

Developing Mechanisms of Self-Regulation: An Integrative Perspective

by

Aviva R. Kadin-Pessoa

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by

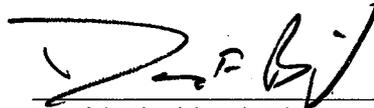
Aviva R. Kadin-Pessoa

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SUPERVISORY COMMITTEE:



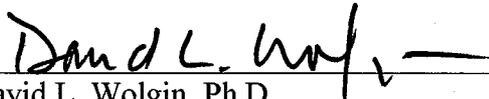
Nancy Aaron Jones, Ph.D.
Thesis Advisor



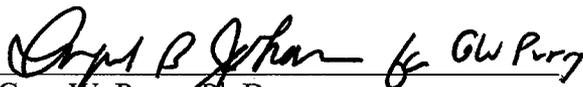
David Bjorklund, Ph.D.



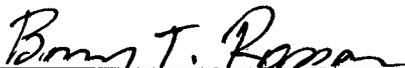
John D. Morris, Ph.D.



David L. Wolgin, Ph.D.
Chair, Department of Psychology



Gary W. Perry, Ph.D.
Dean, Charles E. Schmidt College of Science



Barry T. Rosson, Ph.D.
Dean, Graduate College

July 23, 2010
Date

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Abstract

Author: Aviva R. Kadin-Pessoa
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Parents' and children's behaviors are intricately woven together over the course of development. Consequently it is difficult to determine the sources of influence predicting socially and academically oriented outcomes. Research from several developmental fields suggests that developing mechanisms of attention during the preschool years is crucial for both emotional and cognitive control. The current study shows that parental responsive behavior is important in understanding the development of voluntary attention. More specifically, the results suggest that parental awareness, assessed utilizing their perceptions of attentive temperament is an important factor in predicting their own behavior and the developmental outcomes of their children.

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Introduction

Developmental research depicts the preschool years as a transitional period, marked by initial gains in capacities facilitating competent social behavior (Posner & Rothbart, 2000). Each distinct domain contributes a unique piece of the developmental puzzle. Emotion socialization agendas tend toward deciphering connectivity between emotional competence or incompetence and parental socialization behaviors (Eisenberg, Cumberland, & Spinrad, 1998; Maccoby, 1992). Social-cognitive developmentalists emphasize investigating mechanisms underlying the acquisition of social-behavioral abilities such as cognitive inhibition and emotional control (Hinnant & O'Brien, 2007; Harwood & Farrar, 2006). Additionally, psychobiological and behavioral research suggests that inherited temperamental traits act as both prescribed sources and moderators contributing to individual differences in behavior exhibited over the course of development (Fox, 1991; Fox, Calkins, & Bell, 1994; Kochanska, 1995).

Motivation for the current study emanated from the challenge posed by integrating findings from domain-distinct agendas into a coherent research framework. The goal is to link on-task parental socialization behaviors, parental perceptions of their child's temperament, and the development of self-regulatory behavior utilizing a joint storybook paradigm. Thus relevant research from each body of literature will be explained in relation to the current hypotheses. Notions of cognitive and emotional

development deriving from dynamical systems theory strongly influenced the assertions of the current project and accordingly will be discussed.

Emotion Socialization and Development

Historically, emotion socialization efforts have aimed at identifying particular patterns of behavior that contribute to optimal or adequate developmental outcomes (Maccoby, 1992). Contemporary emotion socialization research is concerned with discerning sources of individual variation in the development of pro- and anti-social behavior (Valiente, Lemery-Chalfont, & Reiser, 2007; Denham & Grout, 1992; Denham, Renwick, & Holt, 1991). Within the emotion development literature parental emotion-related socialization behaviors, labeled expressivity, contingent responding, and coaching, are analyzed in relation to developmental outcomes (Eisenberg et al., 1998). The contributions of the emotion socialization literature explain that social competencies tend to develop best in environments characterized by moderate to high levels of positive affect, constructive, nurturing contingent responding, and those in which moderate to high value is placed on the discussion of emotion (Eisenberg et al., 1998). In addition, Gottman, Katz, and Hooven (1996) suggest that parents who demonstrate an awareness of their own emotions and reactions, referred to as meta-emotion, tend to behave responsively and sensitively with their children. Jointly, these findings support the assertion that responsive parenting is facilitated by awareness, which in turn generates the type of environment that fosters healthy developmental outcomes.

Despite the immense contributions stemming from the emotion socialization literature there are shortcomings; namely, the assumption that characteristic components of personality underlying typical parental emotion-related socialization behaviors

contribute significantly more variance to children's developmental outcomes than children's behaviors do to contingent parent responding. Though conceptions of influence underlying emotion socialization have progressed from unidirectional, to transactional, to dynamical models (Granic, 2000), statistical approaches remain static. The current study therefore, draws upon dynamical systems concepts to demonstrate the utility of shifting from static conceptions and measures of parent-child relationships toward viewing socialization affects within the context of mutually and simultaneously influential dyadic relationships.

Dynamical Systems Theory and Development

Assumptions in the current study emanate primarily from Granic's (2000) notion describing parents and children as both independent and dyadic systems. Within both the self and the dyadic system, interactions between component variables are bi-directionally and simultaneously interacting, resulting in emergent system properties. Therefore, as components of a single dyadic system, typical patterns of behavior between parents and children spontaneously emerge and are sustained in the absence of dramatic external influence. Moreover, typical patterns of behavior lend themselves to fixed perceptions and expectations of opposing dyad members such that responsive behavior may not be based on the characteristics of a specific event but instead are the result of interactions occurring over prolonged periods of time. Consequently, parents may become less aware of the immediate needs of their children and children are less likely to internalize and attend to parental messages under these circumstances (Kochanska, 1995).

The current study fills in some of the gaps emanating from static approaches by demonstrating the importance of perception with regards to responsiveness. Based on

Gottman et al.'s (1996) concept of meta-emotion, parents who are most aware should be most responsive to their children's cognitive and emotional needs while interacting during a task. In order to characterize the relative awareness of each parent, parental personal perceptions of their child's attention span together with objective observer ratings of a child's on-task attention were compared. Parents whose scores were least discrepant from objective ratings were categorized as having a higher degree of awareness. The current study attempted to show that awareness and responsivity are directly related and together influence the child's attention and participation during the task.

Developing Regulatory Capacities

Reading with young children benefits both their cognitive and emotional development. Within the cognitive domain, joint storybook reading can promote the development of skills that are necessary to succeed within an academic arena. Children can also garner information from storybooks that allow them to negotiate social relationships more effectively, such as the causes and consequences of negative emotions. From an integrative perspective, reading fosters the mechanisms that underlie self-regulatory behavior, such as selective attention, ultimately allowing for the development of social competencies.

Establishing self-regulated attentive behavior is a hallmark of early childhood development. Executive functioning (EF) is the general heading describing distinct yet interactive components of attentional control including focus shifting and cognitive inhibition (Blair, Zelazo, & Greenberg, 2005). Together, these abilities serve to regulate behavior favoring both social and academic competence. Thus, at the forefront of contemporary research, is a thrust for precise understanding and measurement in the early

development of EF. Developing attentional mechanisms requires interconnectivity between cortical cognitive and subcortical emotional systems (Blair et al., 2005; Posner & Rothbart, 2005). Research that focuses on components of both systems offers a holistic developmental perspective. The proposed research draws upon emotion and cognitive development literature to promote such an agenda (Eisenberg et al., 1998; Izard, 2007; Hinnant & O'Brien, 2007).

The emotion development literature suggests that accumulating a rich body of positive emotion schemata helps to build social, intellectual, and physical resources that benefit social-cognitive developmental outcomes (Fredrickson, 1998; Izard, 2007). More specifically, resource building is facilitated by attentive or exploratory behavior, the action tendency associated with the emotion of interest. In addition to overt exploration of one's environment, interest describes covert or cognitive exploratory behavior. Thus, throughout development, if a child appraises an aspect of their environment as containing valuable information, they will allocate attentional resources to better understand those environmental stimuli (Fox, 1991).

Affective-cognitive relations that serve the foundation for predictive, interest-driven behavior begin to amass during early infancy (Izard, 2007). Throughout the preschool years, development of volitional attention mechanisms, specifically effortful control, motivated by interest, facilitates emotion regulation (Posner & Rothbart, 2000). Continuing into early childhood, attentive behavior, sustained by high levels of affective interest, is responsible for advances in academic learning (Ainley, 2006). Thus, prior to entering formal schooling, caregivers, children's primary socializing agents, are responsible for fostering interest-related schemata in support of voluntary attention.

Accruing emotion schemas in early childhood that support adaptive social and cognitive behaviors also reduce the potential for deleterious effects associated with high levels of negative arousal (Fredrickson, 1998). Early childhood is consumed by establishing mechanism that control negative arousal such that extreme expressions of negative affect taper off dramatically by the end of the third year (Izard, 2007). This is the result of the nascent development of EF mechanisms, specifically inhibitory control, that promote the regulation of arousal and behavior (Posner & Rothbart, 2000). Thus, components of EF assist children in transitioning emotional and cognitive systems from adaptive at the level of the individual to adaptive at the social level (Izard, 2007; Posner & Rothbart, 2005).

The current study provides insight into components of EF developed during the preschool years, asserted to be the critical period during which socialization experiences either support or hinder optimal levels of cognitive and emotional control (Posner & Rothbart, 2000). In particular, this study addresses the importance of parental awareness and responsiveness during a book-reading task in order to amplify or sustain attentive behavior.

Joint Storybook Reading

Joint storybook reading is an effective means by which parents can communicate various types of information to their children. On a grand scale, this information may be dichotomized to reflect first, the kind of information that is derived specifically from the story's content and second, the implicit messages children receive, emerging from parent-child dyadic interaction. In the first instance, children may learn about aspects of the physical world, cultural norms, or the causes and consequences of emotion (Clingenpeel

& Pianta, 2007). Information absorbed in this vein, might be explained as building a child's cognitive resources (Fredrickson, 1998). In the second instance, parental verbal and non-verbal oriented behaviors relay information to children about parents' own interest in the subject matter along with the prescribed importance of the child's engagement and involvement during the read. These so called "affective behaviors" play a significant role in the child's development of self-regulatory behaviors (i.e., attention/interest). Thus, the process of reading with children presents parents with the opportunity to teach children on multiple levels.

The opportunity to teach, however, neither implies teaching nor impels learning. Both intentional and unintentional messages may be transmitted and received. The process of information conveyed and absorbed during joint storybook reading is inherently complex. The current paper proposes that absorption of the "cognitive" information is in large part contingent upon the implicit messages received by the child during the reading task; specifically, that their child's involvement is important to the parent. This is demonstrated by the level at which the parent responds to the child's remarks and questions throughout the story. Joint storybook reading both sets the stage for children to learn about contexts inducing emotion and involves the incorporation of affect-related cognitions that will shape patterns of behavior constituting the child's socio-emotional competence.

Parental reading behaviors vary tremendously and consequently so do the benefits children reap from reading with their parents. Research has shown that both quantity and quality are related to academic success (Clingenpeel & Pianta, 2007). In addition, research shows that parents who are particularly sensitive to the needs of their children

elicit higher levels of participation while reading (Skibbe, Moody, Justice, & McGinty, 2010). Researchers have also delineated specific "read aloud" behaviors that promote optimal cognitive outcomes (Schwartz, 2004). Combining findings from the emotion literature with academically oriented literature promotes the idea that scaffolding is most effective when children's interest is piqued and negative arousal is at a minimum.

Scaffolding as it is understood in the current context, emanates from Vygotskian notions of social development (1978), which together with current research suggests that the ability to scaffold effectively is related to one's awareness of their child's individual needs (Gottman, Katz, & Hooven, 1996). Accurate instructor or parent assessment of how to best elicit the child's participation requires an understanding of the current cognitive and emotional capacities of the child. This in turn, allows the scaffolder to emit the types of behaviors and information that will interest and engage the child. In so much that preschool aged children are highly variable in their individuals needs, it is reasonable to assume that similar parental behaviors may not always result in the same child responses.

The Caregiver's Role

Parental responsive behavior is assumed to be the primary means by which parents can recruit their child's attention and interest during interaction. Being responsive to the needs of one's child implicitly communicates that the parent is concerned with and attuned to the child. Lay, Waters, & Park (1989) demonstrated that inducing a positive mood via maternal responsive behavior, reduces arousal and supports compliant behavior in preschool children. By complying with maternal demands, children experientially develop mechanisms of attentive behavior such as focus and persistence.

In contrast, negative arousal inhibits one's ability to attend to environmental stimuli, because instead of engaging in exploratory behavior, cognitive resources are dedicated to reinstating homeostatic levels of arousal (Blair et al., 2005). Non-responsive or dismissive behavior is assumed to hinder the child's development of attentional mechanisms. Research suggests that response suppression, an inhibitory control mechanism, precedes the development of attentive control (Espy & Bull, 2005). As a result, in chaotic home environments, in which non-responsive behavior is dominant, development of attentional control mechanisms suffer (Valiente et al., 2007).

In a less general sense, specific on-task parental behaviors have the potential to support emerging attentional capacities, such as effortful control, promoting healthy developmental outcomes (Posner & Rothbart, 2000); Denham et al., 1991). These include: positive affect, task orientation and structuring, allowance of autonomy and responsiveness. Such behaviors, or lack thereof, in turn, provide children with implicit messages that either improve or diminish the quality and substance of the parent-child interaction (Skibbe et al., 2010; Schwartz, 2004). The quality of interaction is integral for engaging the child as well as eliciting his/her involvement during the task (Skibbe et al., 2010).

Dyadic Relations and Perception

Though the behaviors mentioned above are important for dyadic interaction, the factors contributing to task-oriented, parent-child relations are numerous and intimately related. These include endogenous and developed components of the parent and child independently and contingently. Both parents and children have been described as stable systems encompassing predictable patterns of behavior that evolve during development

(Izard, Ackerman, Schoff, & Fine, 2000). The manifestation of the system describes an individual's personality and is the result of bio-behavioral and social-behavioral experiences. Within a socialization context, the parent system is more established compared with the child's, however, the child's influence on the system is an essential component of the interactive affective, cognitive, and behavioral outcome.

Parent-child relationships have been described as inherently and inextricably emotional (Dix, 1991). Moreover, parents and their children are theorized to establish stable interaction patterns beginning in early infancy that incorporate the individual into a single dyadic system (Granic, 2000). The implication for the current research agenda is that the behaviors witnessed over the course of a specific task are reflective of stable patterns of dyadic relations that have repeatedly emerged over the course of development. In effect, typical relational patterns constrain future dyadic interactions resulting from fixed perceptions or expectations of the other member of the dyad.

Parent-child perceptions of each other, as relatively fixed, are critical to the assumptions and agenda of the current study since, perceptions, accurate or otherwise, influence behavior. Parental perceptions of their child's temperament have been shown to influence the manner in which they engage with and respond to their children in specific contexts. Mothers who perceived their kindergarten-age children to be more emotionally reactive have been shown to display more positive facial affect within contexts in which children are exposed to distressing stimuli (Fabes, Eisenberg, Karbon, Bernzweig, Speer, & Carlo, 1994). This child-contingent socialization behavior is explained as the mother's attempt to reduce negative arousal resulting from the distressing situation. Interestingly, Eisenberg, Fabes, and Murphy (1996) found that both mothers and fathers who perceived

their 3rd through 6th grade children as more negatively emotional tended to engage in minimizing and punitive reactions, respectively, to their children's negative displays. Together, these findings illustrate how more stable expectations of children, occurring by late elementary school, predict parental reactions that may reflect a degree of resignation regarding supportive reactions and their impact on children. This assertion is supported by Fabes, Eisenberg, Karbon, Bernzweig, Speer, and Carlo (1994) who showed that by second grade mothers who perceived their child to be more negatively reactive tended to be less warm and supportive than mothers who viewed their children as exhibiting emotional control.

These results also highlight the difficulty in pinpointing the sources of influence within the dyadic system that contribute to stable temperamental dispositions. Specifically, it is reasonable to assume that parent-child relations are recursive, such that parent-child contingent responding instructs and reinforces the behavior of the opposing dyadic partner. This is because the nature of a system is to interpret and incorporate new information in a manner consistent with established associations (Izard et al., 2000). In short, new perceptual experiences are influenced by those established over the course of development, one way in which the parent-child dyad constrains future interaction patterns.

In addition to affecting developed components of temperament, fixed perceptions of parent-child relationships influence parent's understanding and approach to the child's behavior in new contexts. Kochanska (1995) found that mothers of temperamentally fearless children, who perceived their relationship as securely attached were more apt to describe their child as receptive to parental messages. In turn, these children benefited

from disciplinary tactics which aroused emotion sufficient to internalize parental messages. For fearful children, maternal attachment was unrelated to internalized conscience; however, children required more gentle forms of discipline in order to promote the optimal level of arousal conducive to internalize messages. Thus, both temperament and parental socialization behaviors are important for gauging possible developmental outcomes.

The parent's approach to his or her child within a given context is in large part a function of the perceptions and corresponding actions derived from the individual system. For example, in a study investigating affective-behavioral interactions while reading to children with normal and impaired language development, it was found that the critical factor in eliciting participation from children with language deficits was maternal responsiveness to the child's individual needs (Skibbe et al., 2010). In this context, the cognitive challenges resulting from the child's biological predisposition were challenged and markedly improved by appropriately matched maternal behaviors.

Of particular importance to the current study is a better understanding of the emergence of parental behaviors that support child behaviors that contribute to persistence in the face of cognitive and emotional challenge. Understanding the stable perceptual proclivities of the parent that motivate behavior best suited to the demands of their individual child is assumed to have the power to predict parent-child behavioral relationships that support the development of capacities fostering prosocial behavior.

This idea is supported by research addressing maternal attachment and parental disciplinary tactics in relationship to the development of internalized conscience (Kochanska, 1995). This is why child characteristics are insufficient to understand related

socialization behaviors. In addition to acknowledging the parent-child dyadic system as characterized by typical patterns of behaving, a certain degree of understanding with respect to the parent's established emotional schemata, here measured via perception, must be included to make accurate predictions.

Purpose and Hypotheses

The current paper seeks to better understand the relationship between parental socialization behaviors and preschool-aged children's developing mechanisms of self-regulation. The set of variables to be included in the analysis include: parental evaluations of their child's attention span, observer ratings of children's attentive behavior over the course of a reading task, parental responsiveness during the reading task to their child's on and off-task needs, and children's active involvement while reading.

Hypothesis 1. The role of parental responsiveness on a child's ability to effectively sustain attention will be analyzed. It is hypothesized that children experiencing a high level of responsiveness from the parent will demonstrate higher levels of attentive and participatory behavior. In the current context, responsive behavior is defined as both emotional and instructional support, such that responsive parents attend to both the cognitive and emotional needs of the child. This hypothesis has been supported previously by similar research looking at the relationship between maternal sensitivity and language-disabled children's participation during a reading task. These results indicated that both types of support were necessary to elicit high levels of participation (Skibbe et al., 2010).

Hypothesis 2. The current paper also assumes that parents who are most attuned to their child's attentive temperament will be the most responsive and accordingly elicit the most attention and active involvement from the child throughout the task. To support this claim parents were given an inventory to evaluate their child's general level of attention span and task persistence. Parents whose scores were most consistent with ratings made by objective observers during the reading task were considered to be more aware of the child's disposition. Contrastingly, parents whose scores were most discrepant from observer ratings were assumed to be evaluating their child based on fixed notions accrued over the course of development as opposed to more accurate representations based on children's cognitive and emotional skills surrounding the joint storybook task.

Method

Design

To approach this goal, in-home recordings of parent-child interactions were taken while reading a storybook. The data analyzed in the current study was taken from a larger study designed to assess within subject differences for children experiencing four conditions: each child listening to both their mother and father read two stories. Each parent read a happy and a sad story to their child. For the majority of participants, mothers read first. The story order was counterbalanced for each parent-child dyad.

Observational data collection ascertained measures of dyadic affective and cognitive related behavior. Additionally, prior to reading, parents' perceptions of various aspects of their child's temperament were collected. Discrepancies between parent's reports and objective observation of congruent temperamental components were hypothesized to moderate task-oriented parent-child behavioral relationships.

Participants

Fifteen male and 13 female preschool aged children ($M=4.24$, $SD= .75$) and their mothers and fathers participated in the study. Participants were recruited through flyers to local preschools. Families were predominantly middle class. Mothers ranged in age from 23 to 54 ($M=37.45$, $SD=7.0$). Father ranged from 27 to 48 years of age ($M=38.48$, $SD=5.83$) Thirty-one percent of mother held a bachelor's degree or higher and 32% of

fathers held a bachelor's degree or higher. Only 5% of both mothers and fathers did not complete high school.

Procedure

Both observational and self-report data were collected over the course of a single, 1-2 hour in-home visit. Upon entering the participants' homes parents were given a demographic questionnaire and the Colorado Childhood Temperament Inventory (CCTI) (Rowe & Plomin, 1977) to complete by the end of the visit. Each parent read 2 separate stories, one designated as happy and the other designated as sad. However, in the current study parent-child behaviors collected during the sad story were analyzed. There were two reasons for this. The first, was because the sad stories were more similar than the happy stories, since they were of similar length and both involved the death of a pet. Since differences between mother-child and father-child dyads were analyzed, the similarity of the stories was considered important. The second reason was that understanding negative emotions is particularly prominent during the preschool years (Lagattuta & Wellman, 2002). Not only are the causes and consequences of negative emotions a significant component of parent-child interaction during the preschool years, but research has shown that understanding happy emotions is less indicative of developmental outcomes compared with sad emotions (Denham & Grout, 1992).

Before reading, parents were that the stories to be read to their child involved the death of a pet and were permitted to stop at anytime if they felt that the child was experiencing harmful negative arousal. Parents were also asked to choose a place in the home where reading would feel natural and comfortable for both sets of parent-child dyads. After choosing this location, attending research assistants began to set up the

equipment. Behavioral data began being collected after the set up of the recording equipment was complete. The storybooks chosen for the experiment were similar in both length and content. This was to ensure that effects were the result of dyadic interaction and history rather than subject matter or other potential extraneous variables. The sad stories analyzed were entitled *The Tenth Good Thing about Barney* by Judith Viorst and *Goodbye Mousie* by Robie H. Haris. Both books can be found in either local bookstores or online.

Parents were asked to read in a casual and natural manner. No other specific instructions about the reading were given. This was to ensure that observations were naturalistic. More specifically, the intention was for the data collected to reflect patterned reading behaviors that occur between dyads on a daily basis. Observational data were collected for both parents and children during the task.

Child Behavioral Measures

Attention. Children's task-related attention to the task was coded on both a second-by-second basis and using a Likert-type rating scale (1-5). This was done to include measures that reflected the child's moment-to-moment attentional tendencies as well as overall ability to focus throughout the task. Utilizing both measurement scales ensured the collection of all relevant attention-span oriented data. Table 1 describes the behaviors coded using Observer, a computer-based data collection program. Using two independent coders, inter-rater reliability, ranging from .85-.98, was achieved for 25% of the sample. Coders were unaware of the study's predictions.

Table 1

Second-by-second On-task Attention Data

Code	Behavior Description
5	Child's attention/gaze is directed toward the task
4	Child is momentarily distracted then focuses quickly back on task
3	Child's attention/gaze wavers on and off the task
2	Child's attention/gaze is directed toward other things
1	Child focuses no attention on the task

Since the Observer program reports the proportion of the task during which the child was attentive to the book, it is conceivable that a child who was attentive for 75% of the time lost interest completely by the end of the task, and therefore did not "complete" it. Therefore the rating scales provided information about the coders' evaluations of overall attentive behavior and paid attention to overall engagement and completion. A strong correlation was exhibited by independent coders for over 25% of the sample ($r=.793, p=.000$).

Participation. Children's participation throughout the task was measured in three ways. There were two measures for child-initiated participation, meaning that the any comment or questions made by the child was not preceded by a remark from the parent. For child-initiated participation, coders were first asked to determine whether the child asked a question or comments specifically when the death of the pet was mentioned. Inter-rater agreement for this measure was above 90%, assessed by two independent coders for 25% of the sample (a method that was used in all subsequent inter-rater agreement analysis). Since the causes and consequences of negative emotions, in this case sadness and loss, are amongst the most commonly discussed emotions within

households of preschool age children (Lagutta & Wellman, 2002), the topic of the death of a pet was chosen purposely to elicit an explanation from the parent.

The second measure of child-initiated participation, asked coders to tally the number of task related comments or questions children made over the course of the task. Inter-rater agreement on this item was also above 90%. The last measure of child-participation asked coders to determine whether parent initiated comments or questions regarding the death of the pet elicited a response from the child. Inter-rater agreement for this item was above 90%.

Lastly, coders were asked to tally the number of task-unrelated comments or questions children made while their parents read. Inter-rater agreement on this item was above 90%.

Parent Measures

Responsivity. Parental responsiveness was measured in three ways throughout the task. The measure was specifically in relation to the part of the story when the death of the pet was mentioned. If children initiated a comment or a question at this point in the story, coders were asked to determine whether the parents responded in one of the following four ways: verbally dismissive, non-verbally dismissive, non-dismissive, and elaborative. Table 2 gives a description of each type of response. Inter-rater agreement for this measure was above 90%.

Table 2

Types of Parent Responding

Response Type	Behavioral Description
1. Verbally dismissive responding	Any overt dismissal of the child's task related or unrelated questions or concerns. Typical statements include: "Shh," "wait," or "Mommy/Daddy is reading."
2. Non-verbally dismissive responding	Usually exhibited when parent's read straight through the story without acknowledging any comments or questions, task-related or otherwise, initiated by the child.
3. Non-dismissive	Parent's evaluated as non-dismissive, generally acknowledged their child's remarks. Responses came in the form of repeating child utterances or praising the child for his efforts.
4. Elaborative	Parent's evaluated as elaborative, acknowledged children's comments or questions and expanded upon utterances, by either pointing to and explaining illustrations or verbally expanding upon the content of the story. Elaborative responding was also measured for off-task remarks. Elaborative responding in these cases was exhibited when parents were highly attentive to the needs of their child.

For the second measure of responsiveness, termed cognitive responsiveness, coders were asked to determine what type of response parents gave each time a child initiated a content related comment or question. Coders used the same designations itemized in Table 2. For analysis, the type of response parents gave for each child-initiated comment or question was averaged across the total number of comments or questions for each child. Inter-rater agreement on this item was above 90%.

For a final measure of responsiveness, termed emotional responsiveness, coders were asked to assign a response type each time a child elicited a task-unrelated comment or remark. Again, coders used the same designations itemized in Table 2. For analysis, the type of response parents gave for each child-initiated comment or question was averaged across the total number of comments or questions for each child. Inter-rater agreement on this item was 90%.

Awareness via Discrepancy Score. To quantify the parent's awareness of their child's general temperament a discrepancy measure was created by comparing the coder's assessment of the child's attention span throughout the read and the parent's perception of the child's attention-span using the CCTI (Rowe & Plomin 1977). Three general patterns emerged from the data. First, attention measures were either the same or similar, second, parents' measures were considerably higher than observer scores, and third, observer scores were considerably higher than parent ratings.

Data Analysis

In order to quantify the relationship between parental responsiveness and child attention and child participation, parents were grouped as either typically responsive, if their rating on any measure of responsiveness was above a two, or dismissive (n=20), if their rating on any responsiveness measure was a two or below. This was because if parents achieved a two or below, they did not make any responsive remarks. For further analysis, parents categorized as elaborative responders were compared with those who just acknowledged their child's remarks. Parents whose response average was between greater than 2.0 and 3.49 were grouped as low responsive (n=25). Parents whose response type was between 3.50 and 4.0 were grouped as high responsive (n=11).

In order to analyze cognitive with emotional parental responsiveness in relationship to child attention and participation, parents were grouped as either emotionally and cognitively supportive when they received a score of greater than four (n=16) when response type to content related and content unrelated remarks were aggregated. If when response type to content related and unrelated remarks together was 4 or below, parents were designated as dismissive (n=40).

Results

Child attention and child participation served as the dependent measures within the study. Table 3 provides descriptive statistics for each measure of attention, split by parent gender and for the total sample. Table 4 provides descriptive statistics for each measure of participation, split by parent gender and then for the total sample.

Table 3

Descriptive Statistics for Attention Measures

Attention Measures	Mother (N=28)	Father (N=28)	Total (N=56)
Second x Second Rating ¹	91.74 (11.92)	86.20 (18.64)	88.97 (15.75)
Coder Rating ²	3.93 (1.05)	3.54 (1.10)	3.73 (1.09)
CCTI	3.16 (0.59)	3.33 (0.82)	3.25 (0.72)

¹ Second by second coding refers to the proportion of time children spent attending to the task. Higher scores equal higher levels of attention. ² Coder rated task related attention was evaluated on a Likert-type scale, 5 indicating the highest level of attention.

A positive correlation between the second by second coding system and the coder rating system was exhibited for the entire sample ($r=.770, p<.01$). In addition, when the sample was split to analyze the child's behavior with their mother or father independently, a significant correlation was exhibited for both measures ($ps<.01$).

However, no correlations were exhibited for ratings of attention during the reading task and parental evaluations of their child’s attention span using the CCTI (Rowe & Plomin, 1977).

Table 4

Descriptive Statistics for Child Participation Measures

Participation	Mother (N=28)	Father (N=28)	Total (N=56)
Child-initiated 1 ¹	32.1%	32.1%	32.1%
Child-initiated 2 ²	2.07 (2.19)	2.07 (2.01)	2.07 (2.09)
Parent-elicited ³	42.9%	25%	33.9%

¹ Child-initiated 1 refers to the percent of children who made a comment or question when the death of the pet was mentioned. ² Child-initiated 2 refers to the mean number of task related comments or questions, added together, across the task. ³ Parent-elicited, refers to the percentage of children from whom a response was elicited when the parent initiated a question or comment when the death a pet was mentioned.

For those children who initiated a comment or question when the death of the pet was mentioned (child-initiated 1), mean task related utterances ($M=2.78, SD=1.59$) throughout the task (child-initiated 2) tended to be higher than for children who did not initiate a remark ($M=1.74, SD=2.22$) when the death of the pet was mentioned $t(54)=2.0, p=.052$. To examine whether a relationship existed between child-initiated participation 1 and parent-elicited participation a Chi-Square analysis was run demonstrating that children who initiated comments or questions when the death of pet was mentioned were equally as likely to remark in response to a parent- initiated comment or question as those who did not initiate a remark during this point in the story. This analysis was not significant ($p>.05$).

In a final analysis relating child participation variables, an independent samples t-test showed that children, whose parents were successful in eliciting a response from

them after remarking when the death of the pet was mentioned (parent-elicited), made significantly more, $t(54)=3.51$, $p<.01$, task related utterances ($M=3.32$, $SD=2.21$) than children from whom no responses were elicited ($M=1.43$, $SD=1.72$).

In an effort to examine whether child attention and child participation were related, an independent samples t-test was run, indicating that children who initiated a comment or question when the death of the pet was mentioned (child-initiated participation 1) ($n=18$) demonstrated significantly higher, $t(54)= 2.15$, $p<.05$, levels of attention ($M=94.10$, $SD=8.50$) than those children who did not comment or question during this portion of the story ($n=38$, $M=85.53$, $SD=17.8$).

Results for Hypothesis 1. In response to task related comments or questions (child-initiated 2), parents were grouped as either dismissive ($n=20$), low responsive ($n=25$), or high responsive ($n=11$). A one-way analysis of variance comparing parental response type with child attention failed to show a relationship between responsiveness and attention. However, all analyses relating responsiveness with child participation were significant. A Chi-Square analysis for child-initiated participation 1 and responsiveness showed that dismissive parents were unlikely to have children who commented or questioned when the death of the pet was mentioned ($\chi^2(2,N=56)=7.74$, $p<.05$). High and low responsiveness was not as strong of an indicator as to whether a child would participate overtly during this portion of the story.

Similar results were attained for child-initiated 2, participation and responsiveness. A one-way ANOVA showed significant differences between parental response type content related utterances made throughout the task $F(2,53)=16.67$, $p<.01$). Bonferroni post hoc analysis ($p<.01$) indicated that child-initiated participation

throughout the task was significantly lower for the dismissive group ($M=.035$, $SD=0.99$) compared with low ($M=2.96$, $SD=1.86$) and high ($M=3.18$, $SD=2.14$), responsivity groups.

A final analysis comparing parental responsivity and child participation showed that dismissive parents are less likely to elicit responses from their children when parents initiate a remark first compared with low and high responsive parents $\chi^2(2, N=56)=9.85$, $p<.01$. Low and high responsivity does not impact the level of child participation compared with dismissive behavior.

In analyzing gender-related and parent responsivity differences on child attention, results failed to show any strong relationships. However, when examining the effects of mother responsivity on child participation, compared with father responsivity on child participation, a single finding was exhibited for each dyadic relation. For mothers, Chi-Square analysis showed that dismissive mothers elicited the fewest responses compared with highly responsive mothers who elicited the most participation $\chi^2(2, N=28)=6.78$, $p<.05$. For fathers, Chi-Square analysis showed that children of dismissive fathers failed to initiate a single remark when the death of the pet was mentioned in the story, whereas responsive fathers had children who did make comments or questions when the death of the pet was mentioned $\chi^2(2, N=28)=6.78$, $p<.05$.

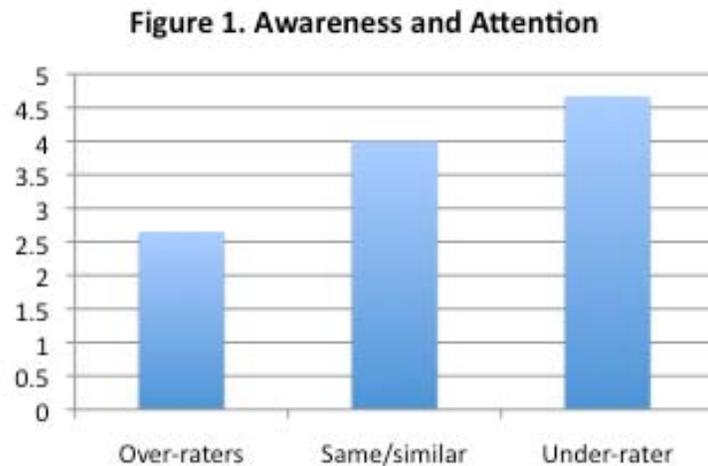
In examining the combined effects of emotional and cognitive responsivity on child attention and participation, results showed that responsive parents, demonstrating both instructional and emotional support, had children who initiated significantly more $F(1, 54)=4.07$, $p<.05$, task related comments or questions throughout the task ($M=2.94$, $SD=2.41$) compared with children of non-responsive parents ($M=1.72$, $SD=1.87$).

When mothers and fathers were compared, a 2 x 2 ANOVA showed a significant interaction for parent gender and responsivity on child-initiated participation 2 (task-related utterances) $F(1,52)=5.01, p<.05$. This analysis indicated that when mothers were responsive to both their emotional and cognitive needs, children initiated more comments or questions during the task ($M=3.60, SD=.625$), compared with mothers who dismissed the emotional and cognitive needs of their child ($M=1.22, SD=.466$). These results echo those of Skibbe, Moodie, and Justice (2010) that showed that mothers, who exhibit both cognitive and emotional support while reading, tend to elicit high levels of participation from their children.

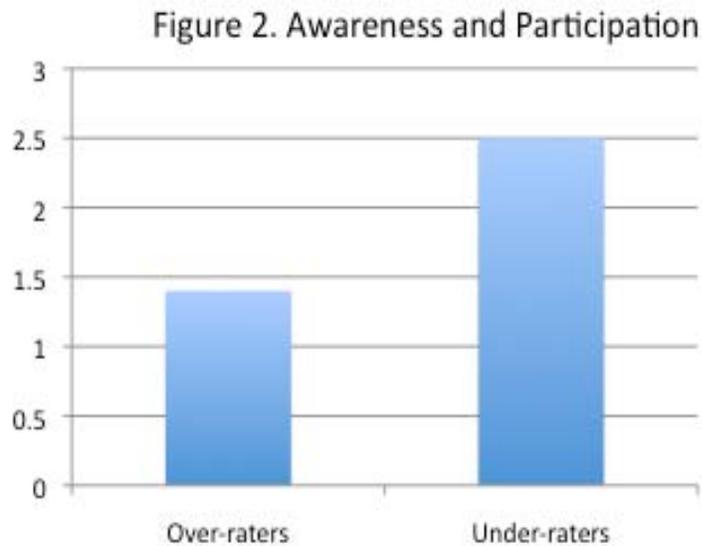
Results for Hypothesis 2. In order to test hypotheses related to awareness, parents were split into three groups; those who rated their child as having a higher attention-span than was exhibited by the child during the task (over-raters, $n=20$), those who rated their child the same or similarly to what was observed by the coder during the task (same group, $n=18$), and those who rated their child as having a lower attention span than was observed during the read (under-raters, $n=18$). A main effect for awareness on attention was exhibited for, on-task coder rated attention $F(2, 53)=43.644, p<.01$ and the attention composite $F(2,53)=9.12, p<.01$.

A Bonferroni post hoc analysis for the relationship between awareness and coder rated on-task attention showed that children's attention to the task was significantly different for each grouping. Children whose parents underestimated their on-task attention, exhibited the highest levels of attention ($M=4.67, SD=.49$). For parents who rated their children similarly to the observed attention, children were more attentive ($M=4.00, SD=4.86$) than those who parents overestimated their attention compared with

observer ratings ($M=2.65$, $SD=.93$). Figure 1 contains an illustration of these mean differences.



Results also indicated that relationships existed between awareness and participation. For the relationship between awareness and participation $F(2, 53)=3.43$, $p<.05$) measured via content-related utterances a Bonferroni post hoc analysis showed that participation levels were significantly different for children whose parents fell within group 1 (over-raters) ($M=1.40$, $SD=1.23$) and group 3 (under-raters) ($M=3.06$, $SD=2.48$). Thus, when parents rated their child's attention on the temperament inventory as higher compared with coder rated attention observed during the task, children were significantly less overtly involved during the task, compared with parents who underrated their child's attention-related capacities on the inventory. Figure 2 presents a graph of this data.



In addition, parental awareness grouping effected significant differences in parent-elicited participation, $\chi^2(2,N=56)=9.43$, $p<.01$. Results suggest that parents who over-rate their child’s attention are more likely to elicit no response, compared with parents grouped as under-raters, who elicited more child participation.

In an analysis comparing parental awareness and parent gender with child participation, a 3 X 2 ANOVA showed a significant parent by awareness type interaction in relationship to task related child comments or remarks made over the course of the task $F(2, 50)=4.423$, $p=.017$. Examination of the means indicated that fathers grouped as under-raters elicited the highest levels of participation ($M=5.20$, $SD=1.64$) from children throughout the course of the task compared with the “same/similar group” ($M=1.70$,

SD=1.49) and the over-raters (M=1.15, SD=1.21) as well as all of the mother groups (Grand M= 2.07, SD=2.01).

A final analysis also showed that parental awareness for the father differentiated whether they were able to elicit participation from their child $\chi^2(2,n=28)=10.28, p<.01$. Fathers who were under-raters were more likely to elicit responses from their children, compared with over-raters.

Discussion

Overview

In a broad sense, the purpose of the current paper was to relate on-task parental socialization behaviors with the development of capacities that assist in the regulation of emotion and cognition. Parental variables analyzed within the study were categorized as responsiveness and awareness. Responsiveness has been related to optimal developmental outcomes in both the emotion development and social-cognitive literature suggesting that parents who attend to the needs of their children and respond in supportive ways, contribute to the quality of parent-child interaction (Dix, 1991; Lay, Waters, & Park, 1989; Skibbe et al., 2010). Consequently, parent-child relationships that are characteristically positive and responsive increase the likelihood that children will attend to and internalize the messages that parents convey consciously and unconsciously (Dix, 1991; Kochanska, 1995).

Analyses relating parental awareness with child developmental outcomes emanated from a combination of the emotion socialization literature and theoretical concepts drawn from the dynamical systems perspective. The emotion socialization literature suggests that parents with a higher degree of meta-emotion, defined as awareness of their own emotions and an appreciation for the range of emotions exhibited by their children, are more likely to engage in responsive parenting behaviors described as scaffolding (Gottman et al., 1996). Awareness, in the current study, was analyzed by

comparing parental ratings of their child's attentive temperament with objective coder ratings of children's attention exhibited during the storybook task. Measuring awareness in this way was influenced by dynamical systems notions relating perception and behavior; specifically, that perceptions spontaneously emerge over the course of development that are characteristic of the complex interaction of components comprising a single system, in this case the parent (Izard et al., 2000). Thus, categorical differences in parent's evaluations of their children's attentive temperament compared with observer rated attention was assumed to encompass properties describing the relationship between parental perceptions and the subsequent socialization behaviors they exhibit. Results of the current study support the decision to measure parental awareness in this way.

Child variables analyzed in the current, which served as the dependent measures, were categorized as attention and participation. The decision to analyze attention was based on literature suggesting that development of volitional attention is in large part responsible for the ability to regulate one's own behavior (Posner & Rothbart, 2000). Participation was analyzed because literature looking at parent-child interactive behavior while engaging in joint storybook reading suggests that parents who elicit the highest levels of participation from their children are most effectively assisting in the development of cognitive abilities fostering both academic and social competence (Clingenpeel & Pianta, 2007; Schwartz, 2004). Substantial results were garnered in support of both of the current study's hypotheses.

Hypothesis 1. Attention, Participation and Responsiveness

The first component of the first hypothesis assumed that a relationship between highly responsive parenting and high levels of children's on-task attention and

participation would be exhibited. Results suggested that responsive parenting was closely related to on-task child participation, but not so for on-task attention. To begin, when parents were grouped as either dismissive, low responders, or high responders, significant results were produced for all measures of child participation and no measures of attention.

In relationship to the child-initiated participation measures, results indicated that dismissive parenting was strongly predictive of whether or not children would initiate comments or questions, both specifically in response to the death of the pet and across the task. Stated differently, whether a parent was designated as a high or low responder was important in influencing on-task participation compared with dismissive responding. Lastly, results looking at the relationship between responsive behavior and child participation within all parent-child dyads suggest that dismissive parenting also impacts the likelihood that parents will be effective in eliciting participation from their children after attempting to do so by either commenting or questioning. Taken together, these results support previous literature suggesting that dismissive parenting impacts the quality of parent-child interaction and parents' resultant scaffolding abilities.

Specifically, dismissive behaviors suggest to the child that their emotions or inquiries are unimportant (Dix, 1991). Dynamical systems theory asserts that if this pattern of behavior is repeated over time, children will be less likely to initiate interaction with their parents and parents' ability to influence their child's cognitive capacities will diminish (Granic, 2000). In other words, dismissive parenting promotes the formation of interactive dyadic behavior that is characteristically dismissive on the part of the parent and non-participatory on the part of the child.

Responsive behavior and child attention and participation was also analyzed by parent gender. Again, results failed to show a relationship between responsiveness and attention, even when mother-child and father-child dyads were compared. However, when dyads were analyzed independent of one another, results showed that dismissive mothers were able to elicit their child's participation less often than highly responsive mothers. Moreover, no children of dismissive fathers either commented or made an inquiry when the death of the pet was mentioned in the story. These results further support the conclusion that recurrent dyadic interactive behavior, characterized by dismissive responding, results in less overall interaction within the dyad.

A second component of the first hypothesis predicted that parents who were responsive to both the emotional and cognitive needs of their children would impact higher levels of on-task attention and participation. In addition to the measures of responsiveness already discussed, a measure of emotional responsiveness was added to the analysis. This was accomplished by grouping the previously analyzed measures of responsivity with parents' responsive tendencies to children's task unrelated utterances. Results showed that parents grouped as responsive to both task-related and unrelated utterances had children who initiated significantly more task related comments throughout the task compared with children of dismissive parents. This same result was achieved when mother-child/father-child dyads were compared, suggesting that emotional and cognitive support emanating from the mother is particularly important for creating a context in which children are interested in the content of the storybook. These results are consistent with Lay et al.'s (1989) findings indicating that maternal responsiveness supports affective mood and compliance in contexts conducive to social

learning. This is arguably because responsive behavior supports a reduction in negative arousal, consequently permitting exploratory behavior.

Overall, parents' responsive tendencies, either responsive or dismissive, were unrelated to attentional tendencies. One possible explanation for this finding is that components of temperament, such as attention-span, exhibited during the preschool years is dependent less on developmental variables than it is on constitutional or biological disposition (Rothbart, Ahadi, Hershey, & Fisher, 2001). This assertion is supported by psychobiological literature looking at relationships between temperament and behavior in infancy and again in preschool (Fox et al., 1994). In other words, children who are relatively inactive, and are thus able to sit through a reading task, are temperamentally less active as infants and remain as such across early development.

In addition, these finding, to a degree, are consistent with meta-emotion theory (Gottman et al., 1996). From this perspective parenting behaviors, such as warmth, which are often related to healthy developmental outcomes are distinct from parents' ideas surrounding emotion. Instead, the distinction from this perspective arises from the value a parent places on their own emotions and those of their child. Thus, a parent might be very affectionate, but completely unaware of the emotional needs and proclivities of their child. In contrast, a parent who has a high degree of awareness or meta-emotion is more likely to partake in scaffolding behaviors, such as responsiveness, that support the emerging social-behavioral capacities of their child. Therefore, responsive parenting must be aligned with the needs of the child. So even if a parent responds to a child, if the response does not support the cognitive and emotional needs of the child, then it is for naught, so to speak. The current study asserted that this "alignment" or sensitivity is

achieved via parent's enhanced awareness of their child's individual needs. This idea was influenced by the findings of Skibbe et al. (2010), who demonstrated that particularly sensitive mothers, highly attuned to the needs of their language impaired children, were capable of eliciting above average levels of participation while reading to their children. Moreover, while instructional and emotional support corresponded with participation during the task for non-language impaired children, for language-impaired children, these types of support alone were insufficient to elicit high levels of on-task participation.

Hypothesis 2. Awareness

Results showed that, whereas responsive behavior was not as strong of a predictor of children's on-task attention, awareness was. Results showed that for both measures of children's on-task attention, the second by second composite and coder rating, parental awareness grouping was related to attention. The original predictions, however, stated that parents whose perceptions, assessed via temperament rating, were most similar to the on-task ratings measured by objective coders (same/similar group), would produce children with the highest level of attention exhibited throughout the task. This was because this group was defined as the most aware. Results failed to support this prediction.

Instead, parents grouped as "under-raters" produced children with the highest levels of on-task attention, followed by the "same/similar" group and lastly, "the over-raters." These results suggest that parental perceptions are important in relationship to children's on-task attention, however, the positive developmental impact is related to these parents tendency to evaluate their child's attentive temperament as low in comparison with the child's attention exhibited while reading together.

Similar results were achieved for the relationship between parental awareness and child participation on two measures, however significant differences were only found between “over-raters” and “under-rater.” Parents who under-rated their children’s attention span had children who initiated significantly more task-related utterances during the task compared with “under-raters.” Additionally, “over-raters” failed to elicit a single response from their children, while “under-raters” were able to elicit the highest number of comments from their children.

In terms of parent gender, fathers grouped as “under-raters” had children who participated most often throughout the task compared with the other father awareness groups and all mother groups. Additionally, these fathers were able to elicit the most participation from their children, suggesting “under-rater” fathers have a particularly important role in developing the cognitive abilities of their children.

Gender and Responsiveness

Though the current study made no gender related predictions, there were gender differences found after running analyses. For mothers, a relationship was found between elaborative responding and children’s on-task participation. More specifically, for children of mothers rated as highly responsive to both children’s on and off-task needs, these children had significantly higher levels of on-task participation compared with children of dismissive mothers. This is consistent with findings emanating from the emotion socialization literature, which demonstrate a relationship between affective mood, contingent responding, and values placed on discourse regarding emotion (Eisenberg et al., 1998; Denham, Mitchell-Copeland, Stradberg, Auerbach, & Blair, 1997). This literature explains that children whose parents are generally affectively

positive and tend to respond constructively to their child's negative emotions, exhibit both emotional and social competence. Therefore, in the current study when mothers responded in a constructive and nurturing way to their children's cognitive and emotional needs, they in turn facilitated an environment conducive to task-related interest and exploratory behavior.

Contrastingly, father-child dyads did not exhibit this same interactional pattern. However, there was an interesting finding related to these dyads. Results suggest that fathers categorized as dismissive have a significant impact on their children's tendency to participate during the task. This finding is related to those produced by Schwartz (2004) who found that while mothers characteristically elicit higher levels of participation from children while reading, some fathers were capable of eliciting the highest levels of participation from their children.

Other research suggests that fathers and mother differ in their effective roles on their children's development of social competencies. For example, LaBounty, Wellman, Olsen, Laguttuta, and Liu (2007) found that when fathers engaged in internal state talk, explaining the causes of emotions with their children, these children were also likely to exhibit current and future socially competent tendencies. Additionally, emotion socialization research suggests that mothers and fathers, within the same household, who differ in the types of socialization behaviors they exhibit regularly, produce children with the highest levels of socially competent behavior (McElwain, Halberstadt, & Volling, 2007). Thus, it is possible that fathers who attend to the emotional needs of their developing children transmit the message to their children that their needs are relevant and thus exploratory behavior is more prevalent. Further research, looking more closely

at parental distinctions is necessary to draw further conclusions regarding these gender differences.

Additional Findings: Attention and Pro-Social Behavior

Though not directly stated in the hypotheses of the current study, results were produced that are both consistent with and provide some additional insight into findings emanating from current social-cognitive literature. In the current study, those children whose interest was piqued and consequently asked a question or made a comment when the death of the pet was mentioned, exhibited above average attention while their parents read. However, task related utterances unattached to the death of the pet were unrelated to attention exhibited by children over the course of the read. Thus, it seems that attention-span is related to an interest in the causes and consequences of emotion. These results are interesting in light of research looking at the development of socially related competencies such as Theory of Mind (ToM) (Harwood & Farrar, 2006).

In research investigating competencies related to ToM, Harwood and Farrar (2006) suggested the likelihood that affective-perspective taking (APT) abilities precedes the development of ToM, defined as the ability to represent conflicting mental states simultaneously. Affective perspective taking differs from ToM in that it only requires the ability to recognize the emotional state of another when they differs from one's own. This ability requires knowledge of and connection between situations and corresponding emotions elicited. In addition, they found that cognitive ability was related to both APT and ToM.

In related work, Hinnent and O'Brien (2007) found that while neither APT nor cognitive perspective taking (CPT) abilities alone were directly related to empathic

behavior, characterized by one's ability to vicariously experience another's emotional arousal, they did find that the relationship between APT and empathy was moderated by CPT. They also found that while APT and CPT are unrelated, that emotion regulation (ER) is related to APT. Thus, they concluded that both emotional and cognitive systems must operate in an integrative fashion to support pro-social behavior. In conjunction with the results of the current study, it is likely that children who are likely to or who have developed attentional capacities are also developing the ability to suppress their own emotions in favor of learning about those of others as was suggested by Espy and Bull (2005). This conclusion was further supported by the finding that children who made more off-task remarks also were observed to have a smaller attention span during the read. In other words, less attentive children were also less likely to be able to activate inhibitory control to attend to the task.

Conclusion

The results presented in the current study further support current literature on joint storybook reading, relating on-task child participation while reading as the result of effective parental scaffolding behaviors (Schwartz, 2004). Additionally, results are similar to Gottman et al. (1996) who showed that meta-emotion was a necessary ingredient in scaffolding behaviors that are required for healthy developmental outcomes. In the current study awareness was measured via parental perceptions of attention compared with objective observer ratings. This measurement was chosen in light of theoretical concepts drawn from dynamical systems theory, which explain perceptions as the result of the complex interaction of variables comprising the self and dyadic system (Izard et al., 2000).

In relation to the assertion that perceptions emerging from stable dyadic patterns of interaction occurring over the course of development, it is reasonable to assume that behaviors attached to these perceptions carry meaning. However, further investigation of this issue is necessary to draw any solid conclusions. A stronger emphasis, perhaps, on meta-emotion surrounding these perceptions might provide insight into the relevance that underestimation of a child's attention span might have to do with increased cognitive abilities exhibited during a joint-story book task. Perhaps, these results have something to do with the manner in which parents interpret attention as explained in the inventory. More specifically, parents who underrate their children are construing their attentional tendencies in a manner consistent with cognitive immaturity. In other words, these parents expect that their children's attentional mechanisms will develop tremendously in the coming years and therefore rate their child's current abilities as relatively immature compared with parents who overrate their child's attention.

In sum, these results support the notion that parental perceptions are relevant for predicting their ability to scaffold effectively. However, future research is certainly necessary in order to ascertain how these perceptions are influencing parent, child, and dyadic behavior, and consequently the development of attentional mechanisms and regulatory capacities.

References

- Ainley, M. (2006). Connecting with learning: Motivation, affect and cognition in interest processes. *Educational Psychology Review, 18*(4), 391-405.
- Blair, C., Zelazo, P. D., & Greenberg, M. T. (2005). The measurement of executive function in early childhood. *Developmental Neuropsychology, 28*(2), 561-571.
- Clingenpeel, B. T., & Pianta, R. C. (2007). Mother's sensitivity and book-reading interaction with first graders. *Early Education and Development, 18*, 1-22.
- Cook, W. L. (2001). Interpersonal influence in family systems: A social relations model analysis. *Child Development, 72*, 1179-1197.
- Denham, S., Mitchell-Copeland, J., Stradberg, K., Auerbach, S., & Blair, K. (1997). Parental contributions to preschooler's emotional competence: Direct and indirect effects. *Motivation and Emotion, 21*, 65-86.
- Denham, S. A., & Grout, L. (1992). Mother's emotional expressiveness and coping: Relations with preschoolers' social emotional competence. *Genetic, Social & General Psychology Monographs, 18*, 75-101.
- Denham, S. A., Renwick, S. M., & Holt, R. W. (1991). Working and playing together: Prediction of preschool-social emotional competence from mother-child interaction. *Child Development, 62* (2), 242-249.
- Denham, S. A., Zoller, D., & Couchoud, E. A. (1994). Socialization of preschooler's emotion understanding. *Developmental Psychology, 30* (6), 928-936.

- Dix, T. (1991). The affective organization of parenting: Adaptive and maladaptive processed. *Psychological Bulletin*, 110, 3-25.
- Dunn, J., Brown, J., & Beardsall, L. (1991). Family talk about feeling states and children's later understanding of other's emotions. *Developmental Psychology*, 27 (3), 448-455.
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95 (2), 256-273.
- Eisenberg, N., Cumberland, A., & Spinrad, T. (1998). Parental socialization of emotion. *Psychological Inquiry*, 9 (4), 241-273.
- Eisenberg, N., Fabes, R. A., & Murphy, B. C. (1996). Parents' reactions to children's negative emotions: Relations to children's social competence. *Child Development*, 67, 2227-2247.
- Eisenberg, N., Gershoff, E. T., Fabes, R. A., Shepard, S. A., Cumberland, A. J., Losoya, S. H., et al. (2001). Mother's emotional expressivity and children's behavior problems and social competence: Mediation through children's regulation. *Developmental Psychology*, 37, 475-490.
- Espy, K. A., & Bull, R. (2005). Inhibitory processes in young children and individual differences in short-term memory. *Developmental Neuropsychology*, 28, 669-88.
- Fabes, R. A., Eisenberg, N., Karbon, M., Bernzweig, J., Speer, A. L., & Carlo, G. (1994). Socialization of children's vicarious emotional responding and prosocial behavior: Relations with mother's perceptions of children's emotional reactivity. *Developmental Psychology*, 30, 44-55.
- Fox, N. (1991). If it's not left it's right. *American Psychologist*, 46(8), 863-872.

- Fox, N.A., Calkins, S.D., & Bell, M.A. (1994). Neural plasticity and development in the first two years of life: Evidence from cognitive and socio-emotional domains of research. *Development and Psychopathology*, *6*, 677-698.
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology*, *2*(3), 300-319.
- Garner, P. W., Jones, D. C., Miner, & Miner, J. L. (1994). Social competence among low-income preschoolers: Emotion socialization practices and social cognitive correlates. *Child Development*, *65*, 622-637.
- Gottman, J. M., Katz, L. S., & Hooven, C. (1996). Parental meta-emotion philosophy and the emotional life of families: Theoretical models and preliminary data. *Journal of Family Psychology*, *10*(3), 243-268.
- Granic, I. (2000). The self-organization of parent-child relations: Beyond bidirectional models. In M. D. Lewis & I. Granic (Eds.), *Emotion, development, and self-organization: Dynamic systems approaches to emotional development* (pp. 267-297). Cambridge: Cambridge University Press.
- Halberstadt, A. (1991). Toward an ecology of expressiveness: Family socialization in particular and a model in general. In R. Feldman & S. Rime (Eds.), *Fundamentals of emotional expressiveness* (pp. 106-162). Cambridge, England: Cambridge University Press.
- Halbestadt, A. (1986). Family socialization of emotional expression and nonverbal communication styles and skills. *Journal of Personality and Social Psychology*, *51*, 827-836.

- Harwood, M. D., & Farrar, M. J. (2006). Conflicting emotions: The connection between affective perspective taking and theory of mind. *British Journal of Developmental Psychology, 24*, 401-418.
- Hidi, S., & Renninger, K. A. (2006). The four-phase model of interest development. *Educational Psychologist, 41*, 111-127.
- Hinnant, J. B., & O'Brien, M. (2007). Cognitive and emotional control and perspective taking and their relations to empathy in 5-year-old children. *The Journal of Genetic Psychology, 168* (3), 301-322.
- Izard, C. (1994). Innate and universal facial expressions: Evidence from developmental and cross-cultural research. *Psychological Bulletin, 115*, 288-299.
- Izard, C. (2007). Basic emotions, natural kinds, emotion schemas, and a new paradigm. *Perspectives on Psychological Science, 2*, 260-280.
- Izard, C. E., Ackerman, B. P., Schoff, K. M., & Fine, S. E. (2000). Self-organization of discrete emotions. Emotion patterns, and emotion-cognition relations. In M. D. Lewis & I. Granic (Eds.), *Emotion, development, and self-organization: Dynamic systems approaches to emotional development* (pp. 15-36). Cambridge: Cambridge University Press.
- Kochanska, G. (1995). Children's temperament, mother's discipline, and security of attachment: Multiple pathways to emerging internalization. *Child Development, 66*, 597-615.
- LaBounty, J., Wellman, H. M., Olsen, S., Lagattuta, K., & Liu, D. (2008). Mother's and father's use of internal state talk with their young children. *Social Development, 17*(4), 757-775.

- Lagattuta, K. H., & Wellman, H. M. (2002). Differences in early parent-child conversations about negative versus positive emotions: Implications for the development of psychological understanding. *Developmental Psychology, 38*(4), 564-580.
- Langsdorf, P., Izard, C., Rayias, M., & Hembree, E. (1983). Interest expression, visual fixation, and heart rate changes in 2-to 8-month old infants. *Developmental Psychology, 19*, 375-386.
- Lay, K.-L., Waters, E., & Park, K. A. (1989). Maternal responsiveness and child compliance: The role of mood as a mediator. *Child Development, 60*, 1405-1411.
- Leibham, M. E., Alexander, J. M., Johnson, K. E., & Reis-Henrie, F. P. (2005). Parenting behaviors associated with the maintenance of preschoolers' interests: A prospective longitudinal study. *Applied Developmental Psychology, 26*, 397-414.
- Lewis, M. D., & Granic, I. (2000). A new approach to the study of emotional development. In M. D. Lewis & I. Granic (Eds.), *Emotion, development, and self-organization: Dynamic systems approaches to emotional development* (pp. 1-12). Cambridge: Cambridge University Press.
- Linnenbrink, E. A., & Pintrich, P. R. (2002). Achievement goal theory and affect: An asymmetrical bidirectional model. *Educational Psychologist, 37*, 69-78.
- Maccoby, E. E. (1992). The role of parents in the socialization of children: A historical overview. *Developmental Psychology, 28*, 1006-1017.
- Malatesta, C., & Haviland, J. (1982). Learning display rules: The socialization of emotion expression expression in infancy. *Child Development, 53*, 991-1003.

- McElwain, N. L., Halberstadt, A. G., & Volling, B. L. (2007). Mother-and-father reported reaction to children's negative emotions: Relations to young children's emotional understanding and friendship quality. *Child Development, 78*, 1407-1425.
- Perlman, S. B., Camras, L. A., & Pelfrey, K. A. (2008). Physiology and functioning: Parents' vagal tone, emotion socialization and emotion knowledge. *Journal of Experimental Child Psychology, 100*, 308-315.
- Posner, M. I., & Rothbart, M. K. (2000). Developing mechanisms of self-regulation. *Development and Psychopathology, 12*, 427-441.
- Posner, M. I., & Rothbart, M. K. (2005). Influencing brain networks: Implications for education. *Trends in Cognitive Science, 9*(3), 99-103.
- Rothbart, M. K. (1981). Measurement of temperament in infancy. *Child Development, 52*, 569-578.
- Rothbart, M. K., Ahadi, S. A., Hershey, K. L., & Fisher, P. (2001). Investigations of temperament at three to seven years: The children's behavior questionnaire. *Child Development, 72*(5), 1394-1408.
- Rowe, D. C., & Plomin, R. (1977). Temperament in early childhood. *Journal of Personality Assessment, 41*(2), 150-156.
- Schwartz, J. I. (2004). An observational study of mother/child and father/child interactions in story reading. *Journal of Research in Childhood Education, 19*, 105-114.

Skibbe, L. E., Moody, A. J., & Justice, L. M. (2010). Socio-emotional climate of storybook reading interactions for mother and preschooler with language impairment. *Reading and Writing, 23*, 53-71.

Valiente, C., Lemery-Chalfont, K., & Reiser, M. (2007). Pathways to problem behaviors: Chaotic homes, parent and child effortful control, and parenting. *Social Development, 16*, 249-267.

Vygotsky, L.S. (1978) Thinking and speech. In R. W. Rieber & A. S. Carton (Eds.) and N. Minick (Trans.), *The collected works of L.S. Vygotsky: Vol. 1*. NY: Plenum.