2006). In general, parents' positive control is related to preschoolers' adaptive emotion regulation, and negative control is related to less adaptive emotion regulation.

The relationship that children establish with their teacher may also affect how well they use emotion regulation skills to help them adapt to school settings (Birch & Ladd, 1997; Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Hamre & Pianta, 2001; O'Connor & McCartney, 2007; Pianta, 1994; Pianta & Stuhlman, 2004). The teacher-child relationship can be defined by three dimensions: closeness, conflict, and dependency (Birch & Ladd, 1997; Burchinal et al., 2002; Hamre & Pianta, 2001; Pianta, 1994). Closeness refers to the degree of warmth and open communication that exists between a teacher and child (Birch & Ladd, 1997). Closeness may facilitate children's learning because children feel supported in their efforts to explore, ask questions, and maintain greater involvement in classroom activities. Teacher reported closeness with students has been positively related to children's academic achievement such as growth in receptive vocabulary and reading abilities from preschool to second grade (Burchinal et al., 2002; Pianta & Stuhlman, 2004).

Conflictual relationships are characterized by harsh interactions and a lack of rapport between the teacher and child (Birch & Ladd, 1997). Conflictual relationships may cause children to withdraw from the classroom environment which may lead to poor academic achievement (Birch & Ladd, 1997). Research has shown that children who have higher conflictual relationships with teachers at first grade have higher levels of externalizing behavior problems and lower social competence (Pianta & Stuhlman, 2004).



Children's too much reliance on teachers for support can be reflected in relationships that are overly dependent, characterized by possessive and "clingy" child behaviors. Dependent relationships with teachers may lead to less exploration, interference with school adjustment, and interference with social relationships with peers (Birch & Ladd, 1997; Howes et al., 1994). Preschoolers who are overly dependent frequently seek attention from their teacher and often wait for help without trying to solve problems on their own (Howes et al., 1994). Children who are less dependent on their teachers score higher on academic performance than those who are more dependent on their teachers (Birch & Ladd, 1997).

Appropriate teacher-child relationships are characterized by increases in closeness and decreases in dependency over time. Positive teacher-child relationships in preschool have been related to children's academic performance and overall school competence in kindergarten (O'Conner & McCartney, 2007). However, teacher-child relationships marked by conflict and over dependency predicted a wide range of children's negative academic and behavioral outcomes from kindergarten through eighth grade (Hamre & Pianta, 2001).

The literature review described strategies that children use to regulate their emotions and influences of parents and teachers on children's development of these strategies. Prior research stressed the important role that parents and teachers play in children's development of emotion regulation skills, pre-academic and social skills (Birch & Ladd, 1997; Howes, Hamilton & Matheson, 1994; Pianta, Nimetz, & Bennett, 1997; Pianta & Stuhlman, 2004; Smith et al., 2006). The purpose of the current research also attempted to examine factors that may contribute to children's development of emotion regulation and to determine whether these factors affect early academic and social competence. The study examined relations among children's behavior characteristics (i.e., effortful control and negative affectivity), their familial social environments

(parent-child relationship, family emotion expressiveness, and parenting practices), their teacher-child relationship, emotion regulation, pre-academic and social skills. The current study also predicted children's emotion regulation with child behavior, parent-child relationship, family emotion expressiveness, and parenting practices; as well as, pre-academic and social skills with emotion regulation, parent-child relationship, and teacher-child relationship. Study results suggested to researchers, parents, and teachers the importance of emotion regulation in children's development and stressed how it is related to their academic and social skills in school. These findings also lead to a better understanding of how to promote emotion regulation in young children.

Several studies have included both mother-child and teacher-child relationships in the prediction of school adjustment (O'Connor & McCartney, 2007; Pianta et al., 1997; Pianta & Stuhlman, 2004). Other studies have investigated the link between either the parent-child or teacher-child dyad and children's emotion regulation (Birch & Ladd, 1997; Calkins & Johnson, 1998; Calkins et al., 1998; Chang et al., 2003; Connell & Prinz, 2002; Graziano et al., 2007; Hamre & Pianta, 2001). However, few have examined influences of mother-child and teacher-child relationships on children's emotion regulation, pre-academic skills and social skills. As McClelland et al. (2007) noted, it is clear that emotion regulation is necessary for school success during early elementary school, but there is less research on the contribution of these skills to academic competence prior to kindergarten. Helping children to develop emotion regulation, such as attention control and inhibitory control skills prior to kindergarten may provide children a foundation of early academic skills. Therefore, there is a need to investigate the influences of parent-child relationships, teacher-child relationships, and children's emotion regulation on pre-

academic skills and social competence. The current study would contribute to these gaps within the research literature.

The study investigated relations among children's emotion regulation, their relationships with parents and teachers, and their pre-academic and social skills. Three research questions were examined in this study: 1) is emotion regulation predicted by child behavior, parent-child relationship quality, family emotion expressiveness, and parenting practices?; 2) are children's pre-academic skills predicted by their emotion regulation, parent-child relationship quality, and teacher-child relationship quality?; and 3) is children's social skills predicted by their emotion regulation, parent-child relationship quality, and teacher-child relationship quality?

## Method

### *Participants*

Parents and teachers of three to five year-old children were recruited from the Children's Program at the University of Alabama's Child Development Research Center. A total of 77 parents were asked to participate in a survey study; 41 consented, however, only 35 completed the study. Of the 41 children whose parents had agreed to be in the study, 38 were surveyed by their teacher. Fourteen additional preschools were contacted in an effort to recruit additional participants; however, none granted permission.

Demographic characteristics of the sample are presented in Table 1. The majority of the parents were between the ages of 30 and 40. Forty six percent held a graduate degree as their highest level of education, and most worked in an executive, managerial or administrative occupation.

### *Procedures*

Approval was requested and obtained to conduct the study from the University of Alabama's Institutional Review Board for the Protection of Human Subjects. At the end of May 2008, the director of the Children's Program at the University of Alabama agreed to allow the school to participate in the study. Parents of all three to five year-old children and their preschool teachers were given consent letters that described the study's purpose of learning more about children's emotional development. The letters asked parents and teachers to participate in the study by completing questionnaires which assessed parenting behaviors and child behaviors at home and in the classroom. Within one week, half of the consent documents had been signed and

returned to the preschool teachers, and the rest were collected over the next three weeks. Once consent was obtained from the parent, teachers sent a questionnaire packet home with the child. Teachers who had agreed to participate in the study completed questionnaires for children, whose parents had agreed to participate in the study.

Visits were made once a week to the classrooms to collect consent documents and questionnaires. Two reminder notices were sent to parents, one at the end of June and another at the end of July. The reminder notices thanked parents for agreeing to be in the study and asked them to return their questionnaires to their children's classroom. Completed parent and teacher questionnaires were placed in confidentially sealed envelopes and left for collection in the children's classrooms. It took approximately two months to collect the data.

### *Measures*

The parent questionnaire measured children's emotion regulation and child behavior, as well as, parent-child relationship quality, parent emotion expressiveness, and parenting practices. The questionnaire included the Emotion Regulation Checklist (Shields & Cicchetti, 1997), Children's Behavior Questionnaire (Rothbart, Ahadi, Hershey, & Fisher, 2001), Child-Parent Relationship Scale (Pianta, 1992), Family Emotional Expressiveness Questionnaire (Halberstadt, 1986), and the Raising Children Scale (Greenberger & Goldberg, 1989). (See Appendix A for a copy of the questionnaire.)

The Emotion Regulation Checklist (Shields & Cicchetti, 1997) is a 24-item scale consisting of two subscales: the Negativity/Liability and the Emotion Regulation subscales. The Negativity/Liability subscale measures children's negative affect and mood liability, while the Emotion Regulation subscale measures processes central to adaptive regulation (e.g., self-control). Only the emotion regulation subscale which includes eight items was used in the

current study. Parents reflected on how often their child expressed him or herself when certain situations occurred. Each item was rated on a four-point scale ranging from 1 (*never*) to 4 (*almost always*). The mean score of all items was calculated, with two of the eight being reverse-coded. Higher scores indicate the use of more positive adaptive emotion regulation strategies. Shields and Cicchetti (1997) found an internal consistency of .83; however, Graziano et al. (2007) found an internal consistency Cronbach's alpha of .68. The current study found an internal consistency of .63.

Children's behavior was measured using the Children's Behavior Questionnaire (Rothbart et al., 2001). The original scale contains 94 items, which consists of three broad subscales: Effortful Control, Negative Affectivity, and Surgency. Effortful Control refers to a child's ability to maintain attention focusing (e.g., staying on task until a job is done) and to inhibit or suppress inappropriate behaviors (e.g., able to lower voice when asked). Negative Affectivity refers to anger or frustration related to the disruption of an ongoing task or goal (e.g., has temper tantrum when wants are not met) and sadness related to disappointment or loss of an object (e.g., cries when favorite toy is broken). Surgency refers to impulsivity (e.g., rushing into an activity without thinking about it). Internal consistency reliability for the Children's Behavior Questionnaire subscales ranged from .67 to .94, with a mean internal consistency of .77 across all scales (Ahadi, Rothbart, & Ye, 1993; Kochanska, DeVet, Goldman, Murray, & Putnam, 1994; Rothbart et al., 2001).

The current study used 48 of the items to measure Effortful Control and Negative Affectivity. Parents reflected on how their child was likely to react in certain situations using a seven-point scale ranging from 1 (*quite untrue*) to 7 (*extremely true*). Eighteen of the items were reverse-coded, and the subscales were averaged to compute a composite behavioral functioning

score. The current sample resulted in Cronbach's alphas of .87 for Effortful Control, .56 for Negative Affectivity, and .74 for total items.

The Child-Parent Relationship Scale (CPRS; Pianta, 1992) includes 30 items measuring how warmly parents view their relationship with their child. The CPRS consists of three subscales: Positive, Conflict, and Dependency. The Positive subscale measures the level of warmth and open communication within the relationship; the Conflict subscale reports the negative aspects of the relationship; and the Dependency subscale measures the degree to which a child is overly dependent on the parent.

The current study used 15 items which measured positive and conflictual aspects of the parent-child relationship. Items were rated on a five-point scale ranging from 1 (*definitely does not apply*) to 5 (*definitely applies*). Eight of the items were reverse-coded and the Positive and Conflict subscales were combined to yield a total mean score for each participant. Higher scores indicate more warm parental relationships. Internal consistencies for the current study were .61 for the positive subscale, .56 for the conflict subscale, and .62 for the total scale.

The Family Expressiveness Questionnaire (Halberstadt, 1986) is a 40-item scale which measures the predominant style that families exhibit nonverbal and verbal expressions of emotions along four subscales: Positive-Dominant, Positive-Nondominant, Negative-Dominant, and Negative-Nondominant. In the current study, the short form of the Family Expressiveness Questionnaire which has 24 items (Halbertstadt et al., 1995) was used to measure the frequency with which positive and negative emotions are expressed within the family. The short form contains two subscales: Positive Expression and Negative Expression. Parents reflected on how often they express themselves when certain situations occur using a five-point scale ranging from

1 (*rarely*) to 5 (*very often*). Nine of the items were reverse-coded, and the positive and negative subscales were averaged to create a composite emotion expressiveness score.

The short form correlations with the longer Family Expressiveness Questionnaire were .95, .95, and .96 for positive, negative, and total scales respectively (Halberstadt, et al., 1995). Reliability coefficients for the scales were reported, .88, .82, and .83, respectively (Halberstadt, et al., 1995). The current study's alphas were .82 for the positive scale, .67 for the negative scale, and .76 for the total scale.

The Raising Children Scale (RCS; Greenberger & Goldberg, 1989) consists of 39 items. The RCS measures elements of disciplinary style and parental responsiveness, including handling children's anger and curiosity, parental expression of warmth, and child rearing goals, such as the importance of developing respect for authority (Greenberger & Goldberg, 1989). The RCS includes three dimensions: Harsh, Firm/Responsive, and Lax. Mothers showed internal consistencies of .62 for the Harsh scale, .55 for the Firm/Responsive scale, and .59 for the Lax scale. While fathers showed internal consistencies of .62 for the Harsh scale, .69 for the Firm/Responsive scale, and .60 for the Lax scale. In the current study, 28 of the items were used to measure harsh, firm/responsive and lax parenting practices. Parents reflected on their views about raising children using a four-point scale ranging from 1 (*definitely no*) to 4 (*definitely yes*). Items were averaged to create a composite parenting practices score. Cronbach's alphas for the total sample were .68 for the Harsh scale; .51 for the Firm/Responsive scale; and .68 for the Lax scale.

The teacher questionnaire captured teacher-student relationship quality, the children's current pre-academic skills, and their behavior in the classroom. The questionnaire consists of the Student-Teacher Relationship Scale (Pianta, 2001), the Academic Performance Scale



(DuPaul et al., 1991), and the Social Skills Rating System (Gresham & Elliott, 1990). (See Appendix B for a complete list of items within the questionnaire.)

The Student-Teacher Relationship Scale (STR; Pianta, 2001) consists of 30 items asking teachers' perception of their relationship with children. It is constructed with three subscales: Closeness, Conflict, and Dependency. The Closeness subscale measures the level of warmth and open communication within the teacher-child relationship; the Conflict subscale captures the negative aspects of the relationship; and the Dependency subscale measures the degree to which a child is overly dependent on his or her teacher (Birch & Ladd, 1997). Items were rated on a five-point scale ranging from 1 (*definitely does not apply*) to 5 (*definitely applies*).

The current study used the 15-item short form of the scale that measures two aspects of the student-teacher relationship to determine overall relationship quality: Closeness and Conflict. Eight of the items of the Conflict subscale were reverse-coded, and a mean score was calculated for each participant. Higher scores indicate more positive teacher-child relationships (O'Connor & McCartney, 2007).

The STR scale has been used extensively in studies of preschool and elementary school children, with internal consistencies ranging from .86 to .93 for the Closeness scale and .91 to .94 for the Conflict scale (Birch & Ladd, 1997; Hamre & Pianta, 2001; O'Connor & McCartney, 2007). The current study yielded Cronbach's alphas of .88 for Closeness, .87 for Conflict, and .86 for overall relationship quality.

The Academic Performance Rating Scale (APRS; DuPaul et al., 1991) is a 19-item scale which captures children's current academic performance and behavior in the classroom. The APRS includes three subscales: Impulsivity, Academic Success, and Academic Productivity. The Impulsivity subscale measures children's impulsive behavior such as beginning work prior to

understanding the assignment. The Academic Success subscale measures current competence (e.g., is quality of speech appropriate for the child's age). The Academic Productivity subscale measures work productivity (e.g., student accurately follows directions).

The current study used 13 of the 19 items selected by the researcher considering the appropriateness for three to five year-old children. Teachers estimated whether the study child had mastered certain skills over the past week using a five-point scale ranging from 1 (*never*) to 5 (*very often*). Seven items were reverse-coded, and all items were averaged to create an academic success/productivity composite score. DuPaul et al. (1991) found internal consistency of .95 for the total scale, and the current sample's alpha was .86.

The Social Skills Rating System (SSRS; Gresham & Elliott, 1990) is an 80-item scale. Teachers reflect on how often a child exhibits certain social skills (40 items) and how important those skills are for success in their classroom (40 items). The SSRS has two subscales: Social Skills and Problem Behaviors. The Social Skills subscale measures cooperation, assertion, and self control; while the Problem Behaviors subscale measures externalizing, internalizing and hyperactivity behaviors.

Items were rated on a three-point scale ranging from 0 (*never*) to 2 (*very often*). The Problem Behavior subscale (10 items) was reverse-coded, and all items were summed to create a composite score. Higher scores reflect higher levels of children's social competence. Gresham and Elliott (1990) found an internal consistency of .90 compared to .96 for the current study.

#### *Data Analysis*

First, descriptive statistics were conducted for all scales. Then, correlations were computed to examine the bivariate relations among child behavior characteristics (i.e., effortful control and negative affectivity), family emotion expressiveness, parenting practices, teacher-

child relationship, parent-child relationship, and children's emotion regulation, pre-academic and social skills. Finally, regression analyses were conducted to predict emotion regulation using child behavior, parent-child relationship, family emotion expressiveness, and parenting practices. Regression analyses were also employed to predict pre-academic and social skills using emotion regulation, parent-child relationship, and teacher-child relationship.

## Results

Descriptive statistics of all variables are presented in Table 2. Parents reported more positive parent-child relationships, positive emotion expressiveness, and firm parenting practices, than conflictual relationships, harsh parenting practices, or lax parenting practices. Overall, teachers reported higher closeness mean scores and less conflict scores.

Table 3 shows the correlation coefficients among variables. Emotion regulation was positively correlated with child behavior, parent-child relationship quality, and family emotion expressiveness. Pre-academic skills were positively correlated with children's social skills and teacher-relationship quality. Social skills were positively correlated with parenting practices and teacher-relationship quality.

A multiple regression analysis was conducted to determine whether children's emotion regulation skills were predicted by children's behavior, parent-child relationship quality, family emotion expressiveness, and parenting practices. Regression coefficients are presented in Table 4. This regression model significantly predicted emotion regulation,  $F(4,30) = 9.46, p < .01$ , adjusted  $R^2 = .50$ . However, only children's behavior contributed to predicting their emotion regulation. Parent-child relationship quality, family emotion expressiveness, and parenting practices were not significant predictors.

Multiple regression analyses were also conducted to determine whether children's pre-academic and social skills were predicted by their emotion regulation, parent-child relationship quality, and teacher-child relationship quality. Regression coefficients are presented in Table 5. The overall model significantly predicted children's pre-academic skills,  $F(3,28) = 10.00, p < .01$ ,

adjusted  $R^2 = .47$ . Among the predictors, teacher-child relationship quality and emotion regulation were significant predictors of children's pre-academic skills; while parent-child relationship quality did not significantly explain children's pre-academic skills. The regression model significantly predicted children's social skills,  $F(3,28) = 9.91, p < .001$ , adjusted  $R^2 = .46$ . However, only teacher-child relationship quality contributed to predicting social skills. Emotion regulation and parent-child relationship quality were not significant predictors in the model.

## Discussion

The current study assumes that by strengthening parent and teacher relationships and children's emotion regulatory skills, preschool children's pre-academic skills and social skills will improve. The study was conducted to understand influences of child behavior characteristics (i.e., effortful control and negative affectivity), parent-child relationship quality, family emotion expressiveness, parenting practices, and teacher-child relationship quality on children's emotion regulation and academic and social outcomes. The first research question was to determine whether children's emotion regulation could be predicted by child behavior, parent-child relationship quality, family emotion expressiveness, and parenting practices. As expected, child behavior was a significant predictor of their emotion regulation. Consistent with previous research (Fox & Calkins, 2003; McClellan et al., 2007; Spinrad et al., 2007), the current study's findings suggest that the development of child behavior characteristics, such as effortful control (i.e., attention focusing and inhibitory control), contributes to children's early development of emotion regulation. Unlike previous research (Ashiabi, 2000; Denham, 1998; Saarni, 1987), parent-child relationship quality, family emotion expressiveness, and parenting practices did not predict children's emotion regulation. One possible explanation for this discrepancy is that the current study's sample size was small ( $n = 38$ ) and may have minimized statistical power to detect these predictions. Internal consistencies for the Child-Parent Relationship Scale (positive = .61; conflict = .56) were also low which may indicate that parents' answers were less consistent than in previous research.

The second research question was to determine whether children's pre-academic skills could be predicted by their emotion regulation and relationship quality with parents and teachers. Emotion regulation and teacher relationship quality were significant predictors of children's pre-academic skills. Consistent with previous research, the current study's findings suggest that preschooler's development of emotion regulation and relationships with teachers may affect their pre-academic skills (Birch & Ladd, 1997; Graziano et al., 2007; Grolnick et al., 1996; Hamre & Pianta, 2001; McClelland et al., 2007; Peisner-Feinberg et al., 2002; Pianta & Stuhlman, 2004; Spinrad et al., 2007). Contrary to previous research (Burchinal et al., 2002; Connell & Prinz, 2002; Pianta et al., 1997), parent relationship quality was not significant. Again, the small sample size and low internal consistencies of the Child-Parent Relationship Scale may have contributed to the parent-child relationship not being a significant predictor of children's pre-academic skills.

The third research question was to determine whether children's social skills could be predicted by their emotion regulation and relationship quality with parents and teachers. Teacher-child relationship quality was significant for predicting social skills. Unlike previous research, emotion regulation and parent-child relationship quality was not significant (Chang et al., 2003; Connell & Prinz, 2002; Eisenberg et al., 2001; Graziano et al., 2007; Pianta et al., 1997). Interestingly, teacher-child relationship quality had a stronger effect on academic and social outcomes compared to parent-child relationship quality. These findings further emphasize the importance of children having a positive relationship with teachers to help them adapt to the school environment and is consistent with previous research (Birch & Ladd, 1997; Graziano et al., 2007; Howes et al., 1994; O'Conner & McCartney, 2007; Pianta & Stuhlman, 2004).

Results may have been biased because parents and teachers rated both children's outcomes and their relationship. Reported emotion regulation, pre-academic and social skills may have been influenced by parents' and teachers' perceived relationship quality. As mentioned earlier, the sample size was small and may have minimized statistical power to detect correlations and predictions. Due to the small sample size, the researcher did not control family and child demographic characteristics. The data was also limited to one daycare facility with the majority of the current sample holding a graduate degree and working in higher paying occupations. Therefore, the findings may not generalize to other populations with a broad range of family education and income.

Future research should attempt to directly assess child behavior, emotion regulation, as well as, pre-academic and social skills through observational studies. Because self-reported data contains bias, the use of observational measures can help to strengthen the findings of the current study. Future research might also attempt to directly assess parent-child and teacher-child interactions. This will allow researchers to examine contrasting views between perceived and actual parent and teacher relationship quality. Further research should recruit a larger sample and control for family and child demographic characteristics which would help strengthen statistical power to detect predictions.

With these limitations in mind, the study provided important information on children's relationships with parents and teachers, their emotion regulation, pre-academic and social skills. The results of this investigation raise important implications for policy makers and early childhood educators. The study suggests that the perceptions that teachers have of the quality of their relationships with their students are associated with preschool children's pre-academic and social skills. If children are able to establish positive relationships with their teachers earlier in



life, they may be able to develop skills (Burchinal et al., 2002; Howes et al., 1994; McClellan et al., 2007; Pianta & Stuhlman, 2004) that will help them be successful throughout their schooling experience. Thus, more emphasis may need to be placed on retaining quality preschool teachers as they play an important role in helping children develop emotion regulation skills and academic and social skills. Childcare policy makers and teacher educators should provide teacher training programs that emphasize children's emotion regulation and strategies to help teachers build stronger relationships with their students.

The results also have implications for parent education programs targeted at families with preschool aged children. Programs should focus on training parents to help their children develop emotion regulation skills. Family life educators should work to implement parenting programs focused on promoting positive parent-child relationships, positive emotion expressiveness, and firm/responsive parenting practices.

## References

- Ahadi, S., Rothbart, M., & Ye, R. (1993). Children's temperament in the US and China: similarities and differences. In Rothbart, M.K., Ahadi, S.A., Hershey, K.L., & Fisher P. (2001). Investigations of temperament at three to seven years: the children's behavior questionnaire. *Child Development, 72*(5), 1394-1408.
- Ashiabi, G.S., (2000). Promoting the emotional development of preschoolers. *Early Childhood Education Journal, 28*(2), 79-84.
- Berk, L.E. (2006). *Child Development (7th Edition)*. Allyn and Bacon: Boston, MA.
- Birch, S.H. & Ladd, G. (1997). The teacher-child relationship and children's early school adjustment. *Journal of School Psychology, 35*(1), 61-79.
- Burchinal, M.R., Peisner-Feinberg, E., Pianta R.C., & Howes, C. (2002). Development of academic skills from preschool through second grade: family and classroom predictors of developmental trajectories. *Journal of School Psychology, 40*, 415-436.
- Calkins, S.D. (1994). Origins and outcomes of individual differences in emotional regulation. In Calkins, S., Smith, C., Gill, K., & Johnson, M. (1998). Maternal interactive style across contexts: relations to emotional, behavioral and physiological regulation during toddlerhood. *Social Development, 7*(3), 350-369.
- Calkins, S., & Johnson, M. (1998). Toddler regulation of distress to frustrating events: temperamental and maternal correlates. *Infant Behavior and Development, 21*, 379-395.
- Calkins, S., Smith, C., Gill, K., & Johnson, M. (1998). Maternal interactive style across contexts: relations to emotional, behavioral and physiological regulation during toddlerhood. *Social Development, 7*(3), 350-369.
- Chang, L., Schwartz, D., Dodge, K.A., & McBride-Chang, C. (2003). Harsh parenting in relation to child emotion regulation and aggression. *Journal of Family Psychology, 17*, 598-606.
- Connell, C.M., & Prinz, R.J. (2002). The impact of childcare and parent-child interactions on school readiness and social skills development for low-income African American children. *Journal of School Psychology, 40*(2), 177-193.
- Denham, S.S. (1998). *Emotional development in young children*. New York: Guilford.
- Dennis, T. (2006). Emotional self-regulation in preschoolers: the interplay of child approach

- reactivity, parenting, and control capacities. *Developmental Psychology*, 42(1), 84-97.
- Diener M.L., & Mangelsdorf, S.C. (1999). Behavioral strategies for emotion regulation in toddlers: associations with maternal involvement and emotional expressions. *Infant Behavior & Development*, 22(4), 569-583.
- DuPaul, G., Rapport, M., & Perriello, L. (1991). Teacher ratings of academic skills: the development of the academic performance rating scale. *School Psychology Review*, 20(2), 284-300.
- Eisenberg, N., Gershoff, E.T., Fabes, R.A., Shepard, S.A., Cumberland, A.J., Losoya, S.H., Guthrie, I.K., & Murphy, B.C. (2001). Mothers' emotional expressivity and children's behavior problems and social competence: mediation through children's regulation. *Developmental Psychology*, 37(4), 475-490.
- Eisenberg, N., Zhou, Q., Spinrad, T., Valiente, C., Fabes, R., & Liew, J. (2005). Relations among positive parenting, children's effortful control, and externalizing problems: a three-wave longitudinal study. *Child Development*, 76(5), 1055-1071.
- Fox, N.A., & Calkins, S.D. (2003). The development of self-control of emotion: intrinsic and extrinsic influences. *Motivation and Emotion*, 27, 7-26.
- Graziano, R.A., Keane, S.P., & Calkins, S.D. (2007). The role of emotion regulation in children's early academic success. *Journal of School Psychology*, 45, 3-19.
- Greenberger, E., & Goldberg, W. (1989). Work, parenting, and the socialization of children. *Developmental Psychology*, 25, 22-35.
- Gresham, F.M., & Elliott, S.N. (1990). The social skills rating system. Circle Pines, MN: American Guidance Service.
- Grolnick, W.S., Bridges, L.J., & Connell, J.P. (1996). Emotion regulation in two-year olds: strategies and emotional expression in four contexts. *Child Development*, 67, 928-941.
- Gross, J. (1998). The emerging field of emotion regulation: an integrative review. *Review of General Psychology*, 2(3), 271-299.
- Halberstadt, A.G. (1986). Family socialization of emotion expression and nonverbal communication styles and skills. *Journal of Personality and Social Psychology*, 51, 827-836.
- Halberstadt, A., Cassidy, J., Stifter, C., Parke, R., & Fox, N. (1995). Self-expressiveness within the family context: psychometric support for a new measure. *Psychological Assessment*, 7, 93-103.
- Hamre, B.K., & Pianta, R.C. (2001). Early teacher-child relationships and the trajectory of

- children's school outcomes through eighth grade. *Child Development*, 72(2), 625- 638.
- Howes, C., Hamilton, C.E., & Matheson, C.C. (1994). Children's relationships with peers: differential associations with aspects of the teacher-child relationship. *Child Development*, 65, 253-263.
- Jones, L.B., Rothbart, M.K., & Posner, M.I. (2003). Development of executive attention in preschool children. *Developmental Science*, 6(5), 498-504.
- Karreman, A., Tuijl, C., van Aken, M., & Dekovic, M. (2006). Parenting and self-regulation in preschoolers: a meta-analysis. *Infant and child development*, 15, 561-579.
- Kochanska, G., DeVet, K., Goldman, M., Murray, M., & Putnam, S. (1994). Maternal reports of conscience, development, and temperament in young children. In Rothbart, M.K., Ahadi, S.A., Hershey, K.L., & Fisher P. (2001). Investigations of temperament at three to seven years: the children's behavior questionnaire. *Child Development*, 72(5), 1394-1408.
- Komsi, N., Raikkonen, K., Pesonen, A., Heinonen, K., Keskiivaara, P., Jarvenpaa, A., & Strandberg, T. (2006). Continuity of temperament from infancy to middle childhood. *Infant Behavior & Development*, 29, 494-508.
- Kopp, C.B. (1989). Regulation of distress and negative emotions: a developmental view. *Developmental Psychology*, 25(3), 343-354.
- Leech, N., Barrett, K., & Morgan, G. (2008). SPSS for intermediate statistics use and interpretation (3<sup>rd</sup> Edition). Taylor and Francis Group, LLC: New York, New York.
- McClelland, M., Connor, C., Jewkes, A., Cameron, C., Farris, C., & Morrison, F. (2007). Links between behavioral regulation and preschoolers' literacy, vocabulary, and math skills. *Developmental Psychology*, 43(4), 947-959.
- O'Connor, E., & McCartney, K. (2007). Examining teacher-child relationships and achievement as part of an ecological model of development. *American Educational Research Journal*, 44(2), 340-369.
- Pianta, R.C. (1992). Child-parent relationship scale. Unpublished measure, University of Virginia.
- Pianta, R.C. (1994). Patterns of relationships between children and kindergarten teachers. *Journal of School Psychology*, 32, 15-31.
- Pianta, R.C. (2001). Implications of a developmental systems model for preventing and treating behavioral disturbances in children and adolescents. In Graziano, R.A., Keane, S.P., & Calkins, S.D. (2007). The role of emotion regulation in children's early academic success. *Journal of School Psychology*, 45, 3-19.

- Pianta, R.C., Nimetz, S.L., & Bennett, E. (1997). Mother-child relationships, teacher-child relationships, and school outcomes in preschool and kindergarten. *Early Childhood Research Quarterly, 12*, 263-280.
- Pianta, R.C., & Stuhlman, M. (2004). Teacher-child relationships and children's success in the first years of school. *School Psychology Review, 33*(3), 444-458.
- Rothbart, M.K., Ahadi, S.A., Hershey, K.L., & Fisher P. (2001). Investigations of temperament at three to seven years: the children's behavior questionnaire. *Child Development, 72*(5), 1394-1408.
- Rothbart, M.K., Ellis, L.K., Rueda, M.R., & Posner, M.I. (2003). Developing mechanisms of temperamental effortful control. *Journal of Personality, 7*(6), 1113-1143.
- Saarni, C. (1987). Cultural rules and emotional experience: a commentary on Miller and Sperry's study. *Merrill-Palmer Quarterly, 33*, 535-540.
- Shields, A., & Cicchetti, D. (1997). Emotion regulation among school-aged children: the development and validation of a new criterion q-sort scale. *Developmental Psychology, 33*(6), 906-916.
- Shumow, L., Vandell, D., & Posner, J. (1998). Harsh, firm, and permissive parenting in low-income families: relations to children's academic achievement and behavioral adjustment. *Journal of Family Issues, 19*(5), 483-507.
- Smith, C.L., Calkins, S.D., & Keane, S.P. (2006). The relation of maternal behavior and attachment security to toddlers' emotions and emotion regulation. *Research in Human Development, 3*(1), 21-31.
- Spinrad, T.L., Eisenberg, N., Gaertner, B., Popp, T., Smith, C.L., Kupfer, A., Greving, K., Liew, J., & Hofer, C. (2007). Relations of maternal socialization and toddler's effortful control to children's adjustment and social competence. *Developmental Psychology, 43*(5), 1170-1186.
- Stansbury, K., & Zimmermann, L.K. (1999). Relations among child language skills, maternal socialization of emotion regulation, and child behavior problems. *Child Psychiatry and Human Development, 30*(2), 121-142.
- Valiente, C., Eisenberg, N., Spinrad, T., Reiser, M., Cumberland, A., Losoya, S., & Liew, J. (2006). Relations among mothers' expressivity, children's effortful control, and their problem behaviors: a four-year longitudinal study. *Emotion, 6*(3), 459-472.

## Tables

Table 1  
*Demographic Characteristics of Participants*

Characteristics	<i>N</i>	%	<i>M(SD)</i>	Range
<b>Child</b>				
Age (in months)	41		49.80 (9.55)	32-69
<b>Gender</b>				
Male = 0	20	48.8		
Female = 1	21	51.2		
<b>Parent</b>				
<b>Age</b>				
Below 19	1	2.4		
Between 19-29	7	17.1		
Between 30-40	23	56.1		
41 and above	4	9.8		
<b>Gender</b>				
Male	2	4.9		
Female	33	80.5		
<b>Education</b>				
Some college	4	9.8		
Bachelors	11	26.8		
Some graduate	1	2.4		
Graduate, doctorate	19	46.3		
<b>Head of household occupation</b>				
Semi-skilled/unskilled	2	4.9		
Skilled	2	4.9		
Clerical and sales workers	3	7.3		
Semi-professional	7	17.1		
Lesser professional	7	17.1		
Major professional	14	34.1		

Table 2  
*Descriptive Statistics for all Variables*

Variable	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>N</i>
Emotion regulation (P)	28.34	2.63	23.00	32.00	35
Pre-academic skills (T)	4.07	0.68	1.69	5.00	38
Social skills (T)	55.97	13.34	37.00	80.00	38
Cooperation	11.16	3.27	6.00	16.00	38
Assertion	16.79	4.89	5.00	24.00	38
Self control	12.61	3.78	5.00	20.00	38
Externalizing	5.71	1.87	2.00	8.00	38
Internalizing	7.00	1.37	4.00	8.00	37
Hyperactivity	2.89	1.09	0.00	4.00	38
Child behavior (P)	4.43	0.41	3.62	5.09	35
Effortful control	4.84	0.80	3.22	6.06	35
Negative affectivity	3.99	0.43	3.06	4.68	35
Parent-child relationship (P)	4.22	0.35	3.33	4.80	35
Positive	4.76	0.29	3.57	5.00	35
Conflict	3.75	0.55	2.50	4.62	35
Family emotion expressiveness (P)	4.09	0.31	3.50	4.62	35
Positive expressiveness	4.34	0.45	3.08	5.00	35
Negative expressiveness	3.85	0.38	2.92	4.50	35
Parenting practices (P)	2.67	0.17	2.18	2.96	35
Harsh	2.38	0.39	1.44	3.00	35
Firm	3.42	0.25	3.00	4.00	35
Lax	2.27	0.36	1.60	3.20	35
Teacher-child relationship (T)	4.12	0.62	2.80	5.00	38
Closeness	4.45	0.65	2.14	5.00	38
Conflict	3.84	0.87	2.12	5.00	38

Note. (P) = parent report; (T) = teacher report.



Table 3  
*Correlations among Variables of Interest*

Variable	1	2	3	4	5	6	7	8	9	10	11	12
<b>1. Emotion regulation</b>												
<b>2. Pre-academic skills</b>	-.186	-										
<b>3. Social skills</b>	.216	.626**	-									
4. Cooperation	.176	.528**	.914**	-								
5. Assertion	.234	.690**	.909**	.828**	-							
6. Self control	.233	.510**	.908**	.804**	.830**	-						
7. Externalizing	.133	.302	.645**	.432**	.398*	.514**	-					
8. Internalizing	.032	.448**	.405*	.318	.258	.185	.329*	-				
9. Hyperactivity	.152	.397*	.576**	.493**	.398*	.378*	.676**	.410*	-			
<b>10. Child behavior</b>	.667**	.046	.257	.215	.274	.242	.279	.114	.053	-		
11. Effortful control	.526**	.045	.296	.273	.284	.290	.344	.042	.083	.898**	-	
12. Negative affectivity	.571**	.067	.086	-.005	.070	.077	.304	.012	.130	.688**	.509**	-
<b>13. P-C relationship</b>	.604**	.055	.345	.276	.361*	.157	.364*	.352	.248	.493**	.493**	.417*
14. Positive	.452**	.321	.292	.178	.409*	.107	.228	.356*	.264	.342*	.259	.358*
15. Conflict	.513**	-.054	.290	.252	.265	.141	.334	.276	.188	.431**	.471**	.333
<b>16. Family EE</b>	.482**	-.110	.082	.050	.161	-.033	.018	.207	-.014	.357*	.265	.319
17. Positive	.391*	.108	.272	.137	.356*	.120	.220	.328	.084	.461**	.365*	.305
18. Negative	.325	-.309	-.187	-.081	-.157	-.196	-.230	-.046	-.123	.041	.003	.162
<b>19. Parenting practices</b>	.297	.066	.379*	.325	.332	.355*	.351*	.074	.279	.316	.275	.053
20. Harsh	.171	.010	.362*	.444*	.253	.373*	.273	-.072	.217	.047	.038	.062
21. Firm	.190	-.078	.081	.045	.124	.016	.047	.170	-.012	.209	.248	-.061
22. Lax	.080	.136	.129	-.031	.142	.154	.186	.065	.181	.235	.180	.026
<b>23. T-C relationship</b>	.216	.620**	.755**	.596**	.722**	.713**	.601**	.401*	.480**	.305	.316	.282
24. Closeness	.044	.646**	.493**	.427**	.628**	.465**	.120	.138	.091	.114	.101	.152
25. Conflict	.245	.402*	.680**	.511**	.549**	.642**	.717**	.438**	.576**	.319	.340	.272

Note. P-C relationship = parent-child relationship; Family EE = Family emotion expressiveness; T-C relationship = Teacher-child relationship.

\* $p < .05$ , \*\* $p < .01$ .

Table 3 Continued

Variable	13	14	15	16	17	18	19	20	21	22	23	24	25
<b>1. Emotion regulation</b>													
<b>2. Pre-academic skills</b>													
<b>3. Social skills</b>													
4. Cooperation													
5. Assertion													
6. Self control													
7. Externalizing													
8. Internalizing													
9. Hyperactivity													
<b>10. Child behavior</b>													
11. Effortful control													
12. Negative affectivity													
<b>13. P-C relationship</b>	-												
14. Positive	.587**	-											
15. Conflict	.925**	.236	-										
<b>16. Family EE</b>	.679**	.356*	.649**	-									
17. Positive	.563**	.442**	.469**	.790**	-								
18. Negative	.443**	.061	.504**	.699**	.114	-							
<b>19. Parenting practices</b>	.166	.161	.124	.193	.288	-.023	-						
20. Harsh	.136	.237	.052	-.076	-.042	-.074	.441**	-					
21. Firm	.391*	.162	.394*	.604**	.564**	.320	.395*	-.238	-				
22. Lax	-.191	-.124	-.171	-.094	.074	-.238	.600**	-.249	.096	-			
<b>23. T-C relationship</b>	.334	.305	.272	.135	.274	-.103	.238	.143	.213	.045	-		
24. Closeness	-.076	.224	-.168	.022	.190	-.188	-.036	-.057	-.065	.047	.683**	-	
25. Conflict	.452**	.264	.422*	.156	.244	-.032	.312	.206	.296	.032	.881**	.255	-

Note. P-C relationship = parent-child relationship; Family EE = Family emotion expressiveness; T-C relationship = Teacher-child relationship.  
\*p<.05, \*\*p<.01.

Table 4

Regression Analysis Predicting Emotion Regulation

Variable	<i>B</i>	<i>SE</i>	<i>β</i>
Child behavior	2.93	.93	.46**
Parent-child relationship	2.22	1.34	.30
Family emotion expressiveness	.86	1.42	.10
Parenting practices	1.33	2.05	.08

Note. Adjusted  $R^2 = .50$ ;  $F = 9.46$ .

\* $p < .05$ , \*\* $p < .01$ .

Table 5

## Regression Analysis Predicting Pre-academic and Social Skills

Variable	Pre-academic Skills			Social Skills		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
Emotion regulation	-.08	.04	-.33*	.08	.79	.02
Parent-child relationship	-.04	.27	-.02	4.52	6.14	.12
Teacher-child relationship	.69	.14	.72**	14.49	3.04	.67**

Note. Adj.  $R^2$  for Pre-academic Skills = .47;  $F = 10.00$ ; Adj.  $R^2$  for Social Skills = .46;  $F = 9.91$ .

\* $p < .05$ , \*\* $p < .01$ .

## Appendix

## Appendix A

### Parent Questionnaire

#### **Demographic questions**

Demographic questions will be asked on a separate cover sheet and all identifiable information (e.g., names of parents and students) will be removed prior to data analysis.

1. Please print the child's first and last names. \_\_\_\_\_
2. What is the child's date of birth? \_\_\_\_\_
3. What is the child's gender (circle one)? Male / Female
4. Please print your first and last name. \_\_\_\_\_
5. What is your relationship with the child? \_\_\_\_\_
6. What is your age? \_\_\_\_\_
7. What is your education level? \_\_\_\_\_
8. What is your occupation? \_\_\_\_\_
9. What is your income? \_\_\_\_\_

#### **Emotion Regulation Checklist (Shields & Cicchetti, 1997)**

Parents answered questions using a 4-point likert scale: 1 (*never*), 2 (*sometimes*), 3 (*often*), and 4 (*always*).

1. Is a cheerful child.
2. Responds positively to neutral or friendly overtures by adults.
3. Responds positively to neutral or friendly overtures by peers.
4. Can say when s/he is feeling sad, angry or mad, fearful or afraid.
5. Seems sad or listless.
6. Displays flat affect (expression is vacant and inexpressive; child seems emotionally absent).
7. Is empathic towards others; shows concern when others are upset or distressed.
8. Displays appropriate negative emotions (anger, fear, frustration, distress) in response to hostile, aggressive or intrusive acts by peers.

#### **Children's Behavior Questionnaire (Rothbart et al., 2001)**

Parents answered how their child is likely to react in these situations using an 8-point scale: 1 (*extremely untrue*), 2 (*quite untrue*), 3 (*slightly untrue*), 4 (*neither true nor false*), 5 (*slightly true*), 6 (*quite true*), 7 (*extremely true*), and 8 (*not applicable*).

1. Can lower his/her voice when asked to do so.
2. Sometimes prefers to watch rather than join other children playing.
3. Cries sadly when a favorite object gets lost or broken.
4. Rarely gets irritated when s/he makes a mistake.
5. Seems to be at ease with almost any person.
6. Has a hard time following instructions.

7. Has temper tantrums when s/he doesn't get what s/he wants.
8. Gets embarrassed when strangers pay a lot of attention to her/him.
9. When practicing an activity, has a hard time keeping his/her mind on it.
10. Tends to feel "down" at the end of an exciting day.
11. Acts very friendly and outgoing with new children.
12. Will move from one task to another without completing any of them.
13. Joins others quickly and comfortably, even when they are strangers.
14. Gets quite frustrated when prevented from doing something s/he wants to do.
15. Becomes upset when favorite people are getting ready to leave.
16. Does not usually become tearful when tired.
17. Is sometimes shy even around people s/he has known a long time.
18. Can wait before entering into new activities if s/he is asked to.
19. Gets angry when s/he can't find something s/he wants to play with.
20. Her/his feelings are easily hurt by what adults say.
21. Sometimes seems nervous when talking to adults s/he has just met.
22. Has difficulty waiting in line for something.
23. Becomes sad when told to do something s/he does not want to do.
24. Acts shy around new people.
25. Has trouble sitting still when s/he is told to.
26. Rarely cries when s/he hears a sad story.
27. Rarely becomes upset when watching a sad event on TV.
28. Is able to resist laughing or smiling when it isn't appropriate.
29. Is comfortable asking other children to play.
30. Rarely gets upset when told s/he has to pick up toys.
31. When drawing or coloring in a book, shows strong concentration.
32. Sometimes appears downcast for no reason.
33. Becomes easily frustrated when tired.
34. Talks easily to new people.
35. Is good at following instructions.
36. When building or putting something together, becomes very involved in what s/he is doing, and works for long periods.
37. Approaches equipment s/he has been told could be dangerous slowly and cautiously.
38. Rarely becomes discouraged when s/he has trouble making something work.
39. Rarely protests when another child takes his/her toy away.
40. Has difficulty leaving a project s/he has begun.
41. Can easily stop an activity when s/he is told "no."
42. Is easily distracted when listening to a story.
43. Easily gets irritated when s/he has trouble with some task (e.g., building, drawing).
44. Gets angry when called in from play before s/he is ready to quit.
45. Is usually able to resist temptation when told s/he is not supposed to do something.
46. Sometimes becomes absorbed in a picture book and looks at it for a long time.
47. Gets mad when provoked by other children.
48. Has hard time concentrating on an activity when there are distracting noises.

### **Child-Parent Relationship Scale (Pianta, 1992)**

Parents answered questions using a 5-point likert scale: 1 (*definitely does not apply*), 2 (*not really*), 3 (*neutral, not sure*), 4 (*applies somewhat*), and 5 (*definitely applies*).

1. I share an affectionate, warm relationship with my child.
2. My child and I always seem to be struggling with each other.
3. If upset, my child will seek comfort from me.
4. My child is uncomfortable with physical affection or touch from me.
5. My child values his/her relationship with me.
6. When I praise my child, he/she beams with pride.
7. My child spontaneously shares information about himself/herself.
8. My child easily becomes angry at me.
9. It is easy to be in tune with what my child is feeling.
10. My child remains angry or is resistant after being disciplined.
11. Dealing with my child drains my energy.
12. When my child is in a bad mood, I know we're in for a long and difficult day.
13. My child's feelings toward me can be unpredictable or can change suddenly.
14. My child is sneaky or manipulative with me.
15. My child openly shares his/her feelings and experiences with me.

### **Family Expressiveness Questionnaire (Halberstadt, 1986)**

Parents answered how often they express themselves when these situations occur using a 5-point likert scale: 1 (*never*), 2 (*rarely*), 3 (*some*), 4 (*moderate frequency*), and 5 (*very often, frequency*).

1. Praising someone for good work.
2. Showing unhappiness with someone else's behavior.
3. Showing contempt for another's actions.
4. Expressing anger at someone else's carelessness.
5. Pouting or sulking over unfair treatment by a family member.
6. Blaming one another for family troubles.
7. Putting down what other people like to do.
8. Showing dislike for someone.
9. Going to pieces when pressure builds up.
10. Expressing excitement over one's future plans.
11. Showing admiration.
12. Expressing disappointment over something that didn't work out.
13. Telling someone how nice they look.
14. Expressing how sorry you feel for someone's trouble.
15. Expressing deep love or affection for someone.
16. Arguing with a family member.
17. Spontaneously hugging a family member.
18. Expressing quick anger over a small bothersome situation.
19. Snuggling up to a family member.



20. Trying to cheer up someone who is sad.
21. Telling family members how happy you are.
22. Threatening someone.
23. Expressing thanks for a favor.
24. Surprising someone with a little gift or favor.

### **Raising Children Checklist (Greenberger & Goldberg, 1989)**

Parents answered questions using a 4-point likert scale: 1(*definitely no*), 2 (*mostly no*), 3 (*mostly yes*), and 4 (*definitely yes*).

1. Do you help your child do his/her chores?
2. Do you praise your child when he/she does something you like?
3. Do you expect your child to obey the first time you say something?
4. Do you give your child a chance to explain before punishing him/her?
5. Do you think the most important thing your child must learn is independence?
6. Do you give your child lots of hugs and kisses?
7. Do you let your child decide what his/her daily schedule will be?
8. Do you let your child eat what he/she feels like eating?
9. Do you allow your child to express anger?
10. Do you think your child is too young to have chores?
11. Do you think praising your child will spoil him/her?
12. Do you think that respect for authority is the most important thing your child should learn?
13. Do you let your child decide when it is time for bed?
14. Do you expect your child to do chores at home without any help?
15. Do you like your child to join in freely when adults are talking?
16. Do you think spoiling your child would be the worst thing you could do?
17. Do you want your child to question rules that seem unfair or unclear?
18. Do you let your child choose which TV shows to watch?
19. Do you try to show that you understand your child's feelings when you punish him/her for misbehaving?
20. Do you reconsider a rule that really upsets your child?
21. Do you expect your child to be quiet and respectful when adults are around?
22. Do you try to explain the reasons for the rules you make?
23. Do you spank your child for doing something really wrong?
24. Do you expect your child to obey you without any questions asked?
25. Do you think an important thing your child must learn is to respect the rights of others?
26. Do you think it's wrong for a child to shout at a parent?
27. Do you think your child will grow up just fine without much interfering on your part?
28. Do you expect your child to control his/her anger to a certain extent?

## Appendix B

### Teacher Questionnaire

#### **Student-Teacher Relationship Scale (Pianta, 2001)**

Teachers reflected on the degree to which each of the following statements currently applies to their relationship with the student using a 5-point likert scale: 1 (*definitely does not apply*), 2 (*not really*), 3 (*neutral, not sure*), 4 (*applies somewhat*), and 5 (*definitely applies*).

1. I share an affectionate, warm relationship with this child.
2. This child and I always seem to be struggling with each other.
3. If upset, this child will seek comfort from me.
4. This child is uncomfortable with physical affection or touch from me.
5. This child values his/her relationship with me.
6. When I praise this child, he/she beams with pride.
7. This child spontaneously shares information about himself/herself.
8. This child easily becomes angry at me.
9. It is easy to be in tune with what this student is feeling.
10. This child remains angry or is resistant after being disciplined.
11. Dealing with this child drains my energy.
12. When this child arrives in a bad mood, I know we're in for a long and difficult day.
13. This child's feelings toward me can be unpredictable or can change suddenly.
14. This child is sneaky or manipulative with me.
15. This child openly shares his/her feelings and experiences with me.

#### **Academic Performance Rating Scale (DuPaul et al., 1991)**

Teachers estimated whether students had mastered certain skills over the past week using a 5-point likert scale: 1 (never), 2 (rarely), 3 (sometimes), 4 (often) and 5 (very often).

1. Student's work quality has been consistent over the past week?
2. Student accurately follows teacher instructions and/or class discussion during large-group (e.g., whole class) instruction?
3. Student accurately follows teacher instructions and/or class discussion during small-group (e.g., reading group) instruction?
4. Child quickly learns new material (i.e., pick up novel concepts)?
5. Child's quality of speech is appropriate for his or her age?
6. Child completes written work in a careless, hasty fashion?
7. The child takes more time to complete work than his/her classmates?
8. Child is able to pay attention without you prompting him/her?
9. Child frequently requires your assistance to accurately complete his/her work?
10. Child begins assignments prior to understanding the directions?
11. Child has difficulty recalling material from a previous day's lessons?
12. Child appears to be staring excessively or "spaced out"?
13. Child appears withdrawn or tends to lack an emotional response in a social situation?

## **Social Skills Rating System (Gresham & Elliott, 1990)**

Teachers answered questions designed to measure how often a student exhibits certain social skills and how important those skills are for success in their classroom using a 3-point scale for both measures: 0 (*never*), 1 (*sometimes*), 2 (*very often*).

1. Follows directions.
2. Makes friends easily.
3. Appropriately tells you when he or she thinks you have treated him or her unfairly.
4. Responds appropriately to teasing by peers.
5. Appropriately questions rules that may be unfair.
6. Attempts classroom tasks before asking for help.
7. Controls temper in conflict situations with adults.
8. Gives compliments to peers.
9. Participates in games or group activities.
10. Produces correct school work.
11. Helps you without being asked.
12. Introduces himself or herself to new people without being told.
13. Accepts peers' ideas for group activities.
14. Cooperates with peers without prompting.
15. Waits turn in games or other activities.
16. Uses time appropriately while waiting for your help.
17. Says nice things about himself or herself when appropriate.
18. Uses free time in an acceptable way.
19. Acknowledges compliments or praise from peers.
20. Controls temper in conflict situations with peers.
21. Follows rules when playing games with others.
22. Finishes class assignments within time limits.
23. Compromises in conflict situations by changing own ideas to reach agreement.
24. Initiates conversations with peers.
25. Invites others to join in activities.
26. Receives criticism well.
27. Puts work materials or school property away.
28. Responds appropriately to peer pressure.
29. Joins ongoing activity or group without being told to do so.
30. Volunteers to help peers with classroom tasks.
31. Has temper tantrums.
32. Fidgets or moves excessively.
33. Argues with others.
34. Disturbs ongoing activities.
35. Says nobody likes him or her.
36. Appears lonely.
37. Is aggressive toward people or objects.
38. Disobeys rules or requests.
39. Shows anxiety about being with a group of children.
40. Acts sad or depressed.