

THE DEVELOPMENT OF EMOTION REGULATION
IN CHILDREN: THE ROLE OF TEMPERAMENT AND
PARENT SOCIALIZATION

By

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CHILDREN: THE ROLE OF TEMPERAMENT AND
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Abstract:

Scope and Method of Study: The goal of this study was to examine the associations among parents' emotion regulation, parental socialization of emotions and child's temperament with children's emotion regulation strategies. A secondary goal was to identify the relative and combined contributions of these factors to the development of emotion regulation in a sample of children between the ages of 6-8. Parent-child dyads completed a demographic questionnaire, the Emotion Regulation Questionnaire (ERQ), the Emotion Regulation Checklist (ERC), the Dimensions of Temperament Survey-Revised (DOTS-R), and the Coping with Children's Negative Emotions Scale (CCNES). The children completed a self-report measure of emotion regulation, the Emotion Regulation Questionnaire-Child and Adolescent (ERQ-CA). Pearson product-moment correlations and hierarchical regressions were used to test the hypotheses.

Findings and Conclusions: The results showed an association between parents' use of reappraisal and children's adaptive emotion regulation ($r = .27$). No associations were found between parents' use of suppression and children's emotion regulation. Temperament traits of approach/withdrawal ($r = .37$), flexibility-rigidity ($r = .53$), and mood quality ($r = .42$) were associated with adaptive emotion regulation. Similarly, temperament traits of mood quality ($r = -.35$), and persistence ($r = -.24$) were associated with lability/negativity. Parents' use of nonsupportive responses was also linked with children's adaptive emotion regulation ($r = .50$) and lability/negativity ($r = .50$). Regression analyses showed children's temperament traits of flexibility-rigidity, persistence, and parents' nonsupportive responses predicted children's use of adaptive emotion regulation. Whereas, children's temperament trait of mood quality and parents' nonsupportive responses predicted lability/negativity. Our results emphasize the overall complexity of emotion regulation development particularly at an age when children are expected to have developed these skills. Future research should examine factors such as verbal reasoning and comprehension, as well as utilize a longitudinal design to identify the age at which children develop these strategies.

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CHAPTER I

THE DEVELOPMENT OF EMOTION REGULATION: THE ROLE OF TEMPERAMENT AND PARENT SOCIALIZATION

Regulating our emotions involves necessary and important skills that all of us must master to some degree in order to negotiate our day-to-day lives. Our emotions serve important functions, including preparing us for action, helping drive decision-making, helping us make judgments about our environment, and giving us cues about others' intentions (Gross, 1998). Poor regulation of emotions is implicated in more than half of the Axis I disorders included in the Diagnostic and Statistical Manual of Mental Disorders and in all of the Axis II disorders (Gross & Levenson, 1997). This illustrates the importance of effective emotion regulation strategies and the need to identify the causes of maladaptive strategies.

A wealth of research has supported the negative effects of poor emotion regulation strategies, such as anxiety and depression (Betts, Gullone, & Allen, 2009), internalizing and externalizing behaviors (Eisenberg, Fabes, Guthrie, & Reiser, 2002), and poor social competence (Hughes, Gullone, Dudley, & Tonge, 2010). Social learning theory developed by Bandura (1969) posits that children use observation learning to develop strategies to maneuver life, including modeling parents' expressive behavior, verbal instruction by an authority figure, and symbolic learning. The family is the primary

context in which children first learn how emotions are expressed, how to interpret those emotions, and ways to manage emotions (Denham, 1998). In addition, the quality of the emotional climate in the home is due in part to parents' expression of emotion (Halberstadt, Crisp, & Eaton, 1999). Therefore, children are likely to model the emotion regulation strategies of their parents, as well as derive clues to emotion regulation based on parents' reactions to their child's negative emotions.

Another method by which children learn to regulate emotions is through socialization, or direct teaching, by their parents. The socialization of emotions may operate via modeling, contingency, and coaching mechanisms. In rewarding socialization of emotion, the child is taught to both tolerate and control emotions, while expressing them and coping with their sources. Previous research has linked family expressiveness to an individual's emotionality, understanding of emotion, social competence, intra-familial relationships, self-esteem and personal adjustment, and academic achievement (Halberstadt & Eaton, 2003).

Similarly, the temperament of children also contributes to a child's emotional reaction to situations as well as his/her use of emotion regulation strategies. The model by Thomas and Chess (1977) includes nine bipolar temperament dimensions believed to be stable across development (e.g., activity, adaptability, mood). Research suggests that difficult temperament factors (i.e., arrhythmicity, inflexibility, high distractibility) are associated with more childhood behavior problems (i.e., hyperactivity, conduct disorders symptoms; Windle, 1991). Similarly, lower scores on temperament dimensions of

approach-withdrawal and adaptability are associated with anxiety and depression in children and adults, whereas high activity level and low attention are associated with externalizing problems. Early temperament characteristics that differentiate children have been found to influence the kinds of emotion regulation skills and strategies children develop (Calkins, 2004). Eisenberg, et al., (2002) found that inhibitory dimensions of negative emotionality predict socially withdrawn behavior, and overt dimensions of negative emotionality predict either externalizing problems or a combination of internalizing and externalizing problems.

Each of these modalities (i.e., expression, teaching, and temperament) has been studied in the context of emotion regulation. No study to our knowledge has examined these associations together to identify the contribution each has on the emotion regulation strategies used by children. The current study will provide a review of the literature regarding the development of emotion regulation, the influence of the child's temperament on emotion regulation, and the socialization of emotions in the family context. In addition, the current study will utilize a parent-report of child's emotion regulation to compare the link between parent-report and child-report. This addition to the research literature allows for comparison of temperament, parents' emotion regulation and parents' reactions to emotions, using both parent-report and child-report of emotion regulation strategies. This project aims to fill the gap in the literature by assessing these factors in an age range (6-8 years) that has been understudied, as well as assessing emotion regulation with the use of a child-report measure. The project sought to identify

the variance accounted for by socialization practices of parents and temperament traits in terms of developing emotion regulation strategies.

CHAPTER II

BRIEF REVIEW OF THE LITERATURE

Regulating our emotions involves necessary and important skills that all of us must master to some degree in order to negotiate our day-to-day lives. Our emotions serve important functions, including preparing us for action, helping drive decision-making, helping us make judgments about our environment, and giving us cues about others' intentions (Gross, 1998). The recent increase of research on emotion regulation highlights the diversity and lack of uniformity in the definition of emotion regulation. Given the variability in the definition, emotion regulation will be broadly defined based on the theories of Thompson (1994) and Gross (1998). According to Thompson (1994), the term emotion regulation (ER) refers to the processes, both extrinsic and intrinsic, that are responsible for recognizing, monitoring, evaluating, and modifying emotional reactions, to accomplish one's goals. Emotion regulation refers to the processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions (Gross, 1998).

The development of emotion regulation strategies begins in the third year of life and continues throughout the preschool period. Through experience and direct teaching, children are able to model their parent's emotional displays to align with the provisions of expected societal behavior. One may argue that children as young as preschool age are unable to utilize such cognitively demanding strategies such as cognitive reappraisal.

Kochanska, Murray, and Coy (1997) suggested that advances in other domains of development during this period create a readiness for preschoolers to internalize and perform complex self-regulation strategies, such as cognitive reappraisals. As children continue to develop, these strategies become more salient and are continually improved through practice and the socialization of emotion regulation by parents. The extant literature, however, does not identify the age at which children develop these cognitively demanding strategies. Longitudinal research is warranted to identify the age at which children utilize cognitive strategies such as reappraisal to modulate their emotions.

A wealth of research has supported the negative effects of poor emotion regulation strategies, such as anxiety and depression (Betts, Gullone, & Allen, 2009), internalizing and externalizing behaviors (Eisenberg, Cumberland, et al., 2001), and poor social competence (Hughes, Gullone, Dudley, & Tonge, 2010). Bandura's (1969) social learning theory posits that children use observation learning to develop strategies to maneuver life, including modeling parents' expressive behavior, verbal instruction by an authority figure, and symbolic learning. The family is the primary context in which children first learn how emotions are expressed, how to interpret those emotions, and ways to manage emotions (Denham, 1998). In addition, the quality of the emotional climate in the home is due in part to parents' expression of emotion (Halberstadt, Crisp, & Eaton, 1999). One way children learn about their emotions and the emotions of others is through observing and modeling the emotional expressiveness of their parents (Eisenberg, Cumberland, & Spinrad, 1998). Research suggests that parental negative expressivity is related to low emotion regulation in children, which in turn is related to externalizing problems and low social competence (Eisenberg, Gershoff, et al. (2001).

Poor regulation of emotions is implicated in more than half of the Axis I disorders included in the Diagnostic and Statistical Manual of Mental Disorders and in all of the Axis II disorders (Gross & Levenson, 1997). This illustrates the importance of effective emotion regulation strategies and the need to identify the causes of maladaptive strategies.

There is also evidence that parents' expression of emotion is related to their children's emotional competence in social situations. Parents who are high in warmth and positive emotion, and low in expression of disapproval, hostility, and other negative emotions directed toward their children, tend to have socially competent, well-adjusted children who are also skilled in social understanding (Lindahl, 1998; Scaramella, Conger, & Simons, 1999). A review by Halberstadt, et al. (1999) suggests that children in expressive families are themselves emotionally expressive. Family expressiveness was also related to individuals' emotionality, understanding of emotion, social competence, intra-familial relationships and adult interpersonal relationships, self-esteem and personal adjustment, and academic achievement. Therefore, children are likely to model the emotion regulation strategies of their parents, as well as derive clues to emotion regulation based on parents' reactions to their child's negative emotions.

Children also learn to regulate emotions through socialization, or direct teaching by their parents. The socialization of emotions may operate via modeling, contingency, and coaching mechanisms. In positive socialization of emotion, the child is taught to both tolerate and control emotions, while expressing them and coping with the child's emotions. Conversely, punitive socialization of emotion focuses on minimizing child emotion whether by counterproductive parental emotional response or other expressions

of disapproval (Denham & Grout, 1993). Previous research has linked family expressiveness to an individual's emotionality, understanding of emotion, social competence, intra-familial relationships, self-esteem and personal adjustment, and academic achievement (Halberstadt & Eaton, 2003). Recent research suggests that parents who respond by addressing the cause of their child's distress, by helping their child cope with the emotion, or by encouraging emotional expression, have children with positive emotional outcomes (Fabes, Leonard, Kupanoff, and Martin, 2001). In contrast, parents who respond by minimizing the child's experience, by punishing emotional expression or by becoming distressed themselves, have children with poorer functioning.

Similarly, children's temperament also contributes to a child's emotional reaction to situations as well as his/her use of emotion regulation strategies. The model by Thomas and Chess (1977) includes nine bipolar temperament dimensions believed to be stable across development (e.g., activity, adaptability, mood). Research suggests that difficult temperament factors (i.e., arrhythmicity, inflexibility, high distractibility) are associated with more childhood behavior problems (i.e., hyperactivity, conduct disorder symptoms (Windle, 1991)). Similarly, lower scores on temperament dimensions of approach-withdrawal and adaptability are associated with anxiety and depression in children and adults, whereas high activity level and low attention are associated with externalizing problems. Early temperament characteristics that differentiate children have been found to influence the kinds of emotion regulation skills and strategies children develop (Calkins, 2004). Eisenberg, Fabes, Guthrie, and Reiser (2002) found that inhibitory dimensions of negative emotionality predict socially withdrawn behavior, and

overt dimensions of negative emotionality predict either externalizing problems, or a combination of internalizing and externalizing problems.

The current review highlights the temporal factors that are considered important components of emotion regulation. Given the variability in the definition of emotion regulation, the methods by which emotion regulation has been assessed have also varied, based on general understanding of emotion regulation and the developmental level of the individual being assessed. The focus of the current project was to assess the emotion regulation strategies employed by children, specifically the strategies of cognitive reappraisal and suppression. A review by Adrian et al. (2011), indicated that 32% of the research on emotion regulation used a middle childhood sample, but none of the studies utilized a self-report measure to assess emotion regulation in this age group. Most of the methodologies employed the use of vignettes and semi-structured interviews to assess the self-reported use of emotion regulation strategies, while other studies utilized parent-report. Few, if any, sought to examine the use of cognitive reappraisal and suppression via self-report in a sample of young children.

Each of these modalities (i.e., expression, teaching, and temperament) has been studied in the context of emotion regulation. The extant literature has focused on these factors individually yet no studies have looked at these factors together to examine the contribution each has on the emotion regulation strategies used by children. In addition, the current study will utilize a parent-report of child's emotion regulation to compare the link between parent-report and child-report. This addition to the research literature allows for comparison of temperament, parent's emotion regulation and parent's reactions to emotions, using both parent-report and child-report of emotion regulation strategies. This

project aimed to identify the variance accounted for by socialization practices of parents and temperament traits in terms of developing emotion regulation strategies.

CHAPTER III

METHODOLOGY

Participants

Participants in this study were 57 parent-child dyads (child M age = 7.21 ($SD=.85$), parent M age = 36.8 ($SD=6.03$)). The majority of parents were biological parents (90%), and were married (77%). There was a good distribution in sex as 53% of the children in the sample were female. A majority (86%) of parents self-identified as Caucasian and 77% of children were reported as Caucasian and 14% as biracial by the reporting parent. The majority of the sample reported an income over \$3000 per month (71%) and our sample was highly educated with a mean of 16 years of education, with 11% receiving master's and 23% receiving doctorate degrees. Six of the 57 children were diagnosed with ADHD as reported by the parent.

Procedures

Parent-child dyads were recruited through flyers at local elementary schools and other local businesses (i.e., YMCA, pediatrician's offices), and a campus-wide email to graduate students, faculty and staff of Oklahoma State University (OSU). Parents completed informed consent, and four measures assessing emotion regulation strategies, child temperament, and general child behaviors. While the parent completed the

questionnaires, the research assistant guided the child through three questionnaires. Once the child completed the questionnaires, the child participated in a lab task for a larger project. Parents received compensation of \$10 for participation, and the child was given a small toy for participating in the study. Families were also entered into one of two drawings for \$100 each.

Parent Measures

Emotion Regulation Questionnaire. (ERQ; Gross & John, 2003). The ERQ is a 10-item self-report scale for adults measuring two distinct emotion regulation strategies: reappraisal and suppression. Respondents rated each emotion regulation strategy on a likert-type scale ranging from one (strongly disagree) to seven (strongly agree), with higher scores indicating greater use of the emotion regulation strategy. The measure yields two scores (suppression and reappraisal) with scores ranging from 4-42. Each subset of scales contained one item about controlling positive emotion and one item about controlling negative emotion. Sample items for the subscales include “I control my emotions by not expressing them” (suppression) and “I control my emotions by changing the way I think about the situation I’m in” (reappraisal). The ERQ has been shown to be appropriate for use in clinical and non-clinical populations and has been translated into multiple languages. The scale shows sound psychometric properties and is consistent across minority populations (Melka, Lancaster, Bryant, & Rodriguez, 2011). The measure shows a stable factor structure. Internal consistency in four samples for the ERQ in adults for suppression ranged from .68 to .75 and for reappraisal ranged from .75 to .82 (Gross & John, 2003). Internal consistency for the current sample was adequate for both the suppression subscale ($\alpha = .78$) and the reappraisal subscale ($\alpha = .80$).

Emotion Regulation Checklist. (ERC; Shields & Cicchetti, 1997). The ERC is a parent-report of child emotion regulation and was used to compare and facilitate interpretation of results with the child's self-report measure of emotion regulation. The ERC assessed children's ability to manage emotional experiences using a 24-item, four-point Likert scale (1 = Never, 4 = Always). The questionnaire yielded two scales: 1) adaptive emotion regulation (e.g. "Can modulate excitement in emotionally arousing situations", range 10-40), which assessed situational appropriateness of affective displays, empathy and emotional self-awareness; and 2) lability/negativity (e.g. "Exhibits wide mood swings", range 14-56), which assessed mood lability, lack of flexibility, dysregulated negative affect and inappropriate affective displays. Samples items for the questionnaire include ". Higher scores on the first scale indicated more adaptive regulatory processes whereas higher scores on the second scale indicated greater emotion dysregulation. Internal consistency for these scales is high for both the adaptive emotion regulation (coefficient alpha = .79) and the lability/negativity (coefficient alpha = .90) (Shipman et al., 2007). Internal consistency for this sample was adequate ($\alpha = .69$) for adaptive emotion regulation and high ($\alpha = .84$) for lability/negativity.

Dimensions of Temperament Scale- Revised. (DOTS-R; Windle & Lerner, 1986). The Dimensions of Temperament Scale-Revised is considered a valid measure of temperament due to its basis on temperament dimensions outlined by Thomas and colleagues (1968) and its correlation with other measures of temperament (Windle, 1989). The questionnaire is a 54-item rating scale in which parents indicated on a 4-point likert-type scale (usually false to usually true) which behaviors are like and unlike their children. The questionnaire yielded ten dimension scores of approach/withdrawal (e.g. "It

takes my child no time at all to get used to new people”), activity level-sleep (e.g. “My child doesn’t move around much at all in his/her sleep”), activity level-general (e.g. “My child often stays still for long periods of time”), flexibility-rigidity (e.g. “Changes in plans make my child restless”), mood quality (e.g. “My child smiles often”), rhythmicity-sleep (e.g. “My child ususally gets the same amount of sleep each night”), rhythmicity-eating (e.g. “My child gets hungry about the same time each day”), rhythmicity- daily habits (e.g. “My child has bowel movements at about the same time each day”), nondistractibility (e.g. “My child is hard to distract”), and persistence (e.g. “My child stays with an activity for a long time”). Fifteen items were reversed in terms of directionality of scoring. With the exception of nondistractibility, in which case higher scores are indicative of lower levels of distractibility, higher scores on each of the dimensions are indicative of higher levels of the attribute. The range of scores for each dimension are 7-28 for approach-withdrawal, 7-28 for activity level-general, 5-20 for flexibility-rigidity, 7-28 for mood quality, 5-20 for rhythmicity-daily habits, 5-20 for low distractibility, and 3-12 for persistence. Internal consistency of the DOTS-R has been demonstrated, with Cronbach’s coefficients alpha ranging from .53 to .91 across the subscales (Windle & Lerner, 1986). Test-retest stability has been demonstrated over a six-week interval (.59 to .75), and over a six-month interval (.52 to .64). The subscales of approach/withdrawal, mood quality, flexibility-rigidity, nondistractibility, and persistence were used for the current analyses. Internal consistency indices for the following temperament traits demonstrated strong reliability: approach/withdrawal ($\alpha = .74$), activity level-general ($\alpha = .89$), activity level-sleep ($\alpha = .86$), flexibility/rigidity ($\alpha = .78$), mood quality ($\alpha = .84$), rhythmicity-eating ($\alpha = .83$), task orientation ($\alpha = .86$),

nondistractibility ($\alpha = .79$). The internal consistency indices were adequate for the rhythmicity-sleep ($\alpha = .65$), rhythmicity- daily habits ($\alpha = .65$), and persistence ($\alpha = .71$) subscales.

Coping with Children's Negative Emotions Scale (CCNES; Fabes, Eisenberg, & Bernzweig, 1990). In order to assess parental socialization of emotions, parents completed the CCNES. The CCNES is a self-report instrument consisting of six subscales that reflect different ways parents respond to their young children's negative emotions. Parents were presented with 12 typical situations in which children are described as experiencing distress and negative affect (i.e., being scared of injections, being nervous about possibly embarrassing him/herself in public) for a total of 72 questions. For each situation, parents were asked to indicate how likely, on a seven-point scale from very unlikely to very likely, they would be to react in each of six different ways. This measure yielded 6 subscales: distress reactions, punitive responses, minimization reactions, expressive encouragement, emotion-focused reactions, and problem-focused reactions. Higher scores in each subscale indicate more frequent use of that particular response. The scores on each subscale range from 12-72. Two aggregates, supportive and non-supportive were calculated. Non-supportive reactions include the distress reactions, punitive response, and minimization reactions, while supportive reactions include the expressive encouragement, emotion-focused reactions, and problem-focused reaction scales. Alpha coefficients for supportive and non-supportive aggregates are reported at .80 and .64 respectively. The CCNES has demonstrated adequate test-retest reliability and construct and predictive validity (Fabes, Poulin, Eisenberg, & Madden-Derdich, 2002). The internal consistency indices for the current

sample of subscales showed adequate to strong reliabilities: distress reactions ($\alpha = .63$), punitive responses ($\alpha = .74$), minimization reactions ($\alpha = .81$), expressive encouragement ($\alpha = .91$), emotion-focused reactions ($\alpha = .80$) and problem-focused reactions ($\alpha = .79$). The two aggregate scores of supportive responses ($\alpha = .93$) and nonsupportive responses ($\alpha = .87$) also showed strong reliability.

Child Measures

Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA; MacDermott, Gullone, Allen, King, & Tonge, 2010). The ERQ-CA is a self-report questionnaire containing 10 items assessing the emotion regulation strategies of reappraisal and suppression. Higher scores indicate greater use of the emotion regulation strategy. Revisions from the ERQ included simplification of the item wording and reduction of the response scale length to five points (1 = strongly disagree, 2 = disagree, 3 = half and half, 4 = agree, 5 = strongly agree). To increase the downward extension, the current study reduced the response scale length to three points (1 = Not at all true for me, 2 = Sort of true for me, 3 = Really true for me). The range of scores for each scale is 6 to 30 for the reappraisal scale and 4 to 20 for the suppression scale. Sample items include “When I want to feel happier about something, I change the way I’m thinking about it” (reappraisal) and “I control my feelings by not showing them” (suppression). Gullone and Taffe (2011) demonstrated that the ERQ-CA has strong psychometric properties including good internal consistency, and sound construct and convergent validity. For the 4-item Emotion Suppression scale, the alpha coefficient was .75 for total sample and for the 6-item Cognitive Reappraisal scale, the alpha coefficient was .83. The scale has been shown to be appropriate for use in non-clinical populations. The measure also

demonstrated adequate four-week test-retest reliability ($r = .54$ reappraisal, $.59$ suppression) (MacDermott et al., 2010). The internal consistency indices for the current sample for the reappraisal scale ($\alpha = .73$) and suppression scale ($\alpha = .58$) demonstrated adequate reliability.

CHAPTER IV

FINDINGS

Descriptive data for the variables of interest (i.e. mean, standard deviation) are presented in Table 1. These data were also analyzed for outliers and appropriate skew and kurtosis, and there was good variability in the scores. Although there was little missing data, imputation methods for missing data included inserting the mean of the item across the entire sample. All consented participants completed the protocol in its entirety. The proposed analyses included administering the ERQ-CA, a self-report measure, to the children in the current study. The 6-year-olds were not given the self-report measure due to their difficulty in comprehension. Additionally some 7 and 8-year-olds were also unable to provide valid responses to the questionnaire. Therefore, the child self-report measure was not used in the current analyses.

To test the hypothesis that parents' own emotion regulation strategies would be significantly associated with their children's emotion regulation strategies, Pearson product-moment correlations were calculated. First, parents' suppression scores on the ERQ were correlated with children's lability/negativity scores on the ERC. The results showed no significant association between parents' use of suppression and parents' report of their children's lability/negativity, $r(56) = .10$, n.s. We also examined whether parents' suppression scores on the ERQ would be negatively correlated with children's adaptive emotion regulation score on the ERC. The results showed no significant

association between parents' use of suppression and parents' report of children's adaptive emotion regulation strategies, $r(56) = .19$, n.s. Next, a Pearson product-moment correlation was calculated to examine the link between parents' reappraisal scores on the ERQ and their children's adaptive emotion regulation scores on the ERC. This hypothesis was supported as parents' reports of reappraisal were significantly

positively associated with ratings of their children's adaptive emotion regulation strategies, $r(56) = .27, p = .04$. A Pearson product-moment correlation was calculated to examine the link between parents' reappraisal scores on the ERQ and their children's lability/negativity score on the ERC. It was hypothesized that parents' report of reappraisal would be negatively correlated with their children's lability/negativity. This hypothesis was not supported as parents' reports of reappraisal were not associated with ratings of their children's lability/negativity $r(56) = -.12, n.s.$ Overall, the hypothesis that parents' own emotion regulation strategies would be associated with those used by their children was partially supported. Results are shown in Table 2.

To test the hypothesis that parents' reactions to their children's expression of emotion would be related to children's emotion regulation strategies, Pearson product-moment correlations were calculated. First, parents' supportive responses on the CCNES were correlated with children's adaptive emotion regulation scores on the ERC; this was not significant, $r(56) = .14, n.s.$ A Pearson product-moment correlation was calculated to examine whether parents' use of supportive responses as measured by the CCNES was negatively correlated with children's lability/negativity score on the ERC. The results showed no significant association between parents' supportive responses and children's lability/negativity score, $r(56) = -.13, n.s.$ Next, parents' nonsupportive responses on the CCNES and children's lability/negativity scores on the ERC were examined. The results suggest that parents' use of nonsupportive responses was significantly related to their children's lability/negativity, $r(56) = .50, p = .001$. A Pearson product-moment correlation was calculated to examine whether parents' nonsupportive responses on the CCNES would be inversely correlated with children's adaptive emotion regulation score.

The results suggest that parents' use of nonsupportive responses was significantly negatively associated with children's use of adaptive emotion regulation strategies, $r(56) = -.31, p = .02$. Overall, our hypothesis that parents' reactions to their children's expression of emotion were related to children's emotion regulation strategies was partially supported.

Next, temperament characteristics were examined. Due to the high intercorrelations between temperament traits, a modified Bonferroni correction was used to control for Type 1 error ($\alpha = .008$). To test the hypothesis that children's use of adaptive emotion regulation strategies would be associated with temperament traits, five Pearson product-moment correlations were calculated. It was predicted that each DOTS-R subscale score (i.e. approach/withdrawal, mood quality, flexibility-rigidity, nondistractibility, and persistence) would be significantly positively correlated with the adaptive emotion regulation score on the ERC. As shown in Table 3, the children's adaptive emotion regulation scores were significantly associated with the temperament traits of approach/withdrawal ($r(55) = .37, p = .005$), mood quality ($r(65) = .42, p = .001$), and flexibility-rigidity ($r(56) = .53, p = .001$). Contrary to our hypothesis children's adaptive emotion regulation strategies were not significantly associated with the temperament traits of nondistractibility ($r(56) = .20, n.s.$) and persistence ($r(56) = .25, n.s.$). Overall, our hypothesis that temperament traits would be significantly positively correlated with adaptive emotion regulation strategies was partially supported.

To test the hypothesis that children's use of lability/negativity would be associated with temperament traits, five Pearson product-moment correlations were calculated. It was predicted that DOTS-R subscale scores (i.e. approach/withdrawal,

mood quality, flexibility-rigidity, nondistractibility, and persistence) would be significantly negatively correlated with the lability/negativity score on the ERC. Children's lability/negativity scores were significantly negatively correlated with mood quality ($r(56) = -.35, p = .008$) and persistence ($r(56) = -.24, p < .008$). Children's lability/negativity scores were not significantly correlated with approach/withdrawal ($r(55) = .01, n.s.$), flexibility-rigidity ($r(56) = -.21, n.s.$), and nondistractibility ($r(56) = -.11, n.s.$). Overall, our hypothesis that temperament traits would be significantly negatively associated with children's lability/negativity was partially supported.

A stepwise regression was calculated to examine the relative and combined contributions of parental responses to children's emotion expression and children's temperament on the children's emotion regulation strategy. All predictor variables were entered into the model together and the software package pulled out those that accounted for variance in the overall model. Because no previous study has examined these variables together, these analyses were exploratory. It was hypothesized for the following analyses that parents' responses to children's negative emotions would account for the majority of variance in the model, above and beyond the five temperament traits. Children's lability/negativity scores were entered as the predicted variable, and parents' CCNES nonsupportive responses and the five temperament traits of approach/withdrawal, mood quality, flexibility-rigidity, nondistractibility, and persistence were entered as the predictor variables. In Step 1, parents' use of nonsupportive responses contributed 25% of the variance ($R^2 = .254$) and was significant at $p = .001$. In step 2, mood quality added 7.5% ($R^2 \Delta = .075$) unique variance to the model and was significant at $p = .02$. The combined variance accounted for was 30% ($R^2 \text{ Total} = .303$).

Overall, the model was significant ($F_{(2, 55)} = 12.96, p = .001$). The temperament traits of approach/withdrawal, flexibility-rigidity, nondistractibility, and persistence did not contribute additional unique variance to the model.

We also examined the relative and combined contributions of parents' supportive responses and children's temperament on the children's emotion regulation strategies. Children's lability/negativity was entered as the predicted variable, and parents' CCNES supportive responses and the five temperament traits of approach/withdrawal, mood quality, flexibility-rigidity, nondistractibility, and persistence were entered as the predictor variables. In Step 1, mood quality predicted 12.5% of the variance ($R^2 = .125$) and was significant at $p = .008$. Parents' use of supportive responses and the temperament traits of approach/withdrawal, flexibility-rigidity, nondistractibility, and persistence did not contribute additional unique variance to the model. The overall model was significant ($F_{(1, 55)} = 7.70, p = .008$).

A stepwise regression was calculated to examine the relative and combined contribution of parents' responses to children's emotion and temperament traits on children's emotion regulation strategies. Children's adaptive emotion regulation score was the predicted variable and parents' supportive response and the five temperament traits of approach/withdrawal, mood quality, flexibility-rigidity, nondistractibility, and persistence were the predictors. In Step 1, flexibility-rigidity accounted for 28% of the variance ($R^2 = .277$) and was significant at $p = .001$. In Step 2, persistence accounted for 5% of the variance ($R^2\Delta = .052$) and was significant at $p = .048$. Overall the combined contribution of flexibility-rigidity and persistence was 30% ($R^2 \text{ Total} = .329$). The model was significant ($F_{(2, 55)} = 13.01, p = .001$).

Lastly, a stepwise regression was calculated to examine the relative and combined contributions of parents' nonsupportive responses and children's temperament on children's emotion regulation strategies. Children's adaptive emotion regulation score was the predicted variable and parents' nonsupportive response and the five temperament traits of approach/withdrawal, mood quality, flexibility-rigidity, nondistractibility, and persistence were the predictors. In Step 1, flexibility-rigidity accounted for 28% of the variance ($R^2 = .277$) and was significant at $p = .001$. In Step 2, parents' nonsupportive responses accounted for 10% of the variance ($R^2 \Delta = .102$) and was significant at $p = .005$. Overall, the combined variance accounted for by flexibility-rigidity and nonsupportive responses was 38% ($R^2 \text{ Total} = .380$). The overall model was significant ($F_{(2, 55)} = 16.21$, $p = .001$).

CHAPTER V

CONCLUSIONS

The current project examined emotion regulation strategies at a time when children are learning to develop and perfect these strategies, specifically between the ages of 6-8 years old. Previous research has linked multiple factors to emotion regulation strategies, namely temperament traits, parental expressivity, and parental socialization of emotions. Therefore, we examined multiple factors that have been implicated in the research as influencing emotion regulation strategies, and sought to identify whether these factors are also related to emotion regulation strategies at an age when these strategies are still developing. The project sought to address the gap in the literature by examining these associations in children between 6-8 years old, and utilizing both a parent-report of children's emotion regulation and a child self-report measure to examine the use of two emotion regulation strategies, namely cognitive reappraisal and emotion suppression. Additionally, this is one of the first studies to our knowledge to examine these factors simultaneously, addressing a significant gap in the literature.

It was hypothesized that parents' own emotion regulation strategies would be significantly associated with their children's emotion regulation strategies. The hypothesis was partially supported with a significant link between parents' use of

reappraisal and children's use of adaptive emotion regulation strategies. There was no association between parents' use of suppression and children's lability/negativity. There is considerable debate in the literature whether cognitive reappraisal is a more adaptive method for managing emotions compared to emotion suppression. Emotion suppression is typically associated with negative approaches to emotion regulation. Yet, it stands to reason that emotion suppression in certain situations could also be an adaptive method for regulating emotions. It may also be that the families in our study had less difficulty in their management of emotions and did not report a high level of emotion suppression. Specifically, descriptive statistics indicate that our parents were less likely to report the use of emotion suppression as a strategy to regulate their emotions. Additionally, this same trend was identified in parents' report of their children's use of lability/negativity when handling emotion-eliciting situations. We speculate that the use of either emotion suppression or cognitive reappraisal can be seen as adaptive methods for regulating emotions. The results indicate no significant link between emotion suppression or cognitive reappraisal and children's use of lability/negativity. One possible explanation is that children who utilize these strategies (i.e. emotion suppression, cognitive reappraisal) do not approach emotion situations with lability/negativity because they have effective means of handling emotional situations. Future research would benefit from examining less adaptive methods of emotion regulations and their link to lability/negativity.

We did not find a consistent link between parental negative expressivity and child emotion regulation strategies, which adds to the inconsistency in the literature. A recent meta-analysis highlighted some inconsistencies in the literature between parental negative expressivity and child emotion regulation across a number of studies. Some

studies have found support for the link between parental expressivity and emotion regulation (Halberstadt, 1999), whereas more recent research did not find a link (Valiente, 2004). The findings of the meta-analysis suggest that variations in the level of negative expressivity may impact the association with emotion regulation. Specifically, parents who show no negative expressivity or too much negative expressivity may have children who use a more labile and negative approach to emotion regulation. Whereas, parents who show a moderate level of negative expressivity may have children who demonstrate more adaptive emotion regulation strategies. This demonstrates support that some expression of negative emotion can be adaptive as compared to suppression of all emotions. Additionally, without negative expressivity in the home, children are unable to observe effective strategies and therefore learn strategies to overcome those emotions.

Next, we examined the impact of parents' reactions to their children's expression of negative emotion and children's emotion regulation strategies. The results indicate that parents' use of supportive responses to their children's negative emotions was not associated with children's use of adaptive emotion regulation strategies. One explanation for this result may be that parents are less likely to utilize supportive responses when their children have negative emotions; therefore, supportive responses are not associated with either adaptive emotion regulation or lability/negativity. Parents' report of supportive responses was also not associated with children's lability/negativity, which further supports the idea that supportive responses are less likely to be utilized when the child is exhibiting negative emotions. In general, parents who use supportive reactions to negative emotions may have children who are less likely to express these negative emotions, suggesting that children have not had the chance to develop these skills.

However, parents' use of nonsupportive responses was associated with children's use of lability/negativity. Additionally, the use of nonsupportive responses was negatively associated with children's use of adaptive emotion regulation strategies. The findings from the current study suggest that parents who are more likely to use nonsupportive responses to their children's negative emotions may have children who utilize the same minimizing and punitive strategies to regulate their own emotions. Additionally, parents' who are more likely to use nonsupportive responses may have children who are less likely to develop emotional awareness as identified by the adaptive emotion regulation scale. Our findings, which are similar to previous research (Shaffer, 2012), suggest that supportive parenting alone is not sufficient to promote children's emotion regulation strategies, but that an absence of unsupportive parenting is as, or more important to adaptive emotional development.

Notably, we focused on maternal responses to children's negative emotions; the field would benefit from examining the role of parental responses to children's displays of positive emotion. The field would also benefit from an examination of particular emotions such as anger or sadness. Although it is important to understand overall emotion regulation, understanding the complexities of each emotion is also vital. It may be that children are better able to regulate more positive emotions, whereas they have more difficulty with negative emotions. The examination of specific emotions may highlight particular strategies that may be helpful in socializing emotion regulation.

Previous research by Santucci (2008) has linked negative affectivity with maladaptive emotional responses to frustration; however, the study did not find an association with adaptive emotion regulation responses and general temperament traits in

children. It may be difficult to detect the use of adaptive emotion regulation in children who do not exhibit a negative or difficult temperament style. It could be argued that children without a difficult temperament are not as acutely aware of their emotion regulation strategies because they are able to use these strategies with ease. Contrary to previous research, the current study demonstrated a significant link between adaptive emotion regulation and approach/withdrawal, mood quality, and flexibility-rigidity. Additionally, we also found a significant link between lability/negativity and the temperament traits of mood quality and persistence. This link was also negatively correlated, indicating that children who have more positive mood quality or are persistent are less likely to use lability/negativity when approaching emotion-eliciting situations. Our findings are consistent with the results of Jaffe et al (2010) demonstrating a link between temperament traits and emotion regulation. Additionally, Belsky, Bakermans-Kranenburg, and van IJzendoorn's (2007) 'differential susceptibility' hypothesis asserts that children with extreme temperaments are more open to socialization influences for better or worse. Our sample included 9 children with a difficult temperament which may limit our ability to see these effects.

Previous research has examined both parental socialization and temperament traits and the link to emotion regulation strategies individually, yet no study to our knowledge has examined these factors together. Based on our ability to show significant links between these factors and emotion regulation strategies, we wanted to further examine how these factors, taken together, contributed to the use of emotion suppression and cognitive reappraisal. The regression analyses show that both parental socialization and temperament traits predict children's use of lability/negativity. These results indicate

that children who have a negative affect or decreased mood quality in combination with a nonsupportive style of parental socialization are more likely to utilize a labile and negative approach to emotion regulation. On the contrary, parents' use of nonsupportive responses and the ability to be flexible in emotion-eliciting situations may result in more adaptive emotion regulation. Nonsupportive responses accounted for 10% of the variance in lability/negativity. This suggests that parents' reactions to children's negative emotions may have a significant impact on the way they develop types of emotion regulation strategies. While this is true, temperament traits also play a major role in the strategies that children use; indicating that this interplay is an important avenue for future research. Research directly assessing temperament traits and the impact on emotion regulation strategies is limited. The findings indicate that more research on this key factor is warranted.

Based on the previous findings in the literature it was expected we would see significant links between the variables of parental emotion regulation, parental socialization, and children's temperament traits. There are a number of possibilities why our results differ from previous studies. The method used to obtain report of children's emotion regulation was through a parent-report measure. As has been demonstrated in the literature, externalizing behaviors are much easier for parents to report because they can easily be seen (Boyle et al, 1997; Yeh and Weisz, 2001). A parent could outwardly observe suppression (i.e. sigh, storming off, biting down), but may not have the same behavioral cues for cognitive reappraisal. The difficulty in identifying the use of this strategy makes it difficult for parents to report on internalizing behaviors. This is consistent with research suggesting parents are poor reporters of their children's

internalizing feelings, particularly when assessing psychopathology such as depression (Klein et al, 2005). Additionally the current study sought to examine whether the use of emotion regulation strategies could be assessed via a self-report measure (ERQ-CA) in children between the ages of 6-8. Unfortunately the children in the sample had difficulty with the self-report measure. This may be due to difficulties with some words on the measure, despite our efforts to simplify the words and provide explanation. However, the main difficulty appeared to be that children were unable to understand the abstract concept of cognitive reappraisal. Overall, children this age are unlikely to possess the ability to provide self-reports of these aspects. Therefore, future research should examine the extent to which cognitive reappraisal and emotion suppression can be examined during this developmental period through some means of self-report. Consistent with the research that has been conducted in preschool children, future research should use an observational assessment of emotion regulation in children at this developmental age.

The results of the current study also highlight the complexity in the development of emotion regulation strategies, particularly in this young age when the development of these strategies are based less on modeling and more on specific traits like temperament. The inconsistency in previous research and the results of the current study, suggest that there are both individual temperament characteristics as well as a learning component in the development of emotion regulation strategies. Although we were able to account for a combined variance of 30%, this suggests there are a number of factors that have yet to be considered in the development of these key strategies. Future research should examine the use of other factors such as the influence verbal comprehension and verbal reasoning have on emotion regulation strategies. Specifically, one could argue that children are

unable to use cognitive reappraisal if they do not have the verbal capabilities to think differently about the emotional response. Additionally, the use of verbal expression is particularly important for emotion regulation.

Although the conceptual variable of emotion regulation and specific emotion regulation strategies has been examined in the literature across multiple developmental stages, there is still work to be done. There is a paucity of research to demonstrate at what particular age children are able to develop adaptive emotion regulation strategies.

Literature has suggested that adolescents are able to use cognitive reappraisal and emotion suppression, and developmental psychologist theorize that it is during the ages of 6-8 that children have the cognitive capacity to acquire the skills of cognitive reappraisal and emotion suppression (Kochanska, 1997). Our results highlight that while children are using some form of emotion regulation strategies, the development of these strategies may not be occurring simultaneously as has been previously theorized. It may be that children find it easier to develop the strategy of emotion suppression earlier as opposed to cognitive reappraisal. Perhaps the inconsistencies in findings throughout the literature demonstrate that these strategies are less likely to develop simultaneously but rather, there is a natural progression of emotion regulation development. Research has demonstrated that children are typically variable when first learning a new skill and have difficulties in effectively utilizing said skill. The lack of findings in the current study could be attributed to the fact that these children are currently developing these strategies and as a result have difficulty implementing them and even more difficulty in accurately reporting the use of these strategies.

There are a number of limitations of the current study including the modest, primarily Caucasian, and highly-educated sample. Therefore the results of the study should be interpreted with caution, as these results may not generalize to all children at this age, and with less educated and minority samples. Additionally, the aim of the current study was to utilize a child self-report to examine whether children between the ages of 6-8-years old are able to report on emotion suppression and cognitive reappraisal. Unfortunately due to limited understanding by the children, the child self-report measure was dropped from the analyses. Lastly, the current study utilized a cross-sectional design. Future research should utilize a longitudinal design to identify the age at which children utilize these strategies to emotion regulation and the age when children can reliably report on these strategies.

Our results highlight a number of avenues of research that should be examined in future studies. Specifically, additional research should focus not only on the age at which children develop the strategies of emotion suppression and cognitive reappraisal, but also additional factors that may relate to emotion regulation. A qualitative understanding of how children “work through” emotional situations may shed light on the types of strategies children use to regulate their emotions. Future research should utilize a longitudinal design to assess for the age at which children develop these strategies. Additionally, it would be important to examine the temporal predictors of emotion regulation strategies and when children are able to self-report on these strategies. Specifically, the field recently started to examine the impact verbal comprehension and reasoning has on children’s abilities to regulate their emotions. Additional factors that may be important to assess are how the parents are “teaching” their children to regulate

their emotions. Particularly if parents' are providing explicit instructions or if the majority of children's learning is through observational modeling.

There are a number of notable strengths of the current study including the age of the sample, and the factors assessed. This is one of the first studies to examine the factors related to emotion regulation at an age when the development of these strategies is likely still occurring. Additionally, this is one of the first studies, to our knowledge, to examine both parent socialization, parental emotion regulation and child temperament together, to understand the interplay of these key factors. Lastly, this study sought to examine the validity of a child self-report measure in examining emotion regulation. Although the measure was dropped from analyses, it provided invaluable information on the age at which children are able to use self-report measures.

In conclusion, our findings emphasize the overall complexity of emotion regulation development particularly at an age when children are expected to have developed these skills to regulate their emotions. Our results suggest that parents' reactions to their children's negative emotions have a significant impact on the type of strategies that children develop, particularly in terms of lability/negativity. Additionally, both the child's temperament traits and parental socialization contribute to the development of emotion regulation strategies. The study also has important clinical implications. It may be extremely important for clinicians to assess parents' emotion regulation strategies given the link between their strategies and the strategies of their children. Also of note, is the types of instruction children are receiving from their parents' in terms of how to manage their emotions. If children's learning of emotion regulation is limited to modeling parents' strategies or parents' reactions to their

children's emotion, it could have detrimental effects on the children's regulation, and even long-term consequences contributing to psychopathology.

Table 1

Means and Standard Deviations for Study Variables

	<i>Mean</i>	<i>Standard Deviation</i>	<i>Range</i>
ERQ			
Suppression	12.54	4.66	4-23
Reappraisal	31.14	6.12	12-42
ERC			
Adaptive Emotion Regulation	31.58	3.90	20-38
Lability/Negativity	22.39	5.59	15-41
CCNES			
Supportive responses	16.96	2.12	12-20
Nonsupportive responses	7.50	1.78	5-13
DOTS-R			
Approach/Withdrawal	20.54	3.62	12-28
Mood Quality	26.27	2.86	16-28
Flexibility/Rigidity	15.64	3.01	9-20
Nondistractibility	12.13	3.03	6-18
Persistence	8.55	1.97	4-12

Note: ERQ = Emotion Regulation Questionnaire; ERC = Emotion Regulation Checklist; CCNES = Coping with Children's Negative Emotions Scale; DOTS-R = Dimensions of Temperament Scale- Revised

Table 2

Correlation Coefficients of Emotion Regulation Strategies and Socialization

		ERC	
		Adaptive Emotion Regulation	Lability/Negativity
ERQ	Suppression	-.19	.10
	Reappraisal	.27*	-.12
CCNES	Supportive	.14	-.13
	Nonsupportive	-.31*	.50**

Note: * $p < .05$, ** $p < .01$; ERC = Emotion Regulation Checklist; ERQ = Emotion Regulation Questionnaire; CCNES = Coping with Children's Negative Emotions Scale

Table 3

Correlation Coefficients of Emotion Regulation Strategies and Temperament Traits

	ERC	
	Adaptive Emotion Regulation	Lability/Negativity
DOTS-R		
Approach/Withdrawal	.37*	.01
Mood Quality	.42*	-.35*
Flexibility-Rigidity	-.53*	-.21
Nondistractibility	-.20	-.11
Persistence	-.25	-.24

Note: * $p < .008$; ERC = Emotion Regulation Checklist; DOTS-R = Dimensions of Temperament Scale- Revised

Table 4

Stepwise Regression Analysis of Nonsupportive Responses and Temperament Traits as Predictors of Lability/Negativity

	ΔR^2	F	β	p
Step 1				
Nonsupportive	.254	18.35	.504	.001
Step 2				
Mood Quality	.075	18.35	-.277	.019
Nonsignificant variables:				
Nondistractibility			-.041	.728
Flexibility-rigidity			-.125	.316
Approach/Withdrawal			.074	.522
Persistence			-.133	.254

Table 5
Stepwise Regression Analysis of Supportive Responses and Temperament Traits as Predictors of Lability/Negativity

	ΔR^2	F	β	p
Step 1				
Mood Quality	.125	7.70	-.353	.008

Nonsignificant variables		
Nondistractibility	-.129	.316
Flexibility-rigidity	-0.78	.577
Approach/Withdrawal	.075	.567
Persistence	-.227	.074
Supportive Responses	-0.63	.635

Table 6
Stepwise Regression Analysis of Supportive Responses and Temperament Traits as Predictors of Adaptive Emotion Regulation

	ΔR^2	F	β	p
Step 1				
Flexibility-Rigidity	.277	20.73	.527	.001
Step 2				
Persistence	.052	13.01	.228	.048
Nonsignificant Variables				
Mood quality			.238	.052
Nondistractibility			.110	.670
Approach/Withdrawal			.071	.610
Supportive Responses			.038	.746

Table 7
Stepwise Regression Analysis of Nonsupportive Responses and Temperament Traits as Predictors of Adaptive Emotion Regulation

	ΔR^2	F	β	p
Step 1				
Flexibility-Rigidity	.277	20.73	.527	.001
Step 2				
Nonsupportive	.102	16.21	-3.20	.005
Nonsignificant variables:				
Mood Quality			.185	.126
Nondistractibility			.163	.142
Approach/Withdrawal			.099	.451
Persistence			.164	.143

REFERENCES

- Adrian, M., Zeman, J., & Veits, G. (2011). Methodological implications of the affect revolution: A 35-year review of emotion regulation assessment in children. *Journal of Experimental Child Psychology, 110*(2), 171-197. doi: 10.1016/j.jecp.2011.03.009
- Belsky, J., Bakermans-Kranenburg, M. J., & van Ijzendoorn, M. H. (2007). For better and for worse: Differential susceptibility to environmental influences. *Current Directions in Psychological Science, 16*(6), 300-304. doi: 10.1111/j.1467-8721.2007.00525.x
- Betts, J., Gullone, E., & Allen, J. S. (2009). An examination of emotion regulation, temperament, and parenting style as potential predictors of adolescent depression risk status: A correlational study. *British Journal of Developmental Psychology, 27*(2), 473-485. doi: 10.1348/026151008x314900
- Boyle, M. H., Offord, D. R., Racine, Y. A., Szatmari, P., Sanford, M., & Fleming, J. E. (1997). Adequacy of interviews vs checklists for classifying childhood psychiatric disorder based on parent reports. *Archives of General Psychiatry, 54*(9), 793-799. doi: 10.1001/archpsyc.1997.01830210029003
- Calkins, S. D. (2004). Temperament and emotional regulation: Multiple models of early development. In M. Beauregard (Ed.), *Consciousness, emotional self-regulation*

and the brain. (pp. 35-59). Amsterdam Netherlands: John Benjamins Publishing Company.

Denham, S. A. (1998). *Emotional development in young children.* New York, NY US: Guilford Press.

Denham, S. A., & Grout, L. (1993). Socialization of emotion: Pathway to preschoolers' emotional and social competence. *Journal of Nonverbal Behavior, 17*(3), 205-227. doi: 10.1007/bf00986120

Eisenberg, N., Cumberland, A., & Spinrad, T. L. (1998). Parental socialization of emotion. *Psychological Inquiry, 9*(4), 241-273. doi: 10.1207/s15327965pli0904_1

Eisenberg, N., Cumberland, A., Spinrad, T. L., Fabes, R. A., Shepard, S. A., Reiser, M., . . . Guthrie, I. K. (2001). The relations of regulation and emotionality to children's externalizing and internalizing problem behavior. *Child Development, 72*(4), 1112-1134.

Eisenberg, N., Fabes, R. A., Guthrie, I. K., & Reiser, M. (2002). The role of emotionality and regulation in children's social competence and adjustment. In L. Pulkkinen & A. Caspi (Eds.), *Paths to successful development: Personality in the life course.* (pp. 46-70). New York, NY US: Cambridge University Press.

Eisenberg, N., Gershoff, E. T., Fabes, R. A., Shepard, S. A., Cumberland, A. J., Losoya, S. H., . . . Murphy, B. C. (2001). Mother's emotional expressivity and children's behavior problems and social competence: Mediation through children's

regulation. *Developmental Psychology*, 37(4), 475-490. doi: 10.1037/0012-1649.37.4.475

Fabes, R. A., Eisenberg, N., & Bernzweig, J. (1990). The Coping with Children's Negative Emotions Scale: Procedures and scoring.

Fabes, R. A., Leonard, S. A., Kupanoff, K., & Martin, C. L. (2001). Parental coping with children's negative emotions: Relations with children's emotional and social responding. *Child Development*, 72(3), 907-920. doi: 10.1111/1467-8624.00323

Fabes, R. A., Poulin, R. E., Eisenberg, N., & Madden-Derdich, D. A. (2002). The Coping with Children's Negative Emotions Scale (CCNES): Psychometric properties and relations with children's emotional competence. *Marriage & Family Review*, 34(3-4), 285-310. doi: 10.1300/J002v34n03_05

Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, 2(3), 271-299. doi: 10.1037/1089-2680.2.3.271

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85(2), 348-362. doi: 10.1037/0022-3514.85.2.348

Gross, J. J., & Levenson, R. W. (1997). Hiding feelings: The acute effects of inhibiting negative and positive emotion. *Journal of Abnormal Psychology*, 106(1), 95-103. doi: 10.1037/0021-843x.106.1.95

- Gullone, E., & Taffe, J. (2011). The emotion regulation questionnaire for children and adolescents (erq-ca): A psychometric evaluation. *Psychological Assessment*. doi: 10.1037/a0025777
- Halberstadt, Crisp, V. W., & Eaton, K. L. (1999). Family expressiveness: A retrospective and new directions for research. In P. Philippot, R. S. Feldman & E. J. Coats (Eds.), *The social context of nonverbal behavior*. (pp. 109-155). New York, NY Paris USFrance: Cambridge University Press Editions de la Maison des Sciences de l'Homme.
- Halberstadt, & Eaton, K. L. (2003). A meta-analysis of family expressiveness and children's emotion expressiveness and understanding. *Marriage & Family Review*, 34(1-2), 35-62. doi: 10.1300/J002v34n01_03
- Hughes, E. K., Gullone, E., Dudley, A., & Tonge, B. (2010). A case-control study of emotion regulation and school refusal in children and adolescents. *The Journal of Early Adolescence*, 30(5), 691-706. doi: 10.1177/0272431609341049
- Jaffe, M., Gullone, E., & Hughes, E. K. (2010). The roles of temperamental dispositions and perceived parenting behaviours in the use of two emotion regulation strategies in late childhood. *Journal of Applied Developmental Psychology*, 31(1), 47-59. doi: 10.1016/j.appdev.2009.07.008
- Klein, D. N., Dougherty, L. R., & Olino, T. M. (2005). Toward Guidelines for Evidence-Based Assessment of Depression in Children and Adolescents. *Journal of Clinical*

Child and Adolescent Psychology, 34(3), 412-432. doi:

10.1207/s15374424jccp3403_3

Kochanska, G., Murray, K., & Coy, K. C. (1997). Inhibitory control as a contributor to conscience in childhood: From toddler to early school age. *Child Development*, 68(2), 263-277. doi: 10.2307/1131849

Lindahl, K. M. (1998). Family process variables and children's disruptive behavior problems. *Journal of Family Psychology*, 12(3), 420-436. doi: 10.1037/0893-3200.12.3.420

MacDermott, S. T., Gullone, E., Allen, J. S., King, N. J., & Tonge, B. (2010). The Emotion Regulation Index for Children and Adolescents (ERICA): A psychometric investigation. *Journal of Psychopathology and Behavioral Assessment*, 32(3), 301-314. doi: 10.1007/s10862-009-9154-0

Melka, S. E., Lancaster, S. L., Bryant, A. R., & Rodriguez, B. F. (2011). Confirmatory factor and measurement invariance analyses of the Emotion Regulation Questionnaire. *Journal of Clinical Psychology*, 67(12), 1283-1293. doi: 10.1002/jclp.20836

Santucci, A. K., Silk, J. S., Shaw, D. S., Gentzler, A., Fox, N. A., & Kovacs, M. (2008). Vagal tone and temperament as predictors of emotion regulation strategies in young children. *Developmental Psychobiology*, 50(3), 205-216. doi: 10.1002/dev.20283

- Scaramella, L. V., Conger, R. D., & Simons, R. L. (1999). Parental protective influences and gender-specific increases in adolescent internalizing and externalizing problems. *Journal of Research on Adolescence*, 9(2), 111-141. doi: 10.1207/s15327795jra0902_1
- Shields, A., & Cicchetti, D. (1997). Emotion regulation among school-age children: The development and validation of a new criterion Q-sort scale. *Developmental Psychology*, 33(6), 906-916. doi: 10.1037/0012-1649.33.6.906
- Shipman, K. L., Schneider, R., Fitzgerald, M. M., Sims, C., Swisher, L., & Edwards, A. (2007). Maternal emotion socialization in maltreating and non-maltreating families: Implications for children's emotion regulation. *Social Development*, 16(2), 268-285. doi: 10.1111/j.1467-9507.2007.00384.x
- Thomas, A., & Chess, S. (1977). *Temperament and development*. Oxford England: Brunner/Mazel.
- Thompson, R. A. (1994). Emotion regulation: a theme in search of definition. *Monograph of the Society Res Child Development*, 59(2-3), 25-52.
- Valiente, C., Eisenberg, N., Fabes, R. A., Shepard, S. A., Cumberland, A., & Losoya, S. H. (2004). Prediction of Children's Empathy-Related Responding From Their Effortful Control and Parents' Expressivity. *Developmental Psychology*, 40(6), 911-926. doi: 10.1037/0012-1649.40.6.911

- Windle, M. (1989). Temperament and personality: An exploratory interinventory study of the DOTS—R, EASI—II, and EPI. *Journal of Personality Assessment*, 53(3), 487-501. doi: 10.1207/s15327752jpa5303_7
- Windle, M. (1991). The difficult temperament in adolescence: Associations with substance use, family support, and problem behaviors. *Journal of Clinical Psychology*, 47(2), 310-315. doi: 10.1002/1097-4679(199103)47:2<310::aid-jclp2270470219>3.0.co;2-u
- Windle, M., & Lerner, R. M. (1986). Reassessing the dimensions of temperamental individuality across the life span: The Revised Dimensions of Temperament Survey (DOTS—R). *Journal of Adolescent Research*, 1(2), 213-229. doi: 10.1177/074355488612007
- Yeh, M., & Weisz, J. R. (2001). Why are we here at the clinic? Parent–child (dis)agreement on referral problems at outpatient treatment entry. *Journal of Consulting and Clinical Psychology*, 69(6), 1018-1025. doi: 10.1037/0022-006x.69.6.1018

APPENDIX A
STUDY MEASURES

Emotion Regulation Questionnaire (ERQ)

**Gross & John
9/03**

Instructions and Items

We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale:

1-----2-----3-----4-----5-----6-----7

strongly

neutral

strongly

disagree

agree

1. ____ When I want to feel more *positive* emotion (such as joy or amusement), I *change what I'm thinking about*.
2. ____ I keep my emotions to myself.
3. ____ When I want to feel less *negative* emotion (such as sadness or anger), I *change what I'm thinking about*.
4. ____ When I am feeling *positive* emotions, I am careful not to express them.

5. ____ When I'm faced with a stressful situation, I make myself *think about it* in a way that helps me stay calm.
6. ____ I control my emotions by *not expressing them*.
7. ____ When I want to feel more *positive* emotion, I *change the way I'm thinking* about the situation.
8. ____ I control my emotions by *changing the way I think* about the situation I'm in.
9. ____ When I am feeling *negative* emotions, I make sure not to express them.
10. ____ When I want to feel less *negative* emotion, I *change the way I'm thinking* about the situation.

Emotion Regulation Checklist
Anne Shields & Dante Cicchetti, 1995

Rarely/ Never	Sometimes	Often	Almost Always	
1	2	3	4	1. Is a cheerful child.
1	2	3	4	2. Exhibits wide mood swings (child's emotional state difficult to anticipate because he/she moves quickly from a positive to a negative mood).
1	2	3	4	3. Responds positively to neutral or friendly overtures by adults. [<i>responds positively to polite or friendly adults</i>]
1	2	3	4	4. Transitions well from one activity to another; doesn't become angry, anxious, distressed, or overly excited when moving from one activity to another.
1	2	3	4	5. Can recover quickly from upset or distress (for example, doesn't pout or remain sullen, anxious, or sad after emotionally distressing events).
1	2	3	4	6. Is easily frustrated.
1	2	3	4	7. Responds positively neutral or friendly overtures by peers. [<i>Responds positively to polite or friendly peers.</i>]
1	2	3	4	8. Is prone to angry outbursts/ tantrums easily.
1	2	3	4	9. Is able to delay gratification.
1	2	3	4	10. Takes pleasure in the distress of other (for example, laughs when another person gets hurt or punished; seems to enjoy teasing others).
1	2	3	4	11. Can modulate excitement [<i>Can control his/her excitement</i>] (for example, doesn't get "carried away" in high-energy play situations or overly excited in inappropriate contexts).
1	2	3	4	12. Is whiny or clingy with adults.
1	2	3	4	13. Is prone to have disruptive outbursts of energy and exuberance [<i>excitement</i>].

1	2	3	4	14. Responds angrily to limit-setting by adults.
1	2	3	4	15. Can say when s/he is feeling sad, angry, or mad, fearful or afraid.
1	2	3	4	16. Seems sad or listless.
1	2	3	4	17. Is overly exuberant [<i>excited and energetic</i>] when attempting to engage other in play.
1	2	3	4	18. Displays flat affect [<i>doesn't show much emotion when you would expect it</i>] (expression is vacant or inexpressive; child seems emotionally absent).
1	2	3	4	19. Responds negatively to neutral or friendly overtures by peers [<i>Responds negatively to polite or friendly peers</i>] (for example, may speak in an angry tone of voice or respond fearfully).
1	2	3	4	20. Is impulsive [<i>Can't control him/herself</i>].
1	2	3	4	21. Is empathic [<i>sympathetic</i>] towards others; show concern when others are upset or distressed.
1	2	3	4	22. Displays exuberance [<i>energy and excitement</i>] that others find intrusive or disruptive.
1	2	3	4	23. Displays appropriate negative emotions (anger, fear, frustration, distress) in response to hostile, aggressive, or intrusive acts by others.
1	2	3	4	24. Display negative emotions when attempting to engage others in play.

ID _____

Parent Attitude/Behavior Questionnaire

Instructions: In the following items, please indicate on a scale from 1 (very unlikely) to 7 (very likely) the likelihood that you would respond in ways listed for each item. Please read item carefully and respond as honestly and sincerely as you can. For each response, please circle a number from 1-7.

Response Scale: 1 2 3 4 5 6 7
 Very Unlikely Medium Very Likely

1. If my child becomes angry because he/she is sick or hurt and can't go to his/her friend's birthday party, I would:

- a. send my child to his/her room to cool off 1 2 3 4
- 5 6 7
- b. get angry at my child 1 2 3 4 5 6 7
- c. help my child think about ways that he/she can still be with friends (e.g., invite some friends over after the party) 1 2 3 4 5 6 7
- d. tell my child not to make a big deal out of missing the party 1 2 3 4 5 6 7
- e. encourage my child to express his/her feelings of anger and frustration 1 2 3 4 5 6 7
- f. soothe my child and do something fun with him/her to make him/her feel better about missing the party 1 2 3 4 5 6 7

2. If my child falls off his/her bike and breaks it, and then gets upset and cries, I would:

- a. remain calm and not let myself get anxious 1 2 3 4
- 5 6 7
- b. comfort my child and try to get him/her to forget about the accident 1 2 3 4 5 6 7
- c. tell my child that he/she is over-reacting 1 2 3 4 5 6 7
- d. help my child figure out how to get the bike fixed 1 2 3 4 5 6 7
- e. tell my child it's OK to cry 1 2 3 4 5 6 7
- f. tell my child to stop crying or he/she won't be allowed to ride his/her bike anytime soon 1 2 3 4 5 6 7

3. If my child loses some prized possession and reacts with tears, I would:

- a. get upset with him/her for being so careless and then crying about it 1 2 3 4 5 6 7
- b. tell my child that he/she is over-reacting 1 2 3 4 5 6 7

- c. help my child think of places he/she hasn't looked yet 1 2 3 4 5 6 7
- d. distract my child by talking about happy things 1 2 3 4 5 6 7
- e. tell him/her it's OK to cry when you feel unhappy 1 2 3 4 5 6 7
- f. tell him/her that's what happens when you're not careful 1 2 3 4 5 6 7

4. If my child is afraid of injections and becomes quite shaky and teary while waiting for his/her turn to get a shot, I would:

- a. tell him/her to shape up or he/she won't be allowed to do something he/she likes to do (e.g., watch TV) 1 2 3 4 5 6 7
- b. encourage my child to talk about his/her fears 1 2 3 4 5 6 7
- c. tell my child not to make big deal of the shot 1 2 3 4 5 6 7
- d. tell him/her not to embarrass us by crying 1 2 3 4 5 6 7
- e. comfort him/her before and after the shot 1 2 3 4 5 6 7
- f. talk to my child about ways to make it hurt less (such as relaxing so it won't hurt or taking deep breaths). 1 2 3 4 5 6 7

 Response Scale: 1 2 3 4 5 6 7
 Very Unlikely Medium Very Likely

5. If my child is going over to spend the afternoon at a friend's house and becomes nervous and upset because I can't stay there with him/her, I would:

- a. distract my child by talking about all the fun he/she will have with his/her friend 1 2 3 4 5 6 7
- b. help my child think of things that he/she could do so that being at the friend's house without me wasn't scary (e.g., take a favorite book or toy with him/her) 1 2 3 4 5 6 7
- c. tell my child to quit over-reacting and being a baby 1 2 3 4 5 6 7
- d. tell the child that if he/she doesn't stop that he/she won't be allowed to go out anymore 1 2 3 4 5 6 7
- e. feel upset and uncomfortable because of my child's reactions 1 2 3 4 5 6 7
- f. encourage my child to talk about his/her nervous feelings 1 2 3 4 5 6 7

6. If my child is participating in some group activity with his/her friends and proceeds to make a mistake and then looks embarrassed and on the verge of tears, I would:

- a. comfort my child and try to make him/her feel better 1 2 3 4 5 6 7
- b. tell my child that he/she is over-reacting 1 2 3 4 5 6 7
- c. feel uncomfortable and embarrassed myself 1 2 3 4 5 6 7
- d. tell my child to straighten up or we'll go home right away 1 2 3 4 5 6 7
- e. encourage my child to talk about his/her feelings of embarrassment 1 2 3 4 5 6 7
- f. tell my child that I'll help him/her practice so that he/she can do better next time 1 2 3 4 5 6 7

7. If my child is about to appear in a recital or sports activity and becomes visibly nervous about people watching

him/her, I would:

- a. help my child think of things that he/she could do to get ready for his/her turn (e.g., to do some warm-ups and not to look at the audience) 1 2 3 4 5 6 7
- b. suggest that my child think about something relaxing so that his/her nervousness will go away 1 2 3 4 5 6 7
- c. remain calm and not get nervous myself 1 2 3 4 5 6 7
- d. tell my child that he/she is being a baby about it 1 2 3 4 5 6 7
- e. tell my child that if he/she doesn't calm down, we'll have to leave and go home right away 1 2 3 4 5 6 7
- f. encourage my child to talk about his/her nervous feelings 1 2 3 4 5 6 7

8. If my child receives an undesirable birthday gift from a friend and looks obviously disappointed, even annoyed, after opening it in the presence of the friend, I would:

- a. encourage my child to express his/her disappointed feelings 1 2 3 4 5 6 7
- b. tell my child that the present can be exchanged for something the child wants 1 2 3 4 5 6 7
- c. NOT be annoyed with my child for being rude 1 2 3 4 5 6 7
- d. tell my child that he/she is over-reacting 1 2 3 4 5 6 7
- e. scold my child for being insensitive to the friend's feelings 1 2 3 4 5 6 7
- f. try to get my child to feel better by doing something fun 1 2 3 4 5 6 7

Response Scale: 1 2 3 4 5 6 7
 Very Unlikely Medium Very Likely

9. If my child is panicky and can't go to sleep after watching a scary TV show, I would:

- a. encourage my child to talk about what scared him/her 1 2 3 4 5 6 7
- b. get upset with him/her for being silly 1 2 3 4 5 6 7
- c. tell my child that he/she is over-reacting 1 2 3 4 5 6 7
- d. help my child think of something to do so that he/she can get to sleep (e.g., take a toy to bed, leave the lights on) 1 2 3 4 5 6 7
- e. tell him/her to go to bed or he/she won't be allowed to watch any more TV 1 2 3 4 5 6 7
- f. do something fun with my child to help him/her forget about what scared him/her 1 2 3 4 5 6 7

10. If my child is at a park and appears on the verge of tears because the other children are mean to him/her and won't let him/her play with them, I would:

- a. NOT get upset myself 1 2 3 4 5 6 7
- b. tell my child that if he/she starts crying then we'll have to go home right away 1 2 3 4 5 6 7
- c. tell my child it's OK to cry when he/she feels bad 1 2 3 4 5 6 7

- d. comfort my child and try to get him/her to think about something happy 1 2 3 4 5 6 7
- e. help my child think of something else to do 1 2 3 4 5 6 7
- f. tell my child that he/she will feel better soon 1 2 3 4 5 6 7

11. If my child is playing with other children and one of them calls him/her names, and my child then begins to tremble and become tearful, I would:

- a. tell my child not to make a big deal out of it 1 2 3 4 5 6 7
- b. feel upset myself 1 2 3 4 5 6 7
- c. tell my child to behave or we'll have to go home right away 1 2 3 4 5 6 7
- d. help my child think of constructive things to do when other children tease him/her (e.g., find other things to do) 1 2 3 4 5 6 7
- e. comfort him/her and play a game to take his/her mind off the upsetting event 1 2 3 4 5 6 7
- f. encourage him/her to talk about how it hurts to be teased 1 2 3 4 5 6 7

12. If my child is shy and scared around strangers and consistently becomes teary and wants to stay in his/her bedroom whenever family friends come to visit I would:

- a. help my child think of things to do that would make meeting my friends less scary (e.g., to take a favorite toy with him/her when meeting my friends) 1 2 3 4 5 6 7
- b. tell my child that it is OK to feel nervous 1 2 3 4 5 6 7
- c. try to make my child happy by talking about the fun things we can do with our friends 1 2 3 4 5 6 7
- d. feel upset and uncomfortable because of my child's reactions 1 2 3 4 5 6 7
- e. tell my child that he/she must stay in the living room and visit with our friends 1 2 3 4 5 6 7
- f. tell my child that he/she is being a baby 1 2 3 4 5 6 7

ERQ-CA

Instructions and Items

We would like to ask you some questions about how you control your feelings. The questions below are about two areas of feelings. One is what you feel like inside. The other is how you show your feelings in the way you talk or act. Here's an example question:

e.g. "My favorite ice cream is strawberry."

Is this question not at all true for you, sort of true for you, or really true for you?

1	2	3
Not at all true for me	Sort of true for me	Really true for me
1. _____	When I want to feel happier, I think about something different	
2. _____	I keep my feelings to myself.	
3. _____	When I want to feel less bad (e.g., sad, angry or worried). I think about something different.	
4. _____	When I am feeling happy, I am careful not to show it.	
5. _____	When I'm worried about something, I make myself think about it in a way that helps me feel better.	
6. _____	I control my feelings by not showing them.	
7. _____	When I want to feel happier about something, I change the way I'm thinking about it.	
8. _____	I control my feelings about things by changing the way I think about them.	
9. _____	When I'm feeling bad (e.g. sad, angry, or worried). I'm careful not to show it.	
10. _____	When I want to feel less bad (e.g. sad, angry, or worried) about something, I change the way I'm thinking about it	

APPENDIX B

COMPLETE LITERATURE REVIEW

Introduction

Regulating our emotions involves necessary and important skills that all of us must master to some degree in order to negotiate our day-to-day lives. Our emotions serve important functions, including preparing us for action, helping drive decision-making, helping us make judgments about our environment, and giving us cues about others' intentions (Gross, 1998). Poor regulation of emotions is implicated in more than half of the Axis I disorders included in the Diagnostic and Statistical Manual of Mental Disorders and in all of the Axis II disorders (Gross & Levenson, 1997). This illustrates the importance of effective emotion regulation strategies and the need to identify the causes of maladaptive strategies.

A wealth of research has supported the negative effects of poor emotion regulation strategies, such as anxiety and depression (Betts, Gullone, & Allen, 2009), internalizing and externalizing behaviors (Eisenberg, Cumberland, et al., 2001), and poor social competence (Hughes, Gullone, Dudley, & Tonge, 2010). Social learning theory developed by Bandura (1969) posits that children use observation learning to develop strategies to maneuver life, including modeling parents' expressive behavior, verbal instruction by an authority figure, and symbolic learning. The family is the primary context in which children first learn how emotions are expressed, how to interpret those emotions, and ways to manage emotions (Denham, 1998). In addition, the quality of the

emotional climate in the home is due in part to parents' expression of emotion (Halberstadt, Crisp, & Eaton, 1999). Therefore, children are likely to model the emotion regulation strategies of their parents, as well as derive clues to emotion regulation based on parents' reactions to their child's negative emotions.

Another method by which children learn to regulate emotions is through socialization, or direct teaching, by their parents. The socialization of emotions may operate via modeling, contingency, and coaching mechanisms. In rewarding socialization of emotion, the child is taught to both tolerate and control emotions, while expressing them and coping with their sources. Previous research has linked family expressiveness to an individual's emotionality, understanding of emotion, social competence, intra-familial relationships, self-esteem and personal adjustment, and academic achievement (Halberstadt & Eaton, 2003).

Similarly, the temperament of children also contributes to a child's emotional reaction to situations as well as his/her use of emotion regulation strategies. The model by Thomas and Chess (1977) includes nine bipolar temperament dimensions believed to be stable across development (i.e., activity, adaptability, mood). Research suggests that difficult temperament factors (i.e., arrhythmicity, inflexibility, high distractibility) are associated with more childhood behavior problems (i.e., hyperactivity, conduct disorders symptoms; (Windle, 1991). Similarly, lower scores on temperament dimensions of approach-withdrawal and adaptability are associated with anxiety and depression in children and adults, whereas high activity level and low attention are associated with externalizing problems. Early temperament characteristics that differentiate children have been found to influence the kinds of emotion regulation skills and strategies children

develop (Calkins, 2004). Eisenberg, Fabes, Guthrie, and Reiser (2002) found that inhibitory dimensions of negative emotionality predict socially withdrawn behavior, and overt dimensions of negative emotionality predict either externalizing problems or a combination of internalizing and externalizing problems.

Each of these modalities (i.e., expression, teaching, and temperament) has been studied in the context of emotion regulation. Few, if any studies have examined these associations together to identify the contribution each has on the emotion regulation strategies used by children. The current paper will provide a review of the literature regarding the development of emotion regulation, the influence of the child's temperament on emotion regulation, and the socialization of emotions in the family context. In addition, the current study will utilize a parent-report of child's emotion regulation to compare the link between parent-report and child-report. This addition to the research literature will allow for comparison of temperament, parent's emotion regulation and parent's reactions to emotions, using both parent-report and child-report of emotion regulation strategies. This project will aim to identify the variance accounted for by socialization practices of parents and temperament traits in terms of developing emotion regulation strategies.

Literature Review

Emotion Regulation

Defining emotion regulation. The recent increase of research on emotion regulation highlights the diversity and lack of uniformity in the definition of emotion regulation. Given the variability in the definition, emotion regulation will be broadly defined based on the theories of Thompson (1994) and Gross (1998). According to

Thompson (1994) , the term emotion regulation (ER) refers to the processes, both extrinsic and intrinsic, that are responsible for recognizing, monitoring, evaluating, and modifying emotional reactions, to accomplish one's goals. Emotion regulation refers to the processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions (Gross, 1998). An important component of emotion regulation involves maintaining and enhancing emotional arousal, as well as inhibiting or subduing it (Masters, 1991). Therefore, the importance of emotion regulation is not determined solely by the expression of the emotion, but also in the way the emotional arousal is sustained. In addition, emotion regulation is not merely the acquired skills to manage emotions, but also includes the external environment and the interventions of others. For example, parents spend a great deal of time monitoring and interpreting their infant's emotions. As the child matures, there are more direct interventions, (i.e., emotion coaching) to improve both the child's well-being and to align emotional reactions to societal standards (Thompson, 1994). Therefore, the child relies on internal motives to modulate emotions as well as utilizing information from his/her external environment. For the maintenance of emotional arousal, it is necessary to use the management of emotion-eliciting situations to achieve a personal goal.

Central to the theory of emotion regulation is the fundamental difference between emotion regulation and emotion self-regulation. Emotion self-regulation involves a more behavioral approach of obtaining an overall goal. In order to fully regulate emotions, the individual would need to use his/her management of emotions to obtain a certain goal. Emotion self-regulation is the process of initiating, avoiding, inhibiting, or maintaining

the form and intensity of feelings states in order to accomplish social adaptation or achieve individual goals (Eisenberg & Spinrad, 2004).

Developing Emotion Regulation Strategies. The development of emotion regulation strategies begins in the third year of life and continues throughout the preschool period. Children are expected to restrain and/or modify their emotions to obtain a desired end. For example, if a child wants a toy another child is playing with, he/she can either suppress the feelings by waiting his/her turn, or restructure his/her wants and play with another toy. These response options could develop into positive or negative social interactions with peers. Through experience and direct teaching, children are able to model their parent's emotional displays to align with the provisions of expected societal behavior. One may argue that children as young as preschoolers are unable to utilize such cognitively demanding strategies such as cognitive reappraisal. Kochanska, Murray, and Coy (1997) suggested that advances in other domains of development during this period create a readiness for preschoolers to internalize and perform complex self-regulation strategies, such as cognitive reappraisals. As children continue to develop, these strategies become more salient and are continually improved through practice and the socialization of emotion regulation by parents.

According to the model proposed by Gross (1998), at the beginning of the emotion production process, an individual evaluates cues from emotion-eliciting stimuli, and these evaluations lead to response tendencies of a behavioral or physiological nature which contribute to adaptive or maladaptive responses. Emotion regulation strategies fall within two categories: antecedent-focused strategies and response-focused strategies. Antecedent-focused strategies, also known as adaptive strategies, change the response

tendency prior to the activation, thereby influencing the entire emotional response. Response-focused strategies, also known as maladaptive strategies, occur subsequent to the emotional response, thereby limiting the effectiveness to change the emotional response. Reappraisal involves redefining an emotionally eliciting-situation such that its emotional impact is modified, and suppression involves the inhibition of emotion expression (Gross, 1998). Evidence indicates that children who use suppression generally express less positive emotion, have low self-esteem, low life satisfaction and greater depressive symptomatology than do children who use reappraisal (Gross & John, 2003).

Poor regulation of emotions is implicated in more than half of the Axis I disorders included in the Diagnostic and Statistical Manual of Mental Disorders and in all of the Axis II disorders (Gross & Levenson, 1997). The use of poor emotion regulation strategies could lead to psychopathology. Block and Block (1980) examined preschool children to assess the link between emotionality, regulation strategies, and problem behavior. High anger emotionality and low regulation of positive emotions and exuberance predicted externalizing problem behavior and prosocial behavior. Research has shown that children with externalizing problems are undercontrolled, whereas those with internalizing problems are overly controlled or constrained in their behavior (Block & Block, 1980). Similarly, high levels of negative emotionality and low regulation are associated with high levels of behavior problems (Calkins, 1994; Eisenberg, Fabes, Guthrie, & Reiser, 2000) whereas high fear emotionality and low fear regulation predicted internalizing problem behavior in a community sample of 5- and 6-year-olds (Rydell, Berlin, & Bohlin, 2003). Correspondingly, poor emotion regulation strategies have also been implicated in depressed adolescents showing higher levels of expressive

suppression and lower levels of cognitive reappraisal, when comparing adolescents with high depressive symptomatology to matched controls (Betts et al., 2009). Hughes, Gullone, Dudley, and Tonge (2010) found that children diagnosed with at least one anxiety disorder and who engaged in school refusal behavior reported more suppression use and less reappraisal use compared to a matched nonclinical sample. While the negative consequences of maladaptive emotion regulation strategies could lead to psychopathology, the proper use of emotion regulation strategies has been shown to increase social competence and overall well-being. Specifically, low levels of negative emotionality and high levels of regulation have been associated with peer popularity, prosocial behavior, and other social skills (Eisenberg et al., 2002; Eisenberg, Fabes, & Murphy, 1996; Eisenberg, Gershoff, et al., 2001). The amount of research documenting the positive and negative long-term outcomes of maladaptive emotion regulation strategies makes salient the need to identify effective strategies for teaching adaptive regulation strategies. The vast majority of research on emotion regulation has focused on the development of emotion regulation strategies during the preschool years, when children are under the direct instruction of their parents. Little research has focused on the developmental period of early childhood (6-10) when children are expected to utilize the strategies taught in the preschool years, to effectively maneuver emotion-eliciting situations with peers.

Children's Education of Emotion Regulation. Children may learn how to regulate their emotions in a variety of ways, including observing others. Social learning theory, developed by Bandura (1969), posits that children use observational learning to develop strategies to maneuver life. Observational learning can occur in relation to three

models: 1) a live model in which an actual person is demonstrating the desired behavior; 2) verbal instruction in which an individual describes the desired behavior in detail, and instructs the participant in how to engage in the behavior; and 3) symbolic learning in which modeling occurs by means of the media through a real or fictional character demonstrating the behavior (Bandura, 1969). The main component of social learning theory states that an individual's behavior both influences and is influenced by the environment and characteristics of the person. The family is the primary context in which children first learn about how emotions are expressed, how to interpret those emotions, and ways to manage emotions (Denham, 1998). The quality of the emotional climate in the home is due in part to parents' expression of emotion (Halberstadt et al., 1999). Research suggests it is often necessary to exercise a degree of management or control over our emotions (Gross, 1998), as emotion management facilitates healthy and adaptive psychosocial and emotional functioning (Bridges, Denham, & Ganiban, 2004). Adults are expected to have a concrete ability to control and manage their emotions. Specifically, adults can control their physiological arousal and thus respond appropriately to emotion-eliciting situations.

One way children are thought to learn about their emotions and the emotions of others is through observing and modeling the emotional expressiveness of their parents (Eisenberg, Cumberland, & Spinrad, 1998). There are a few studies directly examining this in young children. Halberstadt and Niedenthal (2001) defines expressiveness as nonverbal or verbal behaviors that suggest a person is experiencing one or more affective or evaluative states; these behaviors could be both positive and negative. In a study of kindergarten children, mothers' expressiveness, as measured by self-report, was

differentially associated with their children's positive and negative expressiveness in a variety of emotion-eliciting situations (Halberstadt, Fox, & Jones, 1993). Parental positive expressivity may also contribute to children's beliefs about how much and what types of emotional expressions are appropriate and effective in social interactions, and such knowledge may foster both self-regulation and social skills (Denham, Zoller, & Couchoud, 1994; Eisenberg et al., 1998). Eisenberg, Gershoff, et al. (2001) examined the link between negative emotion and regulation in 3- and 5-year-old children, in internalizing and externalizing problem behaviors. The results suggest that parental negative expressivity is related to low emotion regulation in children, which in turn is related to externalizing problems and low social competence. There is evidence that parents' expression of emotion is related to their children's emotional competence in social situations. Parents who are high in warmth and positive emotion, and low in expression of disapproval, hostility, and other negative emotions directed toward their children, tend to have socially competent, well-adjusted children who are also skilled in social understanding (Lindahl, 1998; Scaramella, Conger, & Simons, 1999). McCoy and Raver (2011) examined the link between caregivers' self-reported emotional expressiveness, observer assessments of children's emotion regulation, and teachers' reports of internalizing and externalizing behaviors in a minority sample of preschoolers. Results indicated that high caregiver negativity and low child emotion regulation independently predict more internalizing behavior problems in children. Additionally, children's externalizing behavior problems were inversely related to caregivers' self-reports of positive emotional expressiveness.

A review by Halberstadt, et al. (1999) predicted that children in expressive families were themselves emotionally expressive. Family expressiveness was also related to individuals' emotionality, understanding of emotion, social competence, intra-familial relationships and adult interpersonal relationships, self-esteem and personal adjustment, and academic achievement. A metaanalysis by Halberstadt and Eaton (2003) found that parents who expressed more positive emotion and less negative emotion had children with greater emotion understanding, social competence and psychological well-being. As indicated in the previous studies, parental expressivity is correlated with a child's expressivity, both in terms of positive expression and negative expression. These results also indicate that expressivity is linked to both positive and negative long-term outcomes. Research to date has yet to examine the impact of temperament traits on the expressiveness of both parents and children, and whether an individual's temperament will impact his/her expressivity. These studies focused on parents' expression of emotion and how that can be modeled or mirrored by their children. While direct observation of emotion regulation is necessary for the development of adaptive strategies, it is also important to receive direct instruction on socially accepted ways of managing behavior.

Socialization of Emotion Regulation Strategies. Eisenberg et al. (1998) and Gottman, Katz, and Hooven (1997) have proposed models in which children's regulatory capacities mediate the link between parental emotion-related child-rearing practices or behaviors and children's social behavior and adjustment. The socialization of emotions can operate via modeling, contingency, and coaching mechanisms (Halberstadt, 1991). In rewarding socialization of emotion, the child is taught to both tolerate and control emotions, while expressing them and coping with their sources. Conversely, punitive

socialization of emotion focuses on minimizing child emotion whether by counterproductive parental emotional response or other expressions of disapproval (Denham & Grout, 1993). According to the coaching hypothesis by Katz and Gottman (1995), emotion-related parental didactic practices (e.g., using emotion-laden explanations in disciplinary encounters and discussing their own and their children's emotions) contribute to children's overall expressiveness, patterns of specific emotion expression, and reactions to peers' emotions. Denham, Cook, and Zoller (1992) suggest that parents may fit two types. They may be "coaches," who are aware of emotions, particularly negative ones, talk about them in a differentiated manner, and assist their children in experiencing and regulating them, when necessary. In contrast, they may be "dismissers," who ignore or deny their children's experience of emotions to distract them from emotions, which are "to be dealt with." One study in particular sought to test these models. Denham et al. (1992) had parents discuss with their preschool children photographs of infants displaying 8 emotions. Parents who used more sophisticated language about emotions had children who were better able to regulate negative emotions. While this study supports the previous findings, more studies are needed to determine the effectiveness of coaching principles in the development of emotion regulation strategies in childhood.

To illustrate the importance of socializing emotions, Parke (1994) discussed three ways in which parents and other individuals socialize emotion for their children: 1) indirect instruction through the course of dyadic interaction between a child and adults, siblings, and peers; 2) direct teaching or coaching of children about the rules and regulations that govern the expression of emotion and differences among emotions; and

3) regulation of the provision of opportunities to learn about emotions, such as through controlling exposure to various kinds and intensities of emotions. Children are better able to behave in a socially appropriate manner if they learn to express their emotions. Parents who comfort their children and discuss their negative emotions may help children express emotion in a socially appropriate manner and moderate their arousal. Thus, they should be more able to learn expected behavior and endorse appropriate behavior (Eisenberg et al., 1996).

There is a considerable amount of research that highlights the positive effects of effective coaching or teaching of emotion regulation, and the link with social competence. Emotion regulation seen as a top-down approach suggests that poor regulation strategies of parents will ultimately be modeled by children, as well as effective regulation strategies. Although evidence documents the importance of the parent's role in emotion regulation development, some parents may utilize relatively ineffective strategies. Using a mixed methodology of self-report measures, observational coding, and teacher reports, Roberts and Strayer (1987) found that parental problem-solving responses when their children were upset were related to children's social competence, in a community sample of 30 preschoolers. Social competence is typically measured via teacher reports of a child's level of socially appropriate behavior and interactions with peers. In addition, the authors demonstrated that parental suppression of children's emotion may lead to the storage of negative emotions along with other bits of information from the situation such as the stimuli or the reaction of the parent. These stored memories could develop into maladaptive strategies when the child finds him/herself in a similar situation. Similarly, Eisenberg et al. (1996) examined the

relations of mothers' self-reported emotion-related practices to parents' and teachers' reports of 3rd – through 6th- grade children's social skills, popularity, and coping. Results suggest that mothers' problem-focused reactions tend to be positively associated with children's social functioning and coping, whereas maternal minimizing reactions tend to be linked to lower levels of social competence and high levels of avoidant coping to manage distress (Eisenberg et al., 1996). In addition, emotion-focused and problem-focused maternal reactions, as well as encouragement of the expression of emotion, were associated with boys' comforting behavior, although a moderate level of maternal encouragement of the expression of emotion was associated with quality of girls' comforting (Denham, Renwick-DeBardi, & Hewes, 1994). As the research highlighted the associations of parental coaching and child social outcomes, Eisenberg and colleagues sought to expand this research and focus specifically on negative reactions. Eisenberg et al. (1999) used a longitudinal design to examine the relations of parental reports of negative reactions to children's negative emotions with children's socially appropriate and problem behavior, in a sample of preschool children with elevated levels of behavior problems. Parents and teachers provided information regarding children's overall behavior and interactions with peers, at four different times, beginning in the preschool years and ending when the children were 10 years old. Eisenberg et al. (1999) found that parents who punished and/or questioned their preschool children's emotional experience had children who displayed difficulties managing their emotion several years later.

Fabes et al. (1994) extended this research. Mothers were instructed to read two stories about children in distress to their kindergarten children. Results suggest that the mothers' actions appeared to be influenced by their perceptions of their children's

vulnerability to become dysregulated as a consequence of exposure to others' negative affect. In addition, Fabes, Leonard, Kupanoff, and Martin (2001) stated that mothers who perceive their older children to be emotionally reactive may limit socialization efforts that involve their children in a distressing experience. The results of the study suggest that parents who responded by addressing the cause of their child's distress, by helping their child cope with the emotion, or by encouraging emotional expression, had children with positive emotional outcomes. In contrast, parents who responded by minimizing the child's experience, by punishing emotional expression or by becoming distressed themselves, had children with poorer functioning.

While emotion regulation has been assessed in preschoolers, including those who have elevated levels of behavioral problems, only one study has examined the use of cognitive reappraisal and suppression in a childhood sample. Gullone, Hughes, King, and Tonge (2010) developed an emotion regulation questionnaire for children and adolescents (ages 9-15) based on the theory of Gross (1998), to determine the normative use of reappraisal and suppression in this age group. Results suggest that suppression use was lower for older participants compared to their younger peers, and over time participants reported less use of this strategy. Older participants also scored lower on reappraisal, but results suggest stability over time. Lastly, males reported more suppression use compared to females. Current research has neglected to assess the use of these strategies in an early childhood sample, when children are no longer under direct supervision of parents, but encounter emotion-eliciting situations on a daily basis. The use of emotion regulation strategies in a preschool population has been linked with compliance in observational studies, blurring the distinction between compliance and emotion regulation. The next

logical step is to assess the use of emotion regulation strategies via self-report in a childhood sample.

Temperament

Similar to the research on the effects of negative socialization of emotions on emotion regulation strategies, an examination of temperament traits that could foster adaptive strategies is also warranted. Children's regulatory capacities include the abilities to voluntarily focus attention, shift attention, and inhibit or initiate behavior. These temperament-based behaviors can be used to modulate both emotional reactivity to events as well as the behavioral response to the event (Derryberry & Rothbart, 1997; Eisenberg et al., 2000). Emotion regulation as a developmental process may be influenced by temperament predisposition which in turn predicts a more complex form of adjustment. Early temperament characteristics that differentiate children from one another have been found to influence the kinds of emotion regulation skills and strategies children develop (Calkins, 2004). Calkins and Johnson (1998) found that children who experience extreme distress in response to particular types of events may become too disrupted to be able to generate constructive regulating behaviors. Temperament also exerts a strong influence on emotional development during early childhood, as research suggests learning how to manage one's emotions is dependent on the child's temperament (National Research Council and Institute of Medicine, 2000).

The model by Thomas and Chess (1977) includes nine bipolar temperament dimensions believed to be stable across development. The dimensions are Activity (how active a child is), Approach/Withdrawal (response to new situations), Adaptability (how child adapts to transitions and changes), Mood (reaction to world in a primarily positive

or negative way), Responsiveness/Sensitivity (sensitivity to physical stimuli), Intensity of Reaction (energy level of a response-positive or negative), Distractibility (degree of concentration when not interested in an activity), Rhythmicity (predictability of biological functions), and Attention Span/Task Persistence (length of time child engages in activities in face of obstacles). General temperament dimensions, such as lower positive mood, lower adaptability, and lower general rhythmicity, distinguished those with and without lifetime psychiatric disorders in sample of teenagers (Windle & Windle, 2006). The study results also suggest inhibitory dimensions of temperament, such as withdrawal, behavioral inhibition, and inflexibility have higher associations with internalizing disorders, whereas higher activity levels, impulsivity, and lower task orientation have higher associations with externalizing disorders. Similarly, using a sample of adolescents, Windle (1991) found that difficult temperament factors (i.e., arrhythmicity, inflexibility, high distractibility) were significantly associated with more childhood behavior problems (i.e., hyperactivity, conduct disorder symptoms). A study by Merikangas, Swendsen, Preisig, and Chazan (1998) reported that lower scores on temperament dimensions of approach-withdrawal and adaptability (flexibility) were associated with anxiety and depression in children and adults, whereas high activity level and low attention (task orientation) were associated with externalizing problems.

John and Gross's (2004) model describes the association between temperament dispositions and emotion regulation strategies, specifically suppression and reappraisal. Research has shown that individual differences characterized by a tendency to respond flexibly to environmental changes, to approach rather than withdraw from novel stimuli, and to experience positively-valenced moods contribute to an individual's adaptability

and psychological wellbeing (Windle, 1992). The link between temperament disposition and emotion regulation suggests an important role in the development of emotion regulation strategies. More research is needed to test the specific temperament traits that foster the development of emotion regulation strategies. Tendencies to withdraw from novel stimuli, to be rigid in the face of environmental changes, and to experience negative moods, were shown to predict depressive symptomatology in a sample of middle adolescents ($M=15$ years). In contrast, higher levels of approach, flexibility and positive mood quality were positively related to measures of general self-worth and perceived competence in children and adolescents (Adrian, Zeman, & Veits, 2011; Cummings, Davies, & Campbell, 2000; Durbin, 2010).

Rothbart and Ahadi (1994) found that parents' reports of 2-year-olds' aggression and defiant behavior (negativity) were positively related to negative temperament, and negatively related to effortful control (regulation). Likewise, Jaffe, Gullone, and Hughes (2010) investigated the roles of temperament dispositions and perceptions of parenting behavior in the use of emotion regulation strategies in a sample of 293 children ages 9-11. Based on self-report measures of parental care and overprotection, Jaffe et al. (2010) found that higher scores on temperament-based approach and perceived parental care were associated with greater use of the emotion regulation strategy reappraisal, whereas lower levels of temperament-based flexibility, positive mood quality and perceived parental care were associated with greater use of the emotion regulation strategy of suppression. Given the connection among different temperament styles such as approach, positive mood, and rhythmicity, Eisenberg and colleagues have labeled these traits as positive temperament. In studies of temperament in school-age children, the dimension of

negative emotionality includes irritability and frustration combined with fearfulness, tendencies to discomfort, and sadness. In addition, negative temperament predicted increasingly greater problem behavior as levels of self-regulation declined, in a sample of kindergarten- to- 2nd-grade children (Eisenberg et al., 1996). Results of the study by Eisenberg et al., (2002) suggest inhibitory dimensions of negative emotionality (i.e., emotions such as sadness and fear) predict socially withdrawn behavior. In contrast, overt dimensions of negative emotionality (i.e., emotions such as anger, frustration) predict either externalizing problems or a combination of internalizing and externalizing problems. Similarly, findings from a study by Eisenberg and Zhou (2000) suggest that dispositional emotionality and regulation interact with each other or with other factors in the social environment in their prediction of problem behavior and social competence. In a longitudinal study of 7-year-olds, Eisenberg et al. (2000) found that negative emotionality moderated the link between behavior regulation and socially appropriate or prosocial behavior. For children high in negative emotion only, behavior regulation predicted socially appropriate behavior at both times. These findings suggest that the interaction of temperament and regulation are better predictors of social competence and problem behavior than direct linear effects (Eisenberg et al., 2002).

In a longitudinal study of preschool children, Blair, Denham, Kochanoff, and Whipple (2004) investigated the contributions of temperament styles and emotion coping strategies to the development of preschoolers' social competence and behavior problems. It is noteworthy that the ability to cope with emotion was found to be more important than temperament alone in the development of prosocial behavior. Based on parent- and teacher-report, use of passive coping strategies moderated the link between temperament

dimensions and externalizing and internalizing behaviors. In addition, interactions were found between temperament and regulation in predicting negative behaviors. Using laboratory tasks to elicit frustration and distress in a toddler sample, Calkins and Johnson (1998) found that the tendency to be distressed was negatively related to the tendency to use more adaptive regulatory behaviors that reduce negative affect, such as distraction, seeking out the mother, or constructive coping (i.e., retrieving toy from behind barrier). Results also suggest that for some children, there may be a temperament influence that affects the likelihood that they will react with frustration and regulate with aggression, rather than distraction or constructive coping.

Empirical literature supports emotion regulation as a critical component of emotion competence necessary for effective interactions with others in the most stressful situations. Research focused on different combinations of temperament characteristics and regulatory behaviors, and their prediction of quality of social functioning over time, is limited (Eisenberg et al., 2002). Given the association of temperament with definitions of emotion regulation and the strong influence of temperament on behavior during early childhood, it is important to further explore how temperament may interact with the ability to regulate or cope with negative emotional experiences in young children. Previous research has examined the link between temperament traits and emotion regulation strategies. Specifically, the use of reappraisal has been associated with adaptability, positive mood, and approach to new situations, whereas the use of suppression has been linked to poor rhythmicity, avoidance of new stimuli, and negative affect. These associations have been consistently examined in adolescents with increased levels of depression and anxiety, as well as preschoolers with elevated levels of behavior

problems. Progress has been made in these associations, although the field has yet to examine these links in a nonclinical childhood sample.

Methodological Concerns

The current review highlights the variability in the definition of emotion regulation and the biological factors that are considered important components of emotion regulation (i.e., mood, affect). Given the variability in the definition, the methods by which emotion regulation has been assessed have also varied, based on general understanding of emotion regulation and the developmental level of the individual being assessed. As a result, there have been a number of studies using mixed methodology to assess this one construct. The focus of the current project is to assess the emotion regulation strategies employed by children, specifically the strategies of cognitive reappraisal and suppression. A review by Adrian et al. (2011), indicated that 32% of the research on emotion regulation used a middle childhood sample, but none of the studies utilized a self-report measure to assess emotion regulation in this age group. Most of the methodologies employed the use of vignettes and semi-structured interviews to assess the self-reported use of emotion regulation strategies in this sample, while other studies utilized parent-report. Few, if any, sought to examine the use of cognitive reappraisal and suppression via self-report in a sample of young children.

Suppression has been studied in a number of ways in both preschool and adolescent samples. The majority of the research assessing suppression has included observational studies and parents' self-report of their child's use of this strategy. Observational methods are often considered to be the "gold standard" in developmental research (Cummings et al., 2000). Specific protocols have been employed to study the

use of suppression, such as delayed gratification task or forbidden object protocols that elicit a frustrating situation. The ability to assess the strategy of suppression is greater than cognitive reappraisal because suppression can be observed. Research has yet to show consistency across reports of child's use of suppression and parent-report of child's suppression.

Cognitive reappraisal is a construct that is more difficult to measure, as researchers are unable to observe the use of this technique. The field has currently sought to examine the use of this strategy through parental reports of their child. Developmental research (Kochanska et al., 1997) proposes that children as young as 3 have the mental capacities to use this cognitive strategy. We also know this strategy is more salient in adolescent samples, and as such has been studied in this population. To assess this strategy, past methodologies have used self-report to assess cognitive reappraisal in adolescents, and parents have reported on their preschoolers' use of this strategy. Given the evidence in the research that children as young as 3-years-old are able to use such a cognitively demanding strategy, the use of a self-report measure in a childhood sample is warranted. Research also suggests the use of self-report measures in young childhood presents of number of unique challenges as cognitive strategies are hard to assess in a young population, yet our best measurement of cognitive reappraisal should come from the individual being assessed. Self-report methodologies provide an important assessment of emotion regulation even when the reporter may be a young child (Durbin, 2010)).

Current Study

There are a number of methods by which children develop emotion regulation strategies, whether through modeling their parents' emotional responses, as evidenced by

the social learning theory, or by direct instruction of appropriate methods to modulate emotions. Research in the field of emotion regulation highlights the link between a parent's positive and negative expressions of emotions and their child's use of emotion regulation strategies. Therefore, to replicate previous research, the current study will examine the link between emotion regulation strategies in parents and their children's use of the same strategies.

Similarly, the effective socialization of emotion has been linked to social competence in terms of popularity, and peer interactions as well as psychological well-being. Socialization can be defined in a number of ways including direct instruction of emotions (i.e., labeling emotions) or via parent's reactions to negative events (i.e., punitive responses). The current study will examine parent's reactions to their child's negative emotions and the link to the child's use of emotion regulation strategies. It is hypothesized that parent's use of punitive responses will be related to the use of suppression in their children, whereas the parent's expression of emotions will be related to the use of cognitive reappraisal.

Research has suggested that the use of emotion regulation strategies involves both the socialization of emotion regulation as well as temperament-based traits. A number of studies have implicated the temperament traits that are involved in reappraisal (i.e., approach and positive affect) and suppression (i.e., withdrawal and negative affect). Based on current research, it is hypothesized that the child's use of reappraisal will be linked to temperament traits of rhythmicity, approach, positive mood, and the child's use of suppression will be linked to temperament traits of withdrawal, negative mood, rigidity, and distractibility. Therefore, the current study will examine the link between

rhythmicity, approach, and positive mood and the use of reappraisal, as well as withdrawal, negative mood, rigidity, and distractibility and the use of suppression. Similarly, the current research on the socialization of emotion regulation strategies has yet to take into account the temperament traits of children, and how these traits impact the instruction of emotions. Research suggests that the use of parenting strategies is dependent on the temperaments of their children (Kiff, Lengua, & Zalewski, 2011).

In addition, the studies with toddlers and preschoolers have equated emotion regulation with compliance, thereby inferring that young children are regulating their emotions. The research in this field has been theoretically based, suggesting a need for a more direct assessment of emotion regulation strategies throughout the lifespan. However, the field has yet to establish the effects by which children use these strategies in a young childhood sample, when children are no longer under direct supervision of parents and encounter emotion-eliciting situations on a daily basis. Specifically, the field has yet to examine the link between parent-report of child's emotion regulation and child's self-report of emotion regulation. To address this gap in the literature, the proposed study will use a child self-report measure to assess the use of cognitive reappraisal and suppression in a young childhood sample. In addition, the current study will utilize a parent-report of child's emotion regulation to compare the link between parent-report and child-report. This addition to the research literature will allow for comparison of temperament, parent's emotion regulation and parent's reactions to emotions to both parent-report and child-report of emotion regulation strategies.

A large number of studies have focused more on the preschool years, at the early development of emotion regulation strategies, as well as the development of emotion

regulation in adolescents; yet few studies have examined these relationships in a young childhood sample when children are confronted with utilizing the strategies they observed in the family context. It is the goal of the current study to address the gaps in the literature, and to identify the overall contribution of parental socialization of emotions and child temperament on emotion regulation strategies. This project will aim to identify the variance accounted for by socialization practices of parents and temperament traits in terms of developing emotion regulation strategies.

Oklahoma State University Institutional Review Board

Date: Tuesday, May 22, 2012
IRB Application No AS1254
Proposal Title: The Development of Emotion Regulation in Children: The Role of Temperament and Parent Socialization

Reviewed and Processed as: Expedited

Status Recommended by Reviewer(s): Approved Protocol Expires: 5/21/2013

Principal Investigator(s):

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The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 219 Cordell North (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,



Shelia Kennison, Chair
Institutional Review Board

VITA

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Candidate for the Degree of

Master of Science

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ROLE OF TEMPERAMENT AND PARENT SOCIALIZATION

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