

THESIS

THE ROLE OF SOCIOECONOMIC STATUS AND TEMPERAMENT IN PRESCHOOLERS'
EMOTIONAL COMPETENCE: DIRECT AND INTERACTIVE EFFECTS

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ABSTRACT

THE ROLE OF SOCIOECONOMIC STATUS AND TEMPERAMENT IN PRESCHOOLERS' EMOTIONAL COMPETENCE: DIRECT AND INTERACTIVE EFFECTS

This study investigated the moderation effects of child temperamental characteristics on the relationship between parental socioeconomic status and child emotional competencies. Children's emotional competencies were conceptualized as emotional understanding, which was measured through puppet assessments (Denham, 1986; Cole et al., 2009). A total of 167 preschoolers ($M = 47.24$ months; $SD = 8.38$) and their parents joined the study. Hierarchical multiple regression was used to examine the direct and indirect effects of parental socioeconomic status and child temperament, as well as two key individual factors (age and gender), on children's emotional understanding. The results indicated that the interaction between SES and negative affectivity significantly predicted children's fear situation understanding. Age was a significant predictor of all emotional understandings except anger and shame situation understanding. But gender significantly predicted anger regulation understanding. Implications of these results for future studies on child emotional understanding were discussed.

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CHAPTER 1: Introduction

Emotions function as regulators of our intra and interpersonal behaviors in social interaction (Barrett, 2013; Denham, 2003). During this process, emotional competence is needed to make sure emotions are expressed, understood, and regulated appropriately. Although developing through the whole life, preschoolers' emotional competence increases remarkably over time, and growing evidence has demonstrated that higher emotional competence predicted better peer relationships (Rydell et al., 2003), greater academic performance (Trentacosta & Izard, 2007), and fewer behavioral problems (Shields et al., 2001). The goal of this study was to examine the role of socioeconomic status (SES) and temperament on emotional competence in preschoolers. To achieve it, we first need to clarify the definition of emotional competence.

CHAPTER 2: Literature Review

2.1 Definition of Emotional Competence

Emotional competence is a collective construct, which has been defined in terms of multiple capabilities. In the current study, we employed Saarni's (1999) developmental theory of emotional competence, which viewed it as involving skills in responding to emotion-related transactions, including the abilities: "(1) to be aware of one's own emotions, (2) to discern and understand others' emotions, (3) to use the vocabulary of emotion and expressions, (4) to have empathic and sympathetic involvement, (5) to distinguish inner state from external emotional expression, (6) to cope adaptively with aversive or distressing emotions, (7) to communicate emotions within relationships, and (8) to accept one's emotional experience." Denham, who, like Saarni, focused on the socialization and development of children's emotional competence, defined emotional competence as including emotional expressiveness and experience, emotion knowledge/understanding, and emotion regulation (Denham, 1986; Denham, 2003; Denham & Bassett, 2015). In this study, we focused on Saarni's first three emotional competencies, involving understanding and using the vocabulary of emotion and expressions. More specifically, we assessed children's understanding and labeling the emotions that puppets were likely to experience in situations that stereotypically elicit a particular emotion (emotion situation understanding) (Denham, 1986) as well as their understanding and labeling of appropriate ways of regulating emotions (Cole et al., 2009), which are discussed in more detail below.

2.2 Preschoolers' Emotion Understanding

2.2.1 Emotion Situation Understanding

Denham (1986) defined children's emotion situation understanding as the knowledge about which emotions they and others would experience in various emotion-eliciting situations. This involves the ability to comprehend emotional expressions and emotion-eliciting situations, along with the ability to converse about emotions and the causes of emotions. Based on these abilities, preschoolers are able to communicate their own and predict others' feelings and behaviors, which helps them to interact with others in a positive way (Denham et al., 1994). For example, it helps a child know that when a classmate is crying for the loss of her favorite baby doll, that means she is sad and in need of sympathy and prosocial behavior. Individual differences in identifying others' emotions based on context begin around 3-years old (Fine et al., 2006), and such differences can remain stable throughout childhood (Pons et al., 2003). In fact, deficiencies in emotion situation knowledge have been linked with lower social skills, more aggression, along with more social difficulties and withdrawal (Schultz et al., 2001; Schultz et al., 2004).

A developmental sequence in the identification of emotional situations has been found. Preschoolers performed better in positive situations than in negative situations (Denham & Couchoud, 1990). Regarding the accuracy of identification in negative situations, young children initially were inclined to use "sad" to represent all negative emotions, and subsequently distinguished sadness and anger, but still had difficulty distinguishing fear from other negative emotions (Widen & Russell, 2008). This difference in the development of recognizing emotion situation understanding may be due in part to the fact that there are more distinctions made among negative emotions than among positive emotions. Moreover, emotion complexity may be

another factor. Preschoolers showed more difficulty in identifying more complex emotion situations (such as those eliciting shame and pride) rather than simpler emotions (such as happy and sadness) (Brechet et al., 2009).

2.2.2 Emotion Regulation Understanding

Emotion regulation understanding requires awareness that there can be a difference between inner states and outer behaviors, as well as the ability to identify and generate effective strategies for regulating specific emotions (Cole et al., 2009). The understanding of how emotion can be regulated serves as a database of self-regulation strategies (Cole et al., 2009), and predicted children's socio-emotional competence (Denham, 1998).

Although developing through the whole life, emotion regulation understanding begins as early as 3 years of age (Denham et al., 2002). By 5 years of age, most children have knowledge of some strategies (both suitable and unsuitable) to regulate negative emotions (Eisenberg & Fabes, 1998; Denham, 1998). Children who are able to keep calm and ask for help from parents or teachers rather than becoming aggressive when someone snatches their toys demonstrate having at least some procedural knowledge of suitable emotion regulation strategies. It is important to understand emotion coping and regulation strategies for not only emotions and situations with negative valence, but also for emotions and situations with positive valence (Eisenberg et al., 2007). For example, when a big sister is crying because of her poor academic performance, it would be better to regulate one's exuberant response to receiving a favorite present, perhaps by distracting attention to other things. However, little research has focused on regulation of exuberance, and to our knowledge, no published research has focused on children's understanding of exuberance regulation.

Although the understanding of emotion situations and emotion regulation strategies does not ensure that a child will behave appropriately in an emotion-evoking situation, it does help children have a repertoire of tools they might use to handle different emotional situations in daily life. Better emotion understanding has been linked to better emotion regulation (Miller et al., 2006). Having verbal labels for their own or others' emotions enables children to help adults know how they or others are feeling and what they need. However, in order to optimally deal with their emotions, children must also know how to regulate different emotions and/or to help their friends regulate their emotions in an appropriate and effective manner. For example, when a child recognizes that they feel afraid, they may seek help and reassurance from others, whereas, if they feel angry, they may try breathing deeply and taking time to think through solutions. Similarly, when children can identify that a friend is afraid, they may try to comfort by accompanying the friend to help them feel safe. In contrast, if a friend is angry, children might label the anger and coach the friend to take some deep breaths.

Developing skills in emotion understanding during early childhood, thus, enables effective communication with others, improved social relationships, and prevention of behavioral health difficulties. Thus, it is paramount to elucidate what factors contribute to individual differences in emotional competence. One possible factor in children's exposure to emotional words and emotion regulation methods is socioeconomic status.

2.3 Socioeconomic Status (SES) and Emotional Understanding

SES refers to the availability of social and economic resources and the advantages that stem from these resources (Duncan & Magnuson, 2012). Generally, one or more of three indicators, family income, parental education, and parental occupational prestige, are used to represent the SES of a family (White, 1982). Findings from previous studies have shown the

relationship between SES and emotional competence. For example, young children from low-income families performed worse in emotion regulation (Garner & Spears, 2000). In addition, Pears & Moses (2003) found that higher maternal educational attainment predicted children's better performance in emotion recognition. In another study, paternal occupation status was associated with young children's emotion labeling (Dunn et al., 1991). It seems likely that how parents socialize the emotions of their children explains or contributes to explaining this relationship between SES and emotional competence (Denham et al., 1994; Eisenberg et al., 1998).

Parents' positive socialization of emotional competence has often been referred to as "emotion coaching" (Havighurst et al., 2012). Parents who serve as "emotion coaches" label their children's emotions, providing words that children can utilize to describe their emotions and validating their children's emotional experiences. Moreover, through both verbal and non-verbal interactions, parents who serve as emotion coaches convey to children's what emotions are accepted and suitable, what one should do to regulate emotions, and how one could react and behave appropriately in emotion-eliciting situations (Eisenberg et al., 1998).

2.3.1 SES and Parents' "Emotion Talk"

Considerable evidence has supported the relationship between parents' "emotion talk" and children's emotion understanding (Dunn et al., 1987; Harris et al., 2016; Laible & Song, 2006; Aznar & Tenenbaum, 2013). For instance, Dunn and colleagues (1991) found that children with more feelings discussion with mothers at 3 years performed better at emotion understanding tasks at age 6. However, low SES is associated with lower levels of parent-child verbal communications, such as less talk, a more restricted vocabulary, and narrow conversations (Guryan et al., 2008; Flannagan et al., 1995; Hoff-Ginsberg, 1991; Tizard et al., 1983). There is a

large discrepancy in vocabulary input to three-year-old children from their professional parents (40 million), versus working-class parents (20 million) and parents on public assistance (10 million) (Hart & Risley, 1995). Not only is low SES associated with more restricted vocabulary in general; it has also associated, more specifically, with parents' lower level of emotional references. For example, Flannagan & Perese (1998) found lower SES mothers made fewer emotional references when talking about school experiences with their children. Similarly, mothers with high income talked more about both negative and positive emotions with their children (Garrett-Peters et al., 2008). In another study, Garrett-Peters et al. (2011) found higher SES African American fathers showed more negative emotion talk in their communication with their children.

2.3.2 SES and the Socialization of Specific Emotions

Parents' emotional socialization behaviors have been associated with their underlying beliefs about emotions (Wong et al., 2009). But both parents' emotional socialization beliefs and behaviors may be influenced by their SES. Positive emotions (such as happiness) are valued by most parents. Parents with higher incomes are more able to provide diverse learning and playing environments and experiences, which would be more likely to elicit positive emotion (Duncan & Magnuson, 2012; Fredrickson, 1998). Moreover, as described earlier, they are more likely to talk to their children to about their positive experiences, to enhance emotion understanding (Flannagan & Perese, 1998; Garrett-Peters et al., 2008). For example, compared to an ordinary toy, a trip to Disneyland may afford greater happiness and greater opportunities for discussing happy shared experiences.

Even though negative emotions (such as sad, angry, and fear) are often distressing and upsetting, parents attempt to socialize them in their children in order to educate them on

important social and moral standards according to their beliefs about the value of certain emotions. Therefore, parents with different beliefs about specific emotions demonstrate different emotion socialization behaviors, influencing their children's emotional competence (Halberstadt et al., 2001). For example, behavioral demonstrations of anger have been linked to unkindness, uninhibited behavior, and aggression (Archer & Webb, 2006; Veenstra et al., 2017), while simultaneously associated with power (Tibubos et al., 2013), authority (Lerner & Keltner, 2001), confidence (Doyle & Biaggio, 1981), and competitiveness (Adam & Brett, 2015). Higher SES parents may value the emotion of anger more than lower SES parents because anger involves behavioral dominance, which is more likely to be valued by higher-ranked individuals because of its adaptation effects for establishing and maintaining their higher position in social hierarchies (Buss, 2008; van Honk et al., 2014). In the socialization of anger, parents with higher SES may accept a child's anger and convey to the child that feelings of angry are readily justified (Cole et al., 2006).

In contrast, shame is not valued by U.S. parents with higher SES (Tangney et al., 1996), but it seems plausible that behavioral shame may be accepted by parents with lower SES (such as working-class parents). The behavioral manifestations of shame include "gaze aversion, hiding of self, and social withdrawal that convey deference and submission to others" (Barrett, 1995, p. 25-63). In addition, evidence has linked shame with compliance and a sense of social belonging (Robertson et al., 2018), which are adaptive for lower-ranked individuals. Parents with lower SES may socialize shame in their children through direct and indirect ways. For example, parents may directly indicate that children should feel shame following misbehaviors by saying "You should be ashamed of yourself" (Fredrickson, 1998) or they may simply respond to children's shame behavior and words with positive attention and guidance (Cole et al., 2006). Some support

for this idea can be found in research conducted in Nepal (Cole et al., 2006). Unfortunately, the possibility that lower SES parents in the U.S. are more likely to socialize shame than higher SES parents has not been tested but was explored in this study.

2.3.3 SES and Parents' Emotion Expressions

Evidence has supported a positive relationship between parents' emotional expressiveness and children's emotion understanding (Denham et al., 1994). Lower SES is associated with increased stress and a negative emotional atmosphere in the family (Jakoby, 2016). Lower-educated fathers displayed higher levels of negative affect and emotionality, such as anxiety, sadness, depression, and anger (Jessee et al., 2012). This negative climate may lead to children's negative emotionality (Buckholdt et al., 2014), which may, in turn, intensify parents' negative responses and increase risk for child maltreatment (Rodriguez & Richardson, 2007). Accordingly, accurate recognition of parent's negative emotions may be more beneficial for young children in the family with lower SES. Smith & Walden (1998) found that preschoolers from lower SES families (combination of family income and parental education) performed better at recognizing negative emotions. However, as indicated earlier, other research suggested a positive relation between SES and emotional competence. Given the mixed relationships between SES and emotional competence and the modest effect size (Pears & Moses, 2003), the linkages between SES and emotional competence may be complex, with additional variables moderating the relation between SES and emotional competence.

2.4 Temperament and Emotional Competence

Rothbart & Derryberry (1988) defined temperament as individual variations in reactivity and self-regulation to the environment. Reactivity refers to the behavioral changes and physiological arousal to emotional stimuli, and self-regulation means the modulating process,

which may increase or decrease the underlying reactivity (Rothbart & Derryberry, 1988). In Rothbart's theoretical model, temperament refers to three dimensions, negative affectivity, surgency, and effortful control (Rothbart et al., 2001). Negative affectivity consists of the vulnerabilities to negative emotions, including anger/frustration, sadness, and fear. Surgency, or exuberance, refers to positive emotionality and impulsivity (Rothbart et al., 2001). Effortful control has been defined as the ability to suppress a dominant response to perform a subdominant response (Rothbart & Rueda, 2005), including inhibiting or initiating activity based on situational cues, and focusing or shifting attention as needed.

A large amount of literature has demonstrated that temperamental dispositions were strongly associated with emotional competence. For example, Leerkes et al. (2008) found higher-level negative affectivity predicted less emotion situation knowledge in 3-year-old children. Results from a longitudinal study showed that intense negative emotions in preschool also predicted the slower growth of emotion situation knowledge in elementary school (Trentacosta et al., 2006). Additionally, children with higher surgency and lower frustration tolerance are likely to display more aggressive behaviors (Rothbart & Putnam, 2002) and to use more unconstructive strategies in emotion regulation (Eisenberg et al., 2000). In contrast, a higher level of effortful control was associated with higher emotion situation knowledge (Schultz et al., 2001) and better emotion regulation understanding and utilization (Eisenberg et al., 2004; Kochanska et al., 2000). Children with temperamental risk dispositions, including intense emotionality and lower effortful control, may not be able to identify the emotions of others in an emotional event that may provide an important chance to acquire the knowledge of the emotional situation and regulation. Because they may have been overwhelmed by their strong feelings and are unlikely to focus their attention on others, they may “miss the forest for the trees” (Fredrickson, 2013).

In addition to the direct effects of temperamental characteristics on emotional competence, the combination of them with environmental risk factors may lead to different results than either of these factors alone. For example, contextual risk factors involving lower family income and lower maternal education were associated with increases in behavioral problems for children with lower effortful control (Lengua et al., 2008). On the other hand, lower negative affectivity mitigated the relations between environmental risk and internalizing problems in toddlers (Northerner et al., 2016). Individual differences of susceptibility and reactivity to the contextual risk and protective factors, and of abilities in emotion and behavior regulation may lead to different impacts of SES on children's emotional competence. Specifically, children with high effortful control may be able to respond to SES disadvantages in an adaptive approach, such as moderate emotional arousal or reevaluation of situations, and therefore enhance the opportunities for learning of emotion-related knowledge. However, children with high surgency, high negative affectivity, and low effortful control may be more likely to display higher frequency and/or intensity of impulsive or externalizing behaviors. These negative responses may restrict their abilities to manage the negative emotions related to their SES disadvantages, which may result in lower emotional competence (Belsky & Pluess, 2009).

2.5 Gender Difference in Emotional Competence

Evidence has demonstrated that emotional competence is likely to be greater for females than males. In an abilities-based measurement, Day & Carroll (2004) found adult females performed better in all of the components of emotional competence. Consistent with this result, Bajgar et al. (2005) found gender differences in emotional competence among adolescents (10-14 years old). Girls showed better performance in tasks measuring facial expression knowledge and emotion situation understanding than boys did. Gender differences were also shown among

young children. Girls (3-4 years old) used more constructive emotional regulation strategies than boys did when experienced negative emotions of mothers (Denham, Bassett & Wyatt, 2010). Despite the general pattern of greater emotional competence in females than males, such gender differences depend on the types of emotion, emotional process, and even methods of measurement. For example, females exerted more control over anger, while males showed more control over fear and surprise (Matsumoto et al., 1998). In another study, females ruminated when in depressed moods, while males used distracting or avoidance strategies in the same condition (Cramer, 2002).

Gender differences may be due, at least in part, to gender differences in the socialization of emotions, which are influenced by societal norms, cultures, and contextual factors (Brody, 1999). For example, parents show different responses to their sons' and daughters' emotions. Fathers paid more attention to their preschool daughters' sadness and anxiety than to their sons' but paid more attention to their sons' anger than to their daughters' (Chaplin et al., 2005). Moreover, mothers labeled more emotions during their communication with daughters than with sons, which may contribute to gender differences in labeling emotions (Cervantes & Callanan, 1998).

2.6 The Present Study

Emerging evidence has demonstrated that the effects of SES on children's outcomes are likely to be moderated by their temperamental characteristics. However, most studies have focused on children's externalizing and internalizing problems, few have examined emotion regulation, and none has tested emotion situation knowledge and emotion regulation strategy understanding. This study examined the direct and moderated relation of SES and temperamental

characteristics on young children's emotion situation knowledge and emotion regulation strategy understanding.

Given the mixed results from the literature review, however, this study was an exploratory study. The research question was: Are there moderation effects of temperament on the relationships between parental SES and child emotional understanding? We explored whether the relationships between SES and emotion situation knowledge/emotion regulation strategy understanding depended on which emotion the child needs to understand. For example, there may be a stronger relation between SES and anger understanding than SES and sadness/fear understanding. Given the greater stress in lower SES families, such parents may find it difficult to calmly instruct their angry children on how to regulate their anger. In contrast, it is even possible that the relation between SES and shame understanding favors lower SES children. We also explored whether the relation between SES and emotional understanding is stronger or weaker for children with higher negative affectivity, higher surgency, and lower effortful control. Moreover, we expected gender difference in both emotion situation knowledge/emotion regulation strategy understanding (Figure 1).

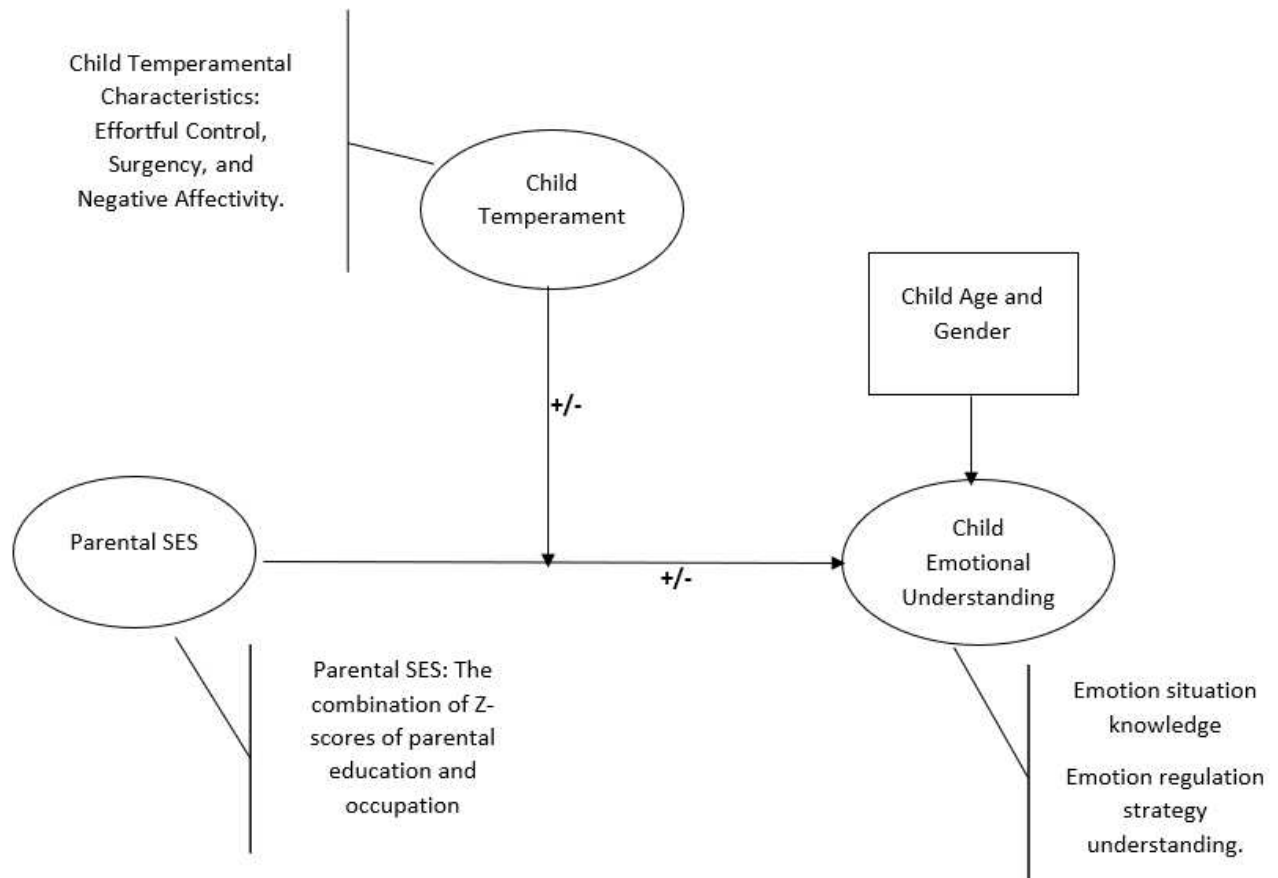


Figure 1: Moderation effects of child temperament on the relationship between parental SES and child emotional understanding.

CHAPTER 3: Method

3.1 Participants

A total of 167 (83 girls) children aged 30 to 70 months of age ($M= 47.24$; $SD=8.38$) (Table 2) and their parents were involved in the present study. Utilizing convenience sampling, the preschoolers were recruited from childcare centers in a midsized city in the mountain West. A packet with questionnaires, a demographic form, and a consent form was provided to parents when they came to the childcare centers. Parents provided information regarding their educational level, occupation, age, their children's age and gender. Of these parents, 95.8% were co-parenting and 4.2% were single parenting, 92.81% were both employed, and 7.19% of mothers or fathers were employed. In terms of ethnic background, most participants (83.56%) were European American, 5.47% were Hispanic, and 10.95% identified with another ethnicity (see Table 1).

Table 1. Demographic Information

Demographic Categories	Frequency	Valid Percentage
Children's Gender		
Female	83	49.70
Male	84	50.30
Parenting		
Co-parenting	160	95.80
Single parenting	7	4.20
Employment		
Two-employed	155	92.81
One-employed	12	7.19
Ethnicity		
European American	122	83.56
Hispanic American	8	5.47
Others	16	10.95

3.2 Procedure

First, parents provided consents for their own and their children's participation in the study and completed the questionnaires. Then the children needed to take part in a series of puppet assessments designed to estimate their emotion situation knowledge and emotion regulation strategy understanding. With the permission of Dr. Denham, a modified version of Affective Knowledge Test (Denham, 1986) was employed to evaluate young children's knowledge of others' feelings in situations that have been found to elicit clear emotional reactions. For example, being given an ice cream cone led to happiness, and being pushed down resulted in sadness. A total of five emotions were examined, including four basic emotions (happy, sad, mad/angry, scared/afraid) (Denham, 1986) and one complex emotion (shame) (Barrett & Kisner, 2020).

Before these assessments, the research assistants were required to complete trainings. They needed first to practice in front of an experienced assessor and the advisor. Once receiving positive feedback from the trainers, they went to the childcare centers to administer the measures with an experienced assessor as a secondary assessor until they could comfortably manipulate puppets and supply effective facial and vocal cues based on the criterion of the measures. Before the series of assessments, the assistants were encouraged to interact with the children to warm up their interactions.

3.3 Measures

3.3.1 Demographic Information

Parental educational attainment and occupational status served as indices of Socioeconomic Status. Parents reported on maternal and paternal educational attainment on a 7-point scale: 1 = less than high school education; 2 = high school diploma or GED; 3 = some

college; 4 = associate degree; 5 = bachelor's degree; 6 = some post bachelor's education; 7 = master's degree, doctoral degree, or similar. Parents reported on maternal and paternal occupation, which were translated into percentile ranks based on Occupation-Based Socioeconomic Index (Song & Xie, 2020). We took the averages of maternal and paternal education ($M = 5.87$; $SD = 1.56$), which ranged from 1.50 to 7.00, as well as the averages of maternal and paternal occupation ($M = 76.91$; $SD = 20.16$), which ranged from 12.88 to 99.51. For analysis, both averages of parental education and occupation were turned into Z-scores and combined as one indicator of SES ($M = -.03$; $SD = .97$), which ranged from -3.49 to 1.01.

3.3.2 Emotion Situation Knowledge

A modified version of the Affective Knowledge Test (1986) was employed to evaluate young children's knowledge of others' feelings in situations that have been found to elicit clear emotional reactions. A total of five emotions was examined, including four basic emotions (happy, sad, mad/angry, scared/afraid) (Denham, 1986) and one complex emotion (shame) (Barrett & Kisner, 2020). A Cronbach's alpha = .91 for the basic emotions' situational understanding task has been found (Denham, 1986).

During the measurements, two trained research assistants used four puppets (Mom, Brownie, Sibling, Friend) to enact ten randomized emotional vignettes (two vignettes for each emotion). One assistant acted out the principal character, and the other acted out the secondary character(s) and recorded children's responses. After each vignette, the child was asked to answer which emotion the protagonist puppet would be experiencing in that scenario. Regardless of whether the children answered the question, the research assistants continued to ask the child: "Give Brownie a face." Then the child was requested to choose one emotional face from five expression cards (happy, sad, anger, fear, and shame) and their responses were recorded. The

trained raters coded children's responses according to the research assistant's records. If a child's verbal and nonverbal responses were correct, then scored 2. If there were inconsistencies between the child's verbal and nonverbal responses (e.g., the child says one emotion and picks up a different face), we recorded the child's nonverbal response. If it was right, the score was 2. If a child chose an incorrect emotion but that is within the same emotional valence (e.g., "good" or "smiling" for Happy, "crying" for Sad, "scared" for Angry, etc.), the score was 1. If the child said an emotion with the opposite valence (e.g., "happy" for Angry, "surprised" for Scared, "sad" for Happy, etc.), then the score was 0. For each emotion, the average of the scores for both vignettes was used in the analyses.

3.3.3 Emotion Regulation Strategy Understanding

A slightly modified version of Cole et al. (2009) was used to measure young children's understanding about emotion regulatory strategies. Three puppets (Brownie, Red, and Mom) were used to act out three emotional scenarios (including happiness, sadness, and angry) in which the protagonist got overly aroused. At the end of each vignette, the mother puppet told them that they needed to stop acting that way. Then the protagonist asked the child, "[Child's name], what can we do to stop acting so (WILD)?" One of the assistants would repeat the child's responses, then the research assistants used two puppets to present three pairs of strategies. For each pair, one, by one puppet, was more effective/appropriate (e.g., distraction) and one, by the other puppet, was social undesirable (e.g., fighting) or less effective (e.g., dwelling on a problem). The order of effective versus ineffective strategies was randomized. Accompanying these strategies, bubble cards were used to pictorially represent puppets' strategies to the child (e.g., a picture of a present illustrated, "I would think about the present"), to help them remember who said what and what they said. The selection of an effective strategy was scored 1, while the

selection of socially undesirable or ineffective one was scored 0. The total scores of these three pairs of strategies were used in the analysis. For all these assessments, reliability of coding was assessed, and discrepancies resolved through discussion in the research team meetings.

3.3.4 Temperament

The Children's Behavior Questionnaire Short Form (CBQ-SF; Putnam & Rothbart, 2006) was employed to measure temperament. The CBQ-SF is designed for children aged 3 to 8 years. It contains 94 items assessing 15 scales of 6 to 8 items each (e.g., Can wait before entering new activities if s/he is asked to). Through factor analysis, these 15 scales were divided into 3 dimensions, Surgency/Extraversion, Negative Affectivity, and Effortful Control (Putnam & Rothbart, 2006). In the CBQ-SF instructions, parents were asked to rate their children on a 7-point Likert scale ranging from 1 (extremely untrue of your child) to 7 (extremely true of your child). If parents had not observed the child in the situation described, a "not applicable" response option could be used. The CBQ-SF demonstrated good internal consistency with Alphas .75, .72, and .74 for Surgency/Extraversion, Negative Affectivity, and Effortful Control respectively (Putnam & Rothbart, 2006). By examining the correlations with the full CBQ, CBQ-SF provided an acceptable convergent validity. The corrected correlation coefficients were above .70 for 12 of the 15 scales, with only 1 scale, Sadness, attaining a correlation below .65 (Putnam & Rothbart, 2006).

3.4 Plan of Analyses

For all hierarchical regression analyses, we initially entered age and gender as predictors in the first step. Given that age was not a significant predictor of happy situation knowledge in a past study with children of these ages (Denham, 1994), one might not think it necessary to include it as a predictor for happiness understanding. However, we did not evaluate ordinary

happiness, but rather under-regulated exuberance in the current study, and exuberance was not the focus of happiness understanding in past research. Moreover, early childhood is a period of important development in emotional understanding. Therefore, age always was included as a predictor at step one of the initial model tested. In addition, findings in the extant literature regarding gender differences between male and females in emotional competencies (especially anger regulation) were mixed. Therefore, we first conducted a preliminary analysis to check for associations between both age and gender and outcome variables. The preliminary analysis investigated whether age and gender played a significant role in predicting dependent variables. If they did not contribute significantly, we eliminated them from the final model tested.

In step two, we examined the relation between focal predictor variables (SES and temperamental characteristics) and dependent variables. For happiness and happiness regulation understanding, the relevant temperament predictors were effortful control and surgency; for negative emotion understanding variables, the relevant temperament variables were effortful control and negative affectivity.

In step three, we evaluated the interaction effects between parental SES and child temperament on children's emotional understanding. To minimize multi-collinearity, predictor variables were centered by subtracting their means, and interaction terms were created by multiplying centered predictor variables with the z-score-based SES variable. Hierarchical multiple regression was used to test these effects, with this entering order: (1) child age and/or gender (only if they were significant predictors in preliminary analyses); (2) parental SES (the summed Z-scores for parental education and occupation); (3) centered effortful control and centered surgency (for dependent variables involving positive emotions), or centered effortful control and centered negative affectivity (for dependent variables involving negative emotions);

and (4) interaction terms involving SES \times centered effortful control and SES \times centered surgency (for positive emotion outcomes), or involving SES \times centered effortful control and SES \times negative affectivity (for dependent variables involving negative emotions), SES was a focal variable of my thesis, so it was included in the final model even if it was not a significant predictor in the initial analyses.

CHAPTER 4: Results

4.1 Preliminary Analyses

Table 2 presents the descriptive statistics for all variables. Although parental education, parental occupation, effortful control, sadness regulation, and happy and sad situation knowledge, were slightly skewed (absolute value of skewness >1.0), none had skewness statistics greater than $|2.0|$, so it was decided to proceed with the hierarchical regressions. Preliminary analyses were conducted to analyze the correlations among predictor variables (Table 4). Gender was significantly correlated with effortful control, $r(142) = .22, p < .01$. Age was significantly associated with negative affectivity, $r(142) = .18, p < .05$. And last effortful control was negative significantly related to surgency, $r(142) = -.22, p < .01$. Correlations among predictors provided initial evidence that multicollinearity was unlikely to be an issue; no predictors were correlated $.50$ or more. However, given that multicollinearity can occur when more than two predictors are entered due to combined overlap among three or more predictors, we also examined tolerances to better understand whether multicollinearity might lead to inaccurate conclusions. Again, tolerances suggested that collinearity was not likely to lead to spurious or misleading results (Table 3). The highest tolerance was $.97$, and most of tolerance larger than $.80$. The outcome variable, shame understanding, did have three predictors with lower than optimal tolerances, particularly the tolerance for the interaction between effortful control and SES. When this regression was re-run, after omitting this interaction term, results were unchanged (still non-significant), so we decided to present the complete planned regression. We also examined whether there were differences between two parent- and single parent- families, as well as between families with both parents employed and families with only one- parent employed, as

well as differences associated with ethnicity. We found non-significant results for all of these analyses, so we did not include these variables as factors in our analyses.

Table 2. Means, standard deviations, and skewness for variables

Variables	Mean	SD	Skewness
Age (months)	47.24	8.38	.22
Parental education	5.86	1.25	-1.11
Parental occupation	76.91	20.16	-1.17
SES	-.03	.97	-1.11
Effortful Control	5.34	.71	1.02
Negative Affectivity	4.10	.72	.01
Surgency	4.42	.72	.03
Happy Situation	1.63	.61	-1.52
Sadness Situation	1.70	.54	-1.85
Angry Situation	1.11	.70	-.33
Fear Situation	1.18	.73	-.42
Shame Situation	.97	.45	-.11
Happy Regulation	.67	.28	-.12
Angry Regulation	.89	.30	-.33
Sadness Regulation	.82	.25	-1.20

Table 3: Collinearity Tolerance

Predict variables	Collinearity Tolerance							
	Emotion situation understanding					Emotion regulation strategies understanding		
	Happy	Sadness	Angry	Fear	Shame	Happy	Sadness	Angry
Age	.97	.95	.95	.95	.96	.95	.92	.92
SES	.94	.90	.90	.90	.86	.93	.90	.93
EC	.84	.92	.92	.92	.79	.82	.91	.89
Surgency	.90	-	-	-	-	.89	-	-
NA	-	.97	.97	.97	.91	-	.96	.96
SES × EC	.84	.90	.90	.90	.70	.83	.89	.97
SES × Surgency	.93	-	-	-	-	.93	-	-
SES × NA	-	.92	.92	.92	.89	-	.92	.91

EC = Effortful control; NA = Negative Affectivity.

Table 4. Correlations between Predictors and Child Emotional Understanding

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Gender													
2. Age (months)	-.06												
3. SES	-.08	-.12											
4. Effortful Control	.22**	-.06	.07										
5. Negative Affectivity	.01	.18*	-.09	-.02									
6. Surgency	-.02	.03	-.09	-.22**	-.04								
7. Happy Situation	.01	.26**	-.01	.14	.04	.00							
8. Sadness Situation	.11	.27**	.06	.04	-.01	.22**	.27**						
9. Angry Situation	.08	.06	-.04	.01	.15	.05	.10	.09					
10. Fear Situation	.09	.34**	.13	.03	.08	.10	.17*	.23**	.37**				
11. Shame Situation	-.03	.15	.13	.07	.14	.14	.29**	.30**	.12	.13			
12. Happy Regulation	.13	.21*	-.19	.08	.08	-.12	.04	-.02	.19*	.22**	.21*		
13. Angry Regulation	.17*	.21*	.03	.06	-.02	-.07	.21*	.01	.09	.15	.12	.15	
14. Sadness Regulation	-.06	.23**	.07	-.02	-.11	-.04	.22**	-.09	.01	.20*	.02	.14	.37**

** $p \leq .01$

* $p \leq .05$

4.2 Hierarchical Multiple Regression Results

We used hierarchical multiple regression to test the effects of parental SES and child temperament on children's happy situation understanding. Preliminary analyses showed that age was significantly associated with happy situation knowledge, $r(142) = .26, p < .01$, and gender was not a significant predictor. Therefore, we kept age in this model and entered it first. Then parental SES was entered in the regression equation, which was followed by child temperament, involving effortful control and surgency since happy is a positive emotion. The interactions between SES and effortful control as well as SES and surgency were entered last. The final model was significant, $R^2 = .08, F(6, 142) = 3.12, p < .01$. As for the effects of the specific predictor, age significantly predicted happy situation understanding, $\beta = .28, t(142) = 3.51, p < .001$. Effortful control was also a significant predictor of the dependent variable, $\beta = .22, t(142) = 2.61, p < .05$. Neither SES nor the interactions between SES and temperament were significantly associated with happy situation knowledge. We still kept them in the model because they were the important predictors of this study (Table 5).

Table 5. Happy Situation Knowledge

Dependent Variables	Model	R Square	R Square Change	F Change	Sig. F Change	Adjusted R square	F sig
Happy Situation Knowledge	1 Age	.07	.07	10.94	.01**	.06	10.94**
	2 SES, EC	.07	.00	.16	.69	.06	5.52**
	Surg	.11	.04	5.71	.02*		
	3 SES × EC	.07	.00	.29	.59	.09	4.73**
	SES × Surg	.11	.00	.01	.92		
		.07	.00	.00	.97	.08	3.12**

EC = Effortful Control; Surg = Surgency

*** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$

In the sadness situation knowledge model, age was also a significant predictor, $r(142) = .27, p < .01$. So, we included it in this model. Given that sadness is a negative emotion, we entered effortful control and negative affectivity in the third step and then entered the

interactions of SES and effortful control along with SES and negative affectivity at last in this model. The final model was also significant, $R^2 = .08$, $F(6, 142) = 3.18$, $p < .01$. Only age significantly predicted sadness situation understanding when these variables all were entered together, $\beta = .27$, $t(142) = 3.42$, $p < .001$ (Table 6).

Table 6. Sadness Situation Knowledge

Dependent Variables	Model	R Square	R Square Change	F Change	Sig. F Change	Adjusted R square	F sig
Sadness	1 Age	.07	.07	11.48	.001***	.07	11.48***
Situation Knowledge	2 SES	.08	.01	1.91	.17	.07	6.73**
	EC	.09	.01	1.04	.31		
	3 NA	.09	.00	.27	.60	.07	3.68**
	SES × EC	.10	.01	2.08	.15		
	4 SES × NA	.10	.01	1.94	.17	.08	3.18**

EC = Effortful Control; NA = Negative Affectivity

*** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$

There were no significant predictors of anger situation knowledge nor shame situation knowledge. For shame situation knowledge, we re-ran the regression model after omitting the interaction term between effortful control and SES because of the lower tolerance. Still there was no significant result.

When fear situation knowledge was the dependent variable, age was a significant predictor, $r(142) = .34$, $p < .01$. So, we kept it in this model, $\beta = .37$, $t(142) = 4.90$, $p < .001$. The final model was significant, $R^2 = .20$, $F(6, 142) = 6.97$, $p < .001$ (Table 7). In addition to age, the interaction between SES and negative affectivity was significant, $\beta = .24$, $t(142) = 3.17$, $p < .01$ (Figure 2) (the line with greater separation between dots represents higher negative affectivity). When children were in the lower SES group, high negative affectivity was not associated with better fear situation knowledge. In contrast, for the higher SES group, high negative affectivity was associated with *better* fear situation knowledge.

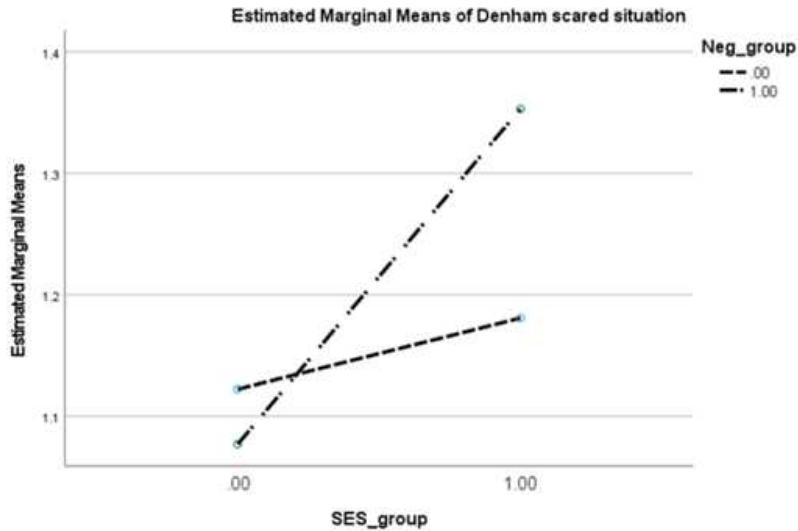


Figure 2: Interactive effects between SES and Negative Affectivity

Table 7. Fear situation knowledge

Dependent Variables	Model	R Square	R Square Change	F Change	Sig. F Change	Adjusted R square	F sig
Fear Situation Knowledge	1 Age	.12	.12	20.15	.00***	.12	20.15***
	2 SES	.16	.04	7.34	.01**	.15	14.18***
	3 EC	.17	.00	.68	.41	.15	7.32***
	4 SES × EC	.17	.00	.63	.43	.15	7.32***
	4 SES × NA	.22	.06	10.22	.01**	.20	6.97***

EC = Effortful Control; NA = Negative Affectivity

*** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$

When the dependent variables were emotional regulation strategy understanding for exuberance, fear, and anger, none of the final models (including temperamental variables and their interactions as predictors) was significant. However, age was a significant predictor of all types of regulation understanding: happy regulation strategies understanding, $\beta = .21$, $t(142) = 2.45$, $p < .05$, sadness regulation strategies understanding, $\beta = .22$, $t(142) = 2.48$, $p < .05$, and anger regulation strategies understanding, $\beta = .22$, $t(142) = 2.51$, $p < .05$. Gender was also a significant predictor of anger regulation strategies understanding, $\beta = .18$, $t(142) = 2.02$, $p < .05$.

CHAPTER 5: Discussion

5.1 Intensive Happiness

Prior studies suggested that recognizing happiness was easy for even very young children, and happiness was the first emotion that young children could identify (Denham et al., 1994). However, the current study aimed to assess children's knowledge of high intensity/poorly regulated happiness (exuberance), which was not included in earlier emotional understanding investigations. Although showing the same valence as happiness, the expressions and impacts of exuberance are different. Evidence has suggested that exuberance was a significant predictor of ADHD and other externalizing behavior problems (e.g., aggressive behaviors; Gapin et al., 2011). However, parents of young children in the United States would rarely talk about the need to down-regulate happiness. After all, happiness is valued by people in the U.S. We know of no existing socioemotional competence curricula (other than our own, which is not widely available) that include lessons in down-regulating positive emotion.

But as children get older and stronger, their exuberance is likely to lead to increasing difficulties. Imagine a 3-year-old child at a birthday party, with lots of fun and exciting activities. The child may become super excited, running around, shouting aloud, and even showing some impetuous behaviors (e.g., pushing other children), but such behaviors are unlikely to lead to serious injury. Young children may not be able to control their excitement on their own. Most U.S. parents understand this and are relatively permissive about it, only intervening if other children may be or are hurt because of the exuberance, and even then intervening about the potentially harmful behavior, rather than helping the child regulate exuberance. As a result, parents seem unlikely to help their 3-year-old child learn strategies to regulate exuberance, which

would enhance children's exuberance knowledge and regulation understanding. Similarly, exuberance in a 3-year-old is more likely to be accepted in a preschool relative to out-of-control negative emotion. Again, the focus typically would be on problematic behaviors rather than exuberance regulation. Children may be advised to “use inside voices” and to “walk and not run” in a classroom to reduce the chances of falling and hitting others. However, they are likely to be treated permissively for exuberance on the playground.

Still, as children approach kindergarten age, expectations for regulating positive emotion in the classroom and inside the home are likely to increase in preparation for more structured tasks requiring calm. Increasingly, adults may point out times children are getting too excited, especially while indoors, which might contribute to our finding that children's knowledge about exuberance increases with age. In addition, cultural differences may also contribute to children's exuberance knowledge. For example, there is an old saying in China “Joy surfeited turns to sorrow”. Intensive happiness may not be valued and even accepted in Chinese culture. So, Chinese parents' socialization of intensive happiness may be different from that of U.S. parents. These speculations deserve further study.

In addition to this age-related normative finding in the present study, we found that children with higher effortful control showed more knowledge of exuberance. This result highlighted the potential importance of effortful control, given young children's limited attentional capacities (Hallez & Droit-Volet, 2017). Children who have lower effortful control tendencies struggle with self-regulation, and such struggles may leave insufficient attentional resources available to listen to adults' instructions about ways to regulate their excitement. Conversely, children with higher effortful control would not need to expend as much attention trying to regulate their exuberance and would have more attentional resources available to learn

exuberance knowledge through observing the behaviors of the super excited child, the expressions of others around the child, as well as adults' words in teaching children how to regulate exuberance.

5.2 Sadness and Fear understanding

Sadness and fear are not as obvious of a concern for the classroom, as compared to anger. Although they are both negative emotions, from a functional perspective, sadness elicits passive withdrawal and inhibition, and fear induces the avoidance of threats (Tamir & Ford, 2009; Lewis, 2010). A sad or scared child's withdrawal is unlikely to harm others, and often is not even noticed. Evidence suggests that both parents and teachers under-report such internalizing emotions in children (e.g., O'Neal & Magai, 2005; Eisenberg et al., 2000), while internalizing problems are more common than externalizing problems (Mian et al., 2012; Lagattuta et al., 2012). So, the teachers may comfort and support the child if they notice the child's withdrawal, but not necessarily teach them about what to say or how to regulate their own sadness or fear, and child observers, similarly, may not learn to label and regulate these emotions. However, as children get older, again, expectations for regulating these "weak" emotions may increase, leading to increased discussion and labeling of these emotions. Our findings support these age-related changes in both sadness and fear knowledge.

5.3 Interactive Effects on Fear understanding

For fear situation understanding, SES, negative affectivity, and their interaction all significantly predicted children's understanding. Children from higher SES were more likely to understand fear than children of lower SES, but this was especially true if they also showed high negative affectivity. Children from high SES who had higher negativity were more able to label these emotions than children with lower negative affectivity. Negative affectivity refers to a

temperamental vulnerability to negative emotions (Rothbart & Rueda, 2005). Children with higher negative affectivity may experience more frequent and intense anger, sadness, fear, etc. Although this is associated with higher rates of experiencing negative emotions, the emotion-evoking stimuli for different ages of children are different. For example, animals are common causes for younger children's fear, while 6 to 10 years children are usually afraid of imaginary creatures and darkness (Muris & Field, 2011). Research suggests that young children's fear is more likely to be validated by parents with higher SES (e.g., It is OK to feel fear of a tiger) relative to parents with lower SES. Higher educated parents are more likely to be able to regulate their own negative emotions, which is very important for a child who is experiencing fear. Particularly, higher SES mothers provided more resolutions for their children's fear than for anger and sadness in their emotional conversations (Fivush, 1991). Such parents' attitudes and the resolutions for removing the fear stimulus (e.g., showing children that there is no tiger out the window) may be more effective for reducing young children's intense fear and then fostering their fear situation understanding. This may enable children to better learn about fear because too strong emotions can occupy children's attention, disturb their self-reflection, and make them learn nothing (Raver & Spagnola, 2002). Conversely, a less scared child may be able to focus on what his mother is saying, understand the emotional process, and then obtain knowledge (Garner et al., 1994).

5.4 Anger Understanding

In contrast to findings for exuberance, sadness, and fear, age was not a significant predictor of anger situation knowledge in this study. This was not consistent with the findings of prior research (Denham et al., 1994; De Sonneville et al., 2002) This result may be because all the participants came from private preschools with well-educated teachers. The teachers of these

preschools typically are trained to help children regulate their anger expression because of concerns that anger can lead to aggression, and this likely begins at the earliest ages included in this study. Evidence suggests that teachers play an important role in preschoolers' emotion regulation and knowledge (Ahn & Stifter, 2006; Ersay, 2007; Denham et al., 2017). From a functionalist perspective, anger is an approach emotion that promotes active engagement to overcome barriers to access to desired goals (Lewis, 2010). Unfortunately, this may lead an angry toddler or preschooler to hit, bite, fight, or display other behavior problems. Preschool teachers often instruct angry preschoolers to “use their words” to express their anger, helping children to label their anger and express it in a more socially desirable manner. For example, a teacher would coach a child to say, "I do not like it, that made me mad," when classmates grabbed their favorite toy. Further, the teacher's instructions can also aid other children who watched the anger-eliciting situation to link situations, expressions, and words coherently, fostering their anger situation knowledge.

5.5 Shame Understanding

Although previous research suggested that children by the end of the second year demonstrated a set of social-cognitive abilities (e.g., self-awareness) that were requisite for experiencing shame (e.g.,Stipek, 1995) and much research supports children’s abilities to show shame at this age (e.g., Barrett, 2005; Lewis et al., 1989), there is scant research regarding when children can label shame. Whether children can label shame situations depends on parents’ socialization, and further depends on parents’ beliefs regarding shame. The emotion evaluation theory proposed that culture shapes people’s beliefs of which emotions are valued (Tsai, 2007). As a downward evaluation of self, shame is not consistent with valued traits in individualistic (independent) cultures (e.g., United States), which emphasize high self-esteem, personal

achievement, and standout of others. Even U.S. researchers investigating shame typically described it as a negative or “ugly” emotion and admonish parents to avoid shaming their children (Tangney et al., 1996)). Therefore, parents in the U.S. are more likely to turn away from shame-eliciting situations, hide their shame from their children, or display maladaptive regulation strategies (e.g., social withdrawal or even aggression) when experiencing shame, but less likely to talk shame and analyze its reasons and experiences with their children. Then the young children of these parents may have experiences of shame but cannot understand shame situations and have no words to explain shame verbally. Both the mean and standard deviation were much lower for shame situation knowledge than for other types of situation knowledge. The low variability of this variable could have led to the results of this study, namely that none of the predictors were significantly associated with shame situation knowledge in our U.S., mainly European-American participants.

In contrast, shame is accepted and considered good in collective (interdependent) cultures (e.g., China, Japan, and India). The feeling of shame derives partly from the concerns of others, which convey a need for social conforming and belonging, which increases group cohesion and functions to achieve group goals (Mesquita & Karasawa, 2002; Boiger et al., 2013). In these cultures, children likely have received language socialization of shame at a very young age. For instance, if a 1-year-old Chinese child behaved negatively (e.g., loudly crying in a library) against some social standards, his mother would say, “It’s shameful. Others are laughing at you!” With these emotional shame-related words and negative assessments of the situation, the mother communicated to the child about the feeling of shame and shame situation. Particularly, such socialization behaviors of Chinese parents could be seen in many other settings (e.g., family or school), which might help children identify shame expressions and situations. In prior research,

Chinese children demonstrated more shame behaviors than U.S. children (Wang & Barrett, 2015). If this study were replicated in a Chinese culture, it is quite possible that we would have different results (Fung, 2006).

5.6 Gender Differences

Gender was significantly related to anger regulation understanding. Girls showed better performance than boys. This result may be due to parents' different socialization strategies for boys and girls. There is evidence that, particularly with young children increasing age, parents paid more attention to boys' anger than girls' (Chaplin et al., 2005) and regulated boy's anger through power-assertive discipline, involving behaviors such as withdrawal of privileges or threats of punishment (Radke-Yarrow & Kochanska, 1990), which may intensify boy's anger displays, and then, in turn, exacerbate parenting behaviors (e.g., physical punishment). This mutual reinforcement of anger expression may lead to boys' poorer anger regulation understanding and even negative outcomes (Denham, 2003; Hayden et al., 2005). In contrast, parents were more likely to ignore girls' anger expression (Radke-Yarrow & Kochanska, 1990) or used verbal strategies to coach their expression of anger, which was associated with better emotional competencies (Garner & Spears, 2000).

5.7 Strengths and Limitations

One strength of this study was that we include exuberance and shame, which are important for the development of children but have not received enough attention. The other strength was the use of puppets to directly assess preschoolers' behaviors rather than relying on parents' or teachers' report. Additionally, we diminished the influence of verbal abilities on results through these assessments by allowing non-verbal responses. Despite the strengths of this study, several limitations should be noted. First, our sample did not reflect the full diversity of

the population. Our parents were sampled from private preschools servicing primarily parents working and/or studying at a local university, and although they represent a range of social-economic status levels, none of them were below the poverty. This less diverse sample limited the generalizability of this study's results and may have impacted the effect size of statistics, particularly for SES. Future studies with a wider range of samples may find more significant relationships between SES and child emotional competencies. In addition, the reliance on parental reports in the measurements of temperamental characteristics may lead to reporter bias and other measurement problems (Seifer et al., 1994). Other methods, such as structured observations and behavioral assessments to avoid potential parental biases, should be included in future studies. Last, this study only focused on the three dimensions of temperament. Additional research could investigate whether other aspects of temperament relate to emotional competence and interact with contextual variables.

5.8 Implications

The findings further supported prior findings regarding age-related growth in emotional understanding. In addition, they suggested the potential importance of both emotion socialization at home and preschool and revealed some individual characteristics that may play a role in emotion socialization and understanding. They suggest that investigators should integrate both contextual and personal characteristics into their studies. In addition, interventions should not only focus on regulating negative emotions; they should also incorporate positive emotions (e.g., exuberance). Moreover, shame as an inadequate sense of self has been linked to mental health problems (e.g., depression, anxiety, social phobia, etc.) under both individualist and collectivist cultures (Yakeley, 2018). Neither ignorance nor emphasis seems to be a good way to

socialize shame. It is time to include shame in interventions to enhance children's emotional competencies.

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