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The relationship between early cumulative caregiver sensitivity and children's later self-perception of cognitive competence and cognitive performance

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THE RELATIONSHIP BETWEEN EARLY CUMULATIVE CAREGIVER SENSITIVITY
AND CHILDREN'S LATER SELF-PERCEPTION OF COGNITIVE COMPETENCE AND
COGNITIVE PERFORMANCE

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
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in

The School of Human Ecology

by
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ABSTRACT

The purpose of the study was to examine the relationship between children's experiences of caregiver sensitivity during the first three years of their life and their later self-perceptions of cognitive competence and cognitive performance. Caregiver sensitivity was measured using data that had been collected with the Caregiver Interaction Scale (CIS, Arnett, 1989) during an earlier longitudinal study, the Baton Rouge Early Care Study (BRECES; Pierce & Benedict, 2007). Measures of cognitive competence were derived using the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (Harter & Pike, 1984) and measures of cognitive performance were derived using the Peabody Picture Vocabulary Test (Dunn & Dunn, 1997). Data were collected from 26 children for whom the researchers had measures of caregiver sensitivity for a minimum of 18 months. Bivariate correlations and *t*-tests were used to examine the relationship between children's cumulative level of sensitivity experienced during the first 36 months of child care and the predicted outcomes. No statistically significant relationships were found.

CHAPTER 1

INTRODUCTION

Statement of the Research Problem

Adult-child relationships are important for children's social, emotional and cognitive development. Through interactions with their caregivers, children acquire language skills, learn how to regulate their emotions, and develop cognitive functions (Pianta, 1997). The quality of adult-child interactions is of particular importance for the development of linguistic, social and cognitive skills (Bronfenbrenner, 1979, 1986). The level of sensitivity with which an adult responds and interacts with a child is believed to increase the child's attachment security and promote more positive and functional internal working models, which in turn lead to more positive self-perceptions of competence (Kontos, Howes, Shinn & Galinsky, 1994).

Nonmaternal caregivers may serve as attachment figures for the children in their care, and thus may become a major influence on the development of the child's internal working model (Goosen & van IJzendoorn, 1990). According to Bowlby (1969), the security of attachment a child develops with their caregiver fosters a positive and trusting point of reference with which they will regard their caregivers, peers, and themselves. Because sensitive caregiving has been demonstrated to enhance attachment security (Smith & Pederson, 1988) and attachment security yields an affirming internal working model (Atkinson et al., 2000), it is logical to speculate that sensitive caregiving may affect a child's self-perception of their cognitive competence through facilitating the development of a self-affirming appraisal of their abilities and worth. A deeper understanding of the relationship between sensitivity of caregiving in a child's early years and the child's resultant self-perceptions may illuminate ways in which child care centers and parents can facilitate a more secure internal working model in the child, thus positively influencing the quality of the child's life.

Rationale for the Study

A child's sense of self is formed in part by a dynamic interplay between their relationships and their perceptions of such interactions. The repeated experiences that take place within adult-child relationships may provide much of the structure for the way that children come to view the world and themselves for the rest of their lives (Bowlby, 1973). For this reason, it is important to understand how the quality of caregiving, specifically the sensitivity of care, may affect children's self-perceptions. Furthermore, a child's self-perceived sense of worth contributes to their conception of interpersonal competence, which may lay the framework for future behavior, interpretations, and interactions with others (Baldwin, 1992).

Purpose of the Study

The present study reports relational data, with caregiver sensitivity in a child's early years as a possible predictor of later self-perceived cognitive competence and cognitive performance. The purpose of the study was to examine the relationship between early experiences and later self-perceptions, and specifically the relationship between cumulative caregiver sensitivity during the first three years and later self-perceptions of cognitive competence and cognitive performance. The study examined measures of caregiver sensitivity up to the target child's third birthday and determined if caregiver sensitivity was related to the child's self-perception measures and cognitive performance scores that were collected in grade school. It was expected that there would be a positive correlation between caregiver sensitivity in the first three years and children's self-perception of cognitive competence and cognitive performance in early grade school. The finding of a positive correlation between caregiver sensitivity and cognitive competence and cognitive performance would contribute to the body of knowledge accumulated from similar studies that aim to further understand the mechanism of attachment security

formation and possibly develop methods to enhance child care and parenting practices in the interest of children's quality of life.

Limitations

1. The present study conducted in child care centers in Louisiana that may not be representative of centers in other parts of the United States or in other countries.
2. The present study examined data from research that was conducted using scales and measures that may not be consistent with similar research that uses different scales and measures. Assessments similar to the ones used in the present study rely on judgments made by researchers and are subject to reliability issues.
3. Data were collected to measure the children's interactions with caregivers only up to the child's third birthday, and are therefore limited in application to children three years of age and younger.
4. The frequency and the quality of observed caregiver behaviors may have influenced the measurement of sensitivity by eliciting non-typical sensitivity from caregivers due to researcher presence.
5. Caregiver sensitivity was assessed for each caregiver as she interacted with all the children with whom she came into contact, and not for each child individually. The sensitivity measure does not reflect any change in sensitivity that may have taken place within the caregiver over the course of the study.

Assumptions

1. The data that were collected with the scales and measures that were used are reliable assessments of the constructs. The Pictorial Scale of Perceived Competence and Acceptance for Young Children was used to measure self-perceived cognitive competence and has a reported internal consistency of .71 for the first grade version and

.79 for the second grade version (Harter & Pike, 1984). The Peabody Picture Vocabulary Test (Dunn & Dunn, 1997) was used to measure cognitive development and has a reported internal consistency of .93 for Form IIIA and .93 for Form IIIB (Maddux, 1999).

2. The data that measured caregiver sensitivity, derived from scores using the Caregiver Interaction Scale (Arnett, 1989), are reliable. The Spearman-Brown corrected split half reliability was established to be .90 by the authors of the scale.

CHAPTER 2

REVIEW OF LITERATURE

A dynamic relationship between experiences in early childhood and emotions, thoughts, and behaviors that constitute the self has been supported by an increasing body of scientific research. To examine the accumulated evidence of such a relationship, the major concepts that will be explored will be childhood attachment security, the formation of the internal working model, how early experiences guide the creation of the self, the aspect of caregiver sensitivity in early experiences, and how early experiences influence cognitive development. These concepts illustrate the pathway from early experiences of sensitivity to formation of expectations and behaviors in later childhood, including how a child perceives himself and performs to self- and other-expectations.

Research conducted in the field of child development over the last thirty years has produced attachment theory and fortified it as one of the most widely accepted explanations and predictors of children's emotional and social outcomes. Proposed as the mechanism to explain the robust connection between maternal caregiving behaviors and children's behavior in the Strange Situation, the internal working model lays the framework by which the world and one's interactions with it are perceived and evaluated (Ainsworth & Bell, 1970). It is also the internal working model, sustained throughout childhood and into adulthood, that houses one's internal representations of the self and others and links one's adult relationship style to their childhood experiences (Hazan & Shaver, 1987). The formulation of the self and self-representations are especially active during early childhood and reinforced through interactions with caregivers to develop lasting, yet still revisable, models of the self and of others throughout one's life.

Of primary concern in the present study was the formation of self-representations of cognitive competence. Research has shown that language and cognitive development in the first

2 years of life are linked to caregiving quality, which includes sensitivity and responsiveness, by the impact that it has on emotional development and affect regulation (Braungart-Rieker, Garwood, Powers & Wang, 2001; Schore & Schore, 2007; Shapiro & Applegate, 2007). A stressful environment, which can include neglectful or rejecting caregiving and can induce high cortisol levels (Albers, Riksen-Walraven, Sweep, & De Weerth, 2008), is associated with lower cognitive and language functioning (Peisner-Feinberg & Burchinal, 1997; Whitebook, Howes, & Phillips, 1989; NICHD, 1997). The same kind of insensitive caregiving may lead to a discrepancy between actual cognitive competence and self-perceived cognitive performance through the development of a negative self-representation in that domain.

Childhood Attachment

Attachment, defined as a social behavioral system through which human beings form emotional bonds, develops out of the interactions that form the relationship between a child and their primary caregiver (Bowlby, 1969). The child extracts a set of expectations based on the type of care that the mother or primary caregiver provides. The child will carry the expectations with them internally and unconsciously apply them to future relationships. The expectations are unconscious, are influenced by the earliest experiences, and affect relationships that are formed throughout the lifespan. The internal working model, a mental representation that organizes a system of thoughts, emotions, and expectations about the self and others, is believed to be the mechanism whereby a child regulates their attachment system (Bowlby, 1969, 1973). The internal working model is plastic in that it continues to incorporate novel experiences that may help the child cope with new relationships and events.

Attachment theory has a far-reaching ideological presence in the child development literature, and was developed as a prospective analytical tool to predict future emotional functioning by an English medical doctor trained as a Freudian psychoanalyst named John

Bowlby. Drawing from his observations of tapes that were recorded by James Robertson of children separated from their mothers and cared for in residential nurseries or hospital wards, Bowlby sought to develop a theory to explain the behavior of those children. Bowlby believed that the formation of the mother-child relationship was an adaptive behavior and called their system of proximity-seeking and separation behaviors an “attachment system.” Bowlby was also influenced by several other researchers, including David Levy, who associated an adopted child’s lack of social emotion to early emotional deprivation (Levy, 1935). Harry Harlow, whose experiments with rhesus monkeys demonstrated their preference for a cloth, mother-like figure over a metal figure that provided food, provided support for the idea that a child’s desire for the mother is based on proximity rather than on nourishment, as Freud had previously argued (Harlow, 1958).

Bowlby’s partner in the construction of attachment theory, Mary Ainsworth, developed an assessment tool, called the Strange Situation, that could be used to empirically assess a child’s attachment patterns (Ainsworth & Bell, 1970). The Strange Situation (see Table 1) procedure consists of a 20-minute laboratory observation that is composed of 8 vignettes or episodes that involve the mother, the child, and an unknown adult, that is, the “stranger.” The child’s behaviors and reactions are observed and the child is categorized into one of four attachment classifications. The child’s classification is based on its reaction to the mother’s leaving, the stranger’s presence, and most importantly, the degree to which the mother is allowed to soothe the child if the child is upset (Bowlby, 1988; Feeney, 1999; Hazan & Shaver, 1987; Hazan & Shaver, 1994; Hazan & Zeifman, 1999).

A secure attachment, considered the most adaptive attachment style, enables the child to explore freely while the mother is present and although the child will be upset when the mother departs, they will be easily soothed upon her return. The securely attached child will engage the

Table 1

The Eight Episodes in the Strange Situation (Ainsworth, 1970)

Episode 1: Introduction	The parent and child are introduced to the experimental room by the experimenter.
Episode 2: Acclimation	The parent and child are alone. The parent may or may not participate if the child explores.
Episode 3: Introduction of stranger	The stranger enters, converses with parent, approaches the child. The parent leaves inconspicuously.
Episode 4: First separation	The stranger attempts to engage the child without the parent present.
Episode 5: First reunion	The parent returns, the stranger leaves, the parent greets and comforts the child if allowed to by the child.
Episode 6: Second separation	The parent leaves, the child is alone.
Episode 7: Continuation of second separation	The stranger enters and attempts to engage the child.
Episode 8: Second reunion	The parent reenters, greets the child, and may pick up the child; the stranger leaves inconspicuously.

stranger only when the mother is in the room. A child with an anxious-ambivalent (insecure) attachment style will be hesitant about exploring, uneasy toward strangers, and become very distressed when the mother exits. Upon her return, an ambivalently attached child will show

ambivalence about allowing the mother to soothe, but will seek proximity with her. A child with an anxious-avoidant insecure attachment style may not explore, regardless of the presence of the mother or stranger, and displays a limited range of emotions throughout the procedure. If upset, the anxiously attached child refuses to be soothed by the mother, may avoid or ignore the mother, and may display behavior toward her much like that shown to a stranger. A fourth category, disorganized, has been developed by Main (Main & Solomon, 1986). A student of Ainsworth's, Mary Main, categorized the originally unclassifiable children whose behaviors, described as dissociative, did not fit any of the previous categories (see Table 2).

A key concept that arose from Ainsworth's work was the idea that the mother played a crucial role in the child's emotional development based on her maternal responsiveness to the baby's cues. A child's exposure to stress, especially the stress of separation, triggers what Bowlby called the child's "attachment system," that is, the child's proximity-seeking behaviors. The formation of a secure internal working model depends on the degree to which the mother deactivates the child's attachment system by responding to the child's needs and proximity-seeking behaviors appropriately (Bowlby, 1988). Ainsworth established that it was the quality, quantity, and appropriateness of mother-child interactions that influenced the level of security and trust that was established within the relationship; see Table 2, column 3.

The activation and regulation of the attachment system through interactions with an early caregiver is key in forming the mental framework with which one guides perceptions, including self-perceptions, and filters experiences. The mental framework is referred to as the internal working model (IWM), and is believed to funnel perceptions in such a way that will influence thoughts and feelings about self-competence and have an effect on performance.

Table 2

Attachment Behaviors of Mother Over Time and of Child in the Strange Situation (Ainsworth, 1970; Main & Solomon, 1986)

Attachment Classification	Mother's Behaviors Over Time	Child's Behaviors in Strange Situation
Secure	Responds to child's needs promptly, appropriately and consistently; encourages exploration and is used by her child as a secure base by which to do so	Protests mother's departure but is easily consoled upon return; accepting of mother's affection and attention, uses mother as secure base
Anxious-Ambivalent	Behaviors are inconsistent, ranging from appropriate to neglectful, tends to be under-stimulating; cannot serve as secure base due to child's preoccupation with mother's availability	Shows distress at mother's departure, but may display reluctance to be soothed and even anger toward her return; may show warmth to stranger
Anxious-Avoidant	Little to no response to child's distress, encourages exploration and discourages crying, typically shows hostility; may be preoccupied with an inappropriate level of "independence"	If does not show distress at mother's exit, continues play and shows no response to her return; if distressed, refuses to be consoled or soothed by mother when she returns
Disorganized	Behaviors are inconsistent, intrusive, confused and unstable in role and boundaries with child; possibly abusive	Exhibits a mixture of avoidant and ambivalent behaviors as well as appears dazed or apprehensive

Internal Working Model

The internal working model (IWM) is initially constructed in the mind of the attached person from contingent relations among events, interactions and goal-oriented behaviors between the attached and the attachment figure, and subsequently is generalized to others and serves to predict others' responses and interpret self-other relations (Bowlby, 1980; Bretherton, 1985, 1990; Collins & Read, 1994). The internal representations of the self that make up part of the IWM estimate the degree to which one is worthy, capable, and supported (see Figure 1). The internal representations of the attachment figure that make up another part of the IWM predict how responsive, available and supportive he or she can be expected to be. When such predictions elicit behaviors from the attachment figure that are harmonious to the child's expectations, it is referred to as "expectancy confirmation" (Belsky & Cassidy, 1994).

As a child grows out of infancy, they begin to develop models for how the world, others, and oneself can be expected to behave and these assessments (see Table 3) may influence their future adult attachment style (Bartholomew, 1990; Bartholomew & Horowitz, 1991). If one's parents' behavioral patterns are consistently repeated over time, the representations become less consciously accessible and more automatic, the mental process becoming more efficient at the expense of flexibility. The largely unconscious appraisals serve to guide a child's perceptions in a way that confirm existing self- and other-representations and to generate behaviors that will elicit the types of responses expected (self-fulfilling prophecy; Ainsworth, 1990). The validation that is incurred by such interactions serves to strengthen the internal working model and stabilize it as an accurate depiction of experiences. For example, a child with an insecure attachment, who has learned to see himself as difficult, incompetent, and ineffective, will behave in a manner that is consistent with his internal representations of himself.

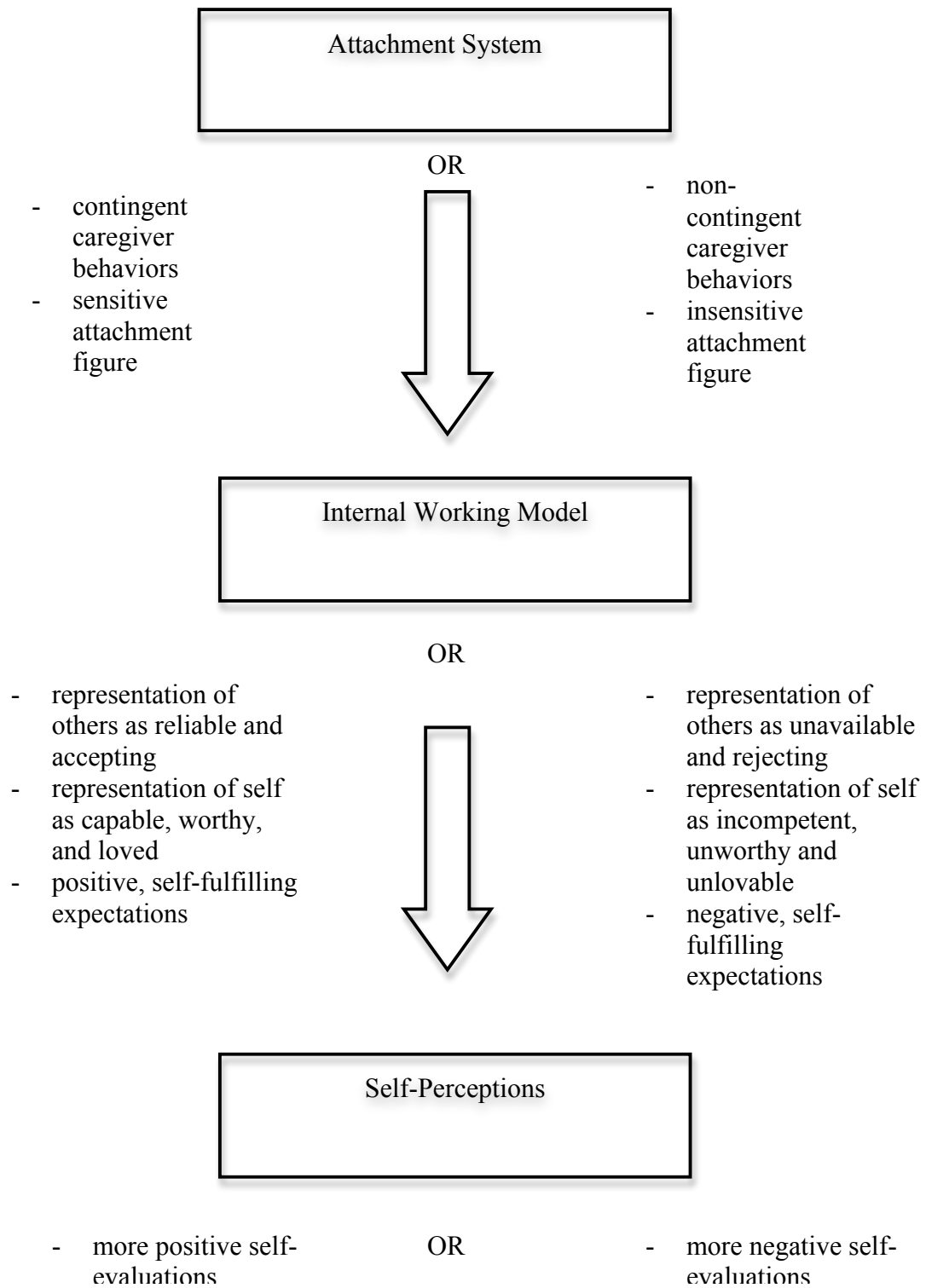


Figure 1. Process of internalization of attachment system in self-perceptions

Table 3

Adult Attachment Correlates to Self- and Other-Assessments (Bartholomew & Horowitz, 1991)

		SELF		
		Positive	Negative	
OTHER	Positive	Secure	Preoccupied	
	Negative	Dismissing	Fearful	

He may throw tantrums, refuse to attempt new tasks, and assume his own uselessness, thereby reinforcing others' perception of him as a helpless and poorly adapted child. The interactive process of self- and other-assessments is believed to have congealed in the insecurely attached child's mind as a self-negating internal working model that will influence his perceptions and experiences in such a way that the child's mind will focus on information that is congruent with his internal working model and discard information that is contrary (see Figure 2 for an example scenario). Furthermore, IWM's in a mother-child attachment relationship are interactive and are continuously engaged in dyadic regulation; the child learns how to regulate his emotions through a goal-corrected partnership (Bowlby, 1969). The regulatory aspect of the internal working model serves both as a defense and a protection mechanism and provides a means to create individual and socially shared realities (Main & Hesse, 1990; Ammaniti, Van Ijzendoorn, Speranza, & Tambelli, 2000).

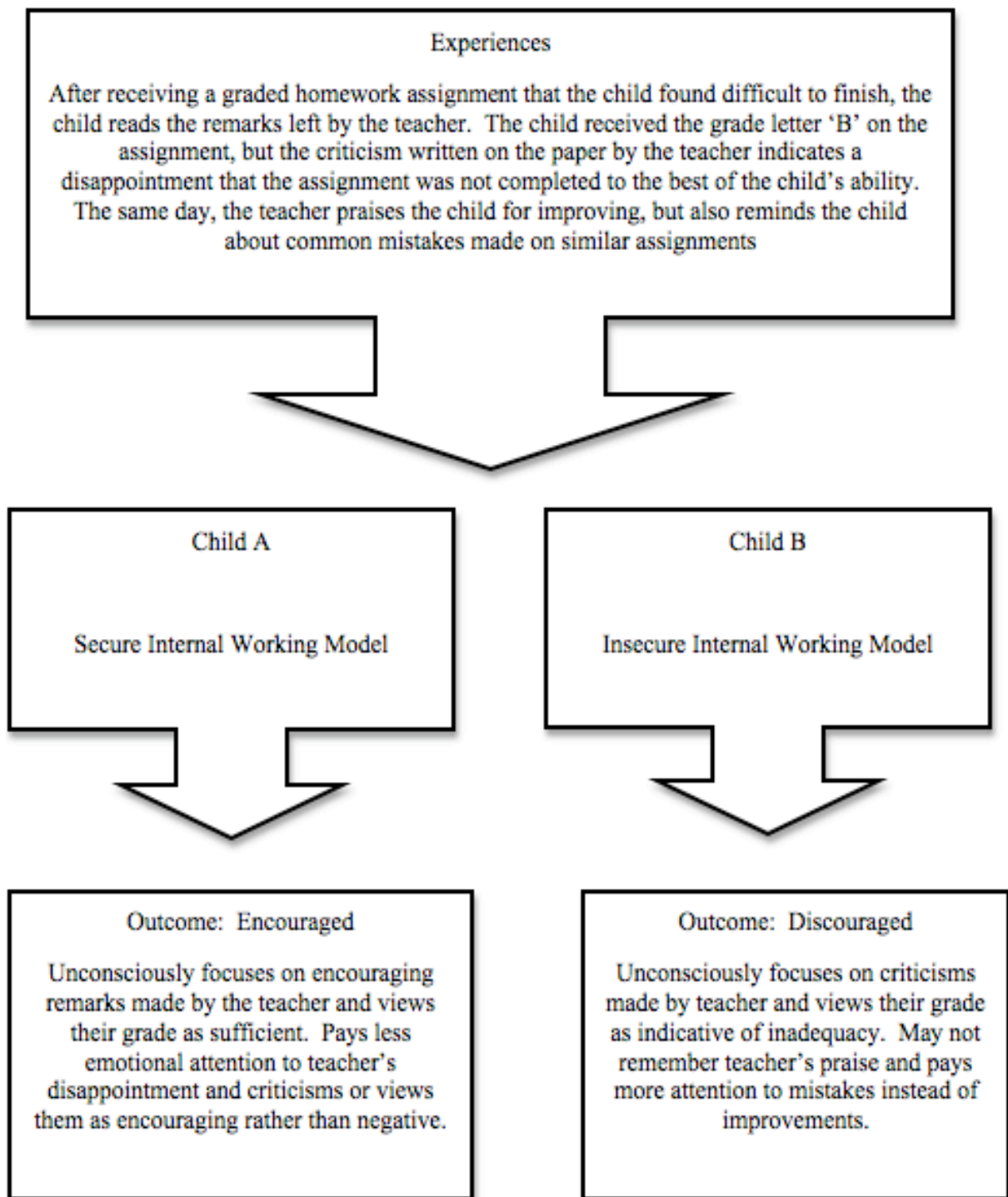


Figure 2. Example scenario for two hypothetical children experiencing identical situations and expected outcomes with regard to security of their internal working model

The reality and expectations that are formed within the IWM become less flexible across the lifespan and comprise the internal conception of selfhood. The selfhood that begins to form through early experiences, validated by expectancies produced by attachment behaviors and the experience-filtering aspect of the IWM, can be pervasive in the perception of self-competence and influence the level of performance.

The Creation of the Self

Self-representations, defined as an individual's knowledge or view of the self (Bem, 1972), are believed to arise from the information and cues that one receives from the environment, especially during childhood. The type of care that one received during the early years and one's subsequent attachment classification that developed during childhood influences the overall assessment that one makes about the self as well as the accuracy of that judgment. The accuracy of self-representations is difficult to measure but is operationalized by many researchers as the congruency between self-judgment and other-judgment. Such congruency is referred to as "social consensus criteria" (Robins and John, 1997; Kruglanski, 1989). Adding to the difficulty of assessing the accuracy of self-representation are the many components of the self-concept and the multiplicity and complexity of the domain of judgment for each component. Many studies, however, have reported a moderate association between adult attachment style and measures of self-concept as well as the accuracy of self-representations (Verschuere, Marcoen, & Schoefs, 1996; Pipp, Easterbrooks, & Harmon, 1992; Cassidy, 1988; Cooper, Collins, & Shaver, 1998). There is a proposed link between a dismissing attachment organization and a distorted self-image that is characterized by a denial of distress, and a link between preoccupied attachment organization and a distorted self-image that is characterized by an exaggeration of distress (Dozier & Lee, 1995; Kobak & Sceery, 1988).

Introduced by James (1890), the distinction between the I-self and the me-self has been recognized by scholars in the field and studied extensively. The following is based on the work and findings of Susan Harter (1990, 1998), unless otherwise stated. The I-self is described as the self-as-subject, the self-that-knows, the “machinery of the self” (Lewis, 1991, 1994), the active observer (Wylie, 1979), as the subjective awareness of the self-system, and as the “existential” self (Lewis & Brooks-Gunn, 1979). Included in the I-self are four components that can be thought of as four cognitive processes: self-awareness, self-agency, self-continuity, and self-coherence (James, 1890). Contrasted with the I-self, the me-self refers to the self-as-object, to the self-as-known, consists of categories, including self-representations, into which the child defines itself, and does not begin to emerge until the second year of life. Lewis and Brooks-Gunn (1979) describe the me-self as the “categorical self,” as opposed to the “existential self” that is the I-self.

The two aspects of the self-system are thoroughly intertwined and developmental changes in the I-self are argued to provide the impetus for self-theory modifications. As cognitive processes develop to accommodate domain-specific self-representations, the child evaluates its competencies separately. The cognitive and social constructions of self-representations facilitate organizational functions, motivational functions, and protective functions. Organizational functions supply expectations and predictions about social behaviors, motivational functions provide the incentive to pursue goals and develop an interest in self-improvement, and protective functions induce self-preservation behaviors, especially the active seeking of approval through socially acceptable actions and the aim to reduce pain and to increase pleasure.

The domain of self-representation is multi-faceted, conceptualized in many different ways and composed of several related terms, all of which may lead to confusion. For clarity,

discussion about the self will adhere to the conventions that were established by Harter (1990, 1998). Self-representation is a general term meant to encompass the totality of the other self-concepts. The self-concept is comprised of personal assessments of self in four domains that include the physical, cognitive, social, and athletic (Harter, 1983). When profiled and assessed together, the four domains reveal one's perceived competence within the particular self-concept. Although it is also an appraisal of self, self-esteem includes an element of social comparison that involves a comprehensive evaluation of the degree of satisfaction with oneself (Harter, 1999). Self-esteem is supported by the self-concept but cannot be assessed to determine one's individual strengths and weaknesses in the four different domains of competence. Because children under the age of seven express their self-competence with domain-specific consideration and without global assessment of self-worth (Harter, 1999, 1982; Harter & Pike, 1984), it is important to measure the four constructs individually when conducting self-representation evaluations in young children.

In the cognitive domain of the self-concept, early experiences of caregiver sensitivity may influence the way in which a child perceives himself as competent through the emotional and behavioral influences of attachment security and the resultant IWM. Experience plays a vital role in the development of cognitive structures and may influence perceptions of cognitive competence as well as cognitive performance.

Caregiver Sensitivity

Research has demonstrated that the quality of interaction as well as the frequency of verbal and social interaction with cognitive stimulation enhances children's cognitive and language development (Bornstein & Bruner, 1989; Wertsch, 1985; Burchinal, Roberts, Nabors, & Bryant, 1996; Galinsky, Howes, Kontos, & Shinn, 1994). Three features of caregiver quality that are considered most important include adopting a positive attitude toward a child, sensitivity

to a child's signals, and responding to the child's needs and signals in a contingent manner (Lamb & Ahnert, 2006; Hart & Risley, 1995). Among some of the outcomes that are argued to be produced by high-quality caregiving are better cognitive functioning, complex play, and language development (Howes & Rubenstein, 1985; Phillips, McCartney, & Scarr, 1984); academic and cognitive performance in the preschool years (Peisner-Feinberg et al., 2001; Field, 1991); mathematic performance (Broberg, Wessels, Lamb, & Hwang, 1997); intelligence and school achievement throughout childhood and adolescence (Brooks-Gunn et al., 1994; Lamb, 1997; Barnett, 1995); and language ability in early childhood (Roberts, Rabinowitch, Bryant, & Burchinal, 1989; Feagans, Fendt, & Farran, 1995).

Caregiver sensitivity has been conceptualized in many different ways by researchers. A sampling from the literature includes the following: maternal personality (specifically ego strength, nurturance, self-esteem, and interpersonal affect) (Belsky & Rovine, 1988); positive, nonintrusive, responsive, and supportive maternal care (NICHD ECCRN & Duncan, 2003); warmth and responsiveness of providers in their interactions with children (Raikes, Raikes, & Wilcox, 2005); and Thompson (1998) describes sensitivity as "a broad rubric for various qualities of adult caregiving practices that can have diverse consequences for the infant's behavior" (p. 49).

Maternal sensitivity has been shown to be predictive of early childhood security at 15 months (NICHD ECCRN, 1997), predictive of preschool attachment classification (NICHD ECCRN, 2001), and predictive of child outcomes at 36 months (Belsky & Fearon, 2002). Studies have also found that a familiar caregiver mediates a child's separation distress more effectively than does a stranger (Ricciuti, 1974). High caregiver involvement is associated with more secure attachment behaviors in children who are left in surrogate care (Anderson, Nagle, Roberts & Smith, 1981). Because maternal sensitivity influences the disposition and caregiving

needs of children entering the child care system, it is likely to affect the child's reception and treatment during their time with nonmaternal caregivers (Cassidy, 1990). Moreover, the parenting style received in the home may influence the behaviors and interactions the child exhibits in the classroom, and therefore it is plausible that maternal care and child-perceived acceptance will play a role in their social and cognitive functioning (Baumrind, 1967, 1977; Ainsworth, 1979).

Cognitive Development

The first 2 years of a child's life are extremely important for cognitive development because of the intense period of brain development that occurs during the time period. Short-range synaptic connections reach their peak development during this period and are contingent upon input from the environment (Elman et al., 1996). Brain development is "activity-dependent," meaning that the way that neural circuits are shaped is dependent on activity in every aspect of experience. Each experience excites certain neural circuits and those circuits that are frequently and consistently turned on will gain strength, while those that are neglected will be "pruned," a process that results in more efficient neural processing. The strengthening and pruning processes are adaptive in that they allow the child to develop in a way that facilitates their becoming better fitted to meet the challenges of their particular environment.

In addition to the importance of social interaction in infancy, much of children's cognitive development in the early pre-school years also involves an element of social interaction. Language is of particular importance in development because it is fundamental to cognitive development as a whole. Children whose caregivers speak to them, read to them, and otherwise engage them in many verbal interactions demonstrate more advanced linguistic skills than children whose caregivers do not engage in linguistic activities with the children (Sénéchal, 1997, Valdez-Menchaca & Whitehurst, 1992; Whitehurst et al., 1988).

By engaging in pretend social play, children adopt and practice social roles that they have observed around them ((Neeley, Neeley, Justen, & Tipton-Sumner, 2001). Through social referencing they learn appropriate reactions to external stimulus in the environment. Social play and social referencing are integral to the formation of metacognition, decentration, and social role-playing. By acquiring the knowledge of the pretense of pretend play, a child is thought to be experiencing early signs of metacognition; thought about their own thinking (Bateson, 1972; Seifert, 2004). Interactive pretend play with other children is also argued to support the understanding of others' states of mind. Decentration involves taking on perspectives other than one's own and denotes a cognitive milestone in children's cognitive development. Social role-playing facilitates decentration by encouraging reflection and metacognition about social affairs and imagining what others feel and think (Sawyer, 1997).

Summary

The interactions of caregivers with children in the early years of life provide a model by which the child will view themselves, events, and interactions with others. The degree to which adult-child interactions are positively attuned, responsive and contingent, described as the level of sensitivity, influences the security of attachment within a dyad and the security of the IWM formed in the child. Aspects of sensitive caregiving, such as positive, responsive interactions and facilitation of cognitive development through verbal engagement and positive feedback, are considered to be contributory to the development of self-perceptions and performance. Therefore, sensitive caregiving in the first three years of life may be a factor in a child's later self-perception of cognitive competence and cognitive performance in grade school.

CHAPTER 3

METHOD

The purpose of the study was to examine the relationship between children's experiences of caregiver sensitivity during the first three years of their lives and their later self-perceptions of cognitive competence and cognitive performance. The data that was used to measure caregiver sensitivity had been collected during an earlier longitudinal study, the Baton Rouge Early Care Study (BRECES; see Pierce & Benedict, 2007, for a full description of methods). The data that were used to measure children's later self-perceptions of their cognitive competence and their cognitive performance were collected for the present study.¹

BRECES Longitudinal Study

Participants

Sixty female caregivers at 8 different childcare centers, located in a mid-size Southern city, had been videotaped in 30-minute sessions as they interacted with the infants and toddlers who were in their classrooms. The videotaped interactions of the caregivers with infants and toddlers had been coded during the earlier study by a single investigator, using the Caregiver Interaction Scale (CIS; Arnett, 1989). Scored on a 4-point Likert-type scale, the CIS consists of 26 items that range from *not at all true* to *very true* (See Appendix A). The 26 items measure 4 subscales: sensitivity (10 items), harshness (9 items), detachment (4 items), and permissiveness (3 items).

¹The following description of the methods used in the BRECES study and in the present study was written in collaboration with Loredana Apavaloaie, a master's student in Human Ecology whose thesis research examined possible connections between cumulative caregiver sensitivity and children's later socioemotional development.

Individual Caregiver Sensitivity. The CIS scores that were collected during the BRECES study were used to measure individual caregiver sensitivity. The *harshness*, *permissiveness*, and *detachment* subscale scores were reverse coded and added to the sensitivity subscale scores. The sum of the 26 items provided a total CIS score. The sensitivity scores for each of the caregivers for each child were combined to create a cumulative caregiver sensitivity history for each child, a process that is explained in the results section.

Present Study

Participants

The pool of potential participants for the present study were the young children whose parents and caregivers had participated in BRECES. During and after the collection of the data for the BRECES study, the children's sequential classroom placements had been followed by contacting their centers every 6 months (in January and August), and by recording their current caregivers.

At the beginning of the current project the investigators had a record for each child that potentially included the names of each child's caregivers, up to age 36 months. The record for each child's caregiver sequence potentially contained caregiver information for 6 age ranges: 0 to 6 months, 6 to 12 months, 12 to 18 months, 18 to 24 months, 24 to 30 months, and 30 to 36 months. However, because the children had entered child care at different ages, because some children had left child care before the age of 36 months, and because data collection had ceased prior to some of the children's 36-month birthday, not every child's record included caregiver information at all 6 possible age ranges. Additionally, not all caregivers had participated in BRECES, and the database did not include sensitivity measures for the non-participating caregivers. For the sake of continuity, only those children for whom the researchers had measures of caregiver sensitivity for a minimum of 18 months, that is, a minimum of 3

sequential age ranges were included. For example, a child for whom we had caregiver sensitivity data at 0 to 6 months, at 6 to 12 months, and at 12 to 18 months.

Fifty-seven children met the inclusion criteria. Several steps were taken to locate the 57 children. First, the researchers attempted to contact the families by phone, and successfully contacted 54 of the families. Second, each of the 54 families was sent a letter and a consent form. Twenty-six families returned signed consent forms, and finally, interviews were scheduled and conducted with the children of the 26 families (see Appendix B for IRB approval and Appendix C for consent form).

Children. The demographic variables for the children include their gender, race, months of caregiver-sensitivity data, number of caregivers, child care center attended, and age at time of testing. There were 10 boys and 16 girls. Twenty-five were European-American children and one was an Asian-American child. The mean amount of caregiver sensitivity data for the children was 35 months with a range of 23 to 42 months; 5 of the children had between 23 and 30 months of caregiver sensitivity data, 8 of the children had between 31 and 36 months of caregiver sensitivity data, and 14 of the children had between 37 and 42 months of caregiver sensitivity data. The mean number of caregivers was 2.5 with a range of 1 to 4 caregivers; 2 children had had one caregiver, 12 children had had 2 caregivers, 10 children had had 3 caregivers, and 3 children had had 4 caregivers. The children were distributed among seven different child care centers; the largest number of children at any one child care center was 7 and the least number of children in any one child care center was one. At the time of testing, 8 of the children were in kindergarten and 18 were in the first or second grade. Their ages ranged from 5- to 8-years old.

Caregiver Demographic Characteristics. The group of children in the current study had had a total of 32 unique caregivers during their first 36 months in child care, 30 for whom we had demographic data. One of the 30 caregivers was single, 18 were in their first marriage, 5

were remarried, 4 were divorced, one was living with someone but not legally married, and one was separated. There were 10 self-identified European-American caregivers, 19 African-American caregivers, and one Hispanic caregiver. The caregivers were distributed among 7 daycare centers. Twenty-five of the caregivers held the title of “teacher,” 4 held the title “teacher assistant,” and one held the title “teacher aide.” Two caregivers reported their level of training as currently working on the 12-hour state-required training, 12 caregivers reported having received the 12-hour training, 3 caregivers reported currently working on a CDA certification, 5 caregivers reported having received a CDA certification, one caregiver reported currently working on a 2-year associate degree, one caregiver reported having received a 2-year associate degree, and 6 caregivers reported having received a 4-year college degree. The mean number of years the caregivers had worked in child care was 12 and ranged from 1 to 32.

Caregiver Sensitivity Measures. The number of unique caregivers for each of the 6 periods of measurement varied among the children. Inclusive of all children, the identity of each child’s current caregiver had been recorded throughout the study. There were 5 different caregivers identified at time one, 10 different caregivers identified at time two, 15 different caregivers identified at time three, 16 different caregivers identified at time four, 14 different caregivers identified at time five, and 14 different caregivers identified at time six. The 32 caregivers’ individual sensitivity scores ranged from 8 to 15, out of a possible range of 4 to 16, with a mean of 12.6, and a standard deviation of 2.08.

Procedures

Three female interviewers were trained to administer the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PSPC, Harter & Pike, 1984) and the Peabody Picture Vocabulary Test (PPVT, Dunn & Dunn, 1997). The trained investigators, who were undergraduate students majoring in Family, Child and Consumer Sciences at a Baton

Rouge, Louisiana University, were introduced to the children by their parents in the child's home. Verbal assent was obtained from the children at the time of the interview. The investigator asked the child if (s)he would like to go with the interviewer and look at some pictures. The child was free to disagree, and the interviewer was alert to any feelings of anxiety or uncertainty. The investigator administered the PSPC and the PPVT in accordance with the respective authors' instructions.

Constructs and Assessments

Cumulative Caregiver Sensitivity. For each of the six 6-month age ranges, which will be referred to as "snapshots," the scores for each child's individual caregiver's sensitivity were plotted, providing graphical data that represents each child's caregiver sensitivity pattern or history. The graphs of each child's caregiver sensitivity history were created to provide a visual profile by which to group and assess differences among the children. Additionally, hierarchical linear modeling was used to estimate each child's average level of caregiver sensitivity and the rate of change in level of caregiver sensitivity across time. Both methods of deriving a measure of cumulative caregiver sensitivity are discussed more fully in the Results chapter.

Self-Perceived Cognitive Competence. Each PSPC picture plate is illustrated with two pictures of a child who is engaged in an activity, one child is depicted performing well and one child is depicted performing poorly (see Appendix B). The version of the scale that depicts self-referencing pictures of girls was used with the female children and the version of the scale that depicts self-referencing pictures of boys was used with the male children. After reading a brief descriptive statement about the children in the picture the investigator asks the child to choose which child best represents himself or herself (see Appendix C for example). After selecting the illustration that is "most like me," the child is asked if the child (s)he selected is "a lot like them" or "a little like them." From the child's response, a score is extracted that ranges from 1 (the

least perceived competence) to 4 (the most perceived competence). The PSPC includes four subscales that contain 6 items each to measure 4 constructs: cognitive competence, maternal acceptance, peer acceptance, and physical competence. Self-perceived cognitive competence was assessed with the Perceived Cognitive Competence Subscale (PCCS) of the PSPC (see Appendix E for subscale items).

Cognitive Performance. Cognitive performance was measured with the PPVT (Dunn & Dunn, 1997). While being orally presented with a vocabulary word, each child is shown a set of four pictures, all four occurring on the same page (see Appendix F). The child is asked to select the picture that best represents the word that is voiced aloud, i.e., “Show me ‘running.’” The items that are presented to the children occur in 17 sets of 12 items that are arranged hierarchically in order of increasing difficulty. The items are presented until both the child’s most basic and the most complex sets are identified.

Predicted Connections and Rationale

A strong positive relationship was expected between the measures of cumulative caregiver sensitivity and the measures of children’s self-perceptions of cognitive competence and cognitive performance. The relationship was expected to be stronger when caregiver sensitivity had been consistent throughout the duration of the child’s first years in child care and weaker when their cumulative caregiver sensitivity was inconsistent. A shift from higher sensitivity to lower sensitivity would be likely to produce more favorable outcomes than a shift from lower sensitivity to higher sensitivity (Tran & Weinraub, 2006).

Many child outcomes have been associated with childcare quality, such as the relationship between caregiver sensitivity and a child’s academic and language skills (NICHD ECCRN, 2006). Of particular benefit is early, consistently positive caregiving over the infant and toddler years. Consistent, positive caregiving is thought to reinforce the child’s IWM,

which is believed to provide a filter through which children perceive, interpret and react to people and events in their lives (Carlson & Sroufe, 1995). The IWM is a largely unconscious, yet extremely influential, conceptual structure that guides attention and organizes memory in such a manner as to confirm existing beliefs about oneself and others by paying special attention to those experiences that are congruent to held expectations and representations and by deemphasizing experiences that are not congruent (Belsky & Pensky, 1986). The IWM serves to affirm and reaffirm self- and other-representations, thus further concretizing the mental model by which the child views the world. A child who views him or herself as incompetent in math will perform to their own expectations and similarly, a child who believes him or herself to be unworthy of the love and attention of others will elicit behaviors from others that affirm such a belief (Sroufe, 1996). The continuous feedback loop of the IWM provides validation by filtering one's experiences and concentrating on those that are in agreement with its present composition. The IWM is also the mechanism by which a child's caregiver's sensitivity in the first years of life and later self-perceptions are mediated; the experiences in a child's early years construct the IWM that will guide perception and filter experiences when they are in grade school (Bretherton, 1993).

The existing research suggests that more secure attachments, and thereby internal working models that include perceptions of a more competent self, are more likely in children who stay with the same sensitive caregiver for longer periods of time (Tran & Weinraub, 2006). The security of a child's IWM influences the degree to which the child sees him or herself as competent and worthy and likewise affects his or her performance. For this reason, one would expect self-perceived cognitive competence and possibly cognitive performance to be high when caregiver sensitivity has been consistently high. Likewise, consistently low caregiver sensitivity would be associated with low self-perceived cognitive competence and lower cognitive

performance than if the same child had experienced a higher level of caregiver sensitivity. Because it is more important to have consistent sensitive caregiving in the infant and toddler years in order to establish a more secure attachment and secure internal working model, one would expect better outcomes if any variation that occurs is a shift from high early sensitivity to low later sensitivity than a shift from low early sensitivity to later high sensitivity (Tran & Weinraub, 2006).

CHAPTER 4

RESULTS

The purpose of the study was to examine the relationship between children's early cumulative caregiver sensitivity history and their later self-perceptions of cognitive competence and cognitive performance. Data were collected from 26 children and were analyzed using both visual inspection and statistical analysis.

The means, standard deviations, ranges, and bivariate correlations of the primary variables are shown in Table 4. The number of unique caregivers was not significantly related to cognitive competence and the relationship between self-perceived cognitive competence and cognitive performance was not statistically significant either.

Because the interest of the present study was the possible relationship between a child's early experiences of caregiver sensitivity and their later self-perception of cognitive competence and cognitive performance, it was necessary to derive a measure of cumulative sensitivity for each child. Cumulative sensitivity in this study describes a child's history of caregiver sensitivity across multiple caregivers and is indicated by different levels or different patterns of caregiver sensitivity that each child had experienced during their first 36 months of child care. The sensitivity scores for each child's individual caregiver needed to be transformed in such a way that it was possible to compare the cumulative sensitivity that each child had experienced with the sensitivity experienced by other children. To this end, a cumulative sensitivity profile for each child was derived using two methods, visual analysis and statistical analysis.

Visual Analysis

Three categorical groups were created based on the experimenter's analysis of the visual profiles of the cumulative level of sensitivity that the child had experienced; one in which caregiving was consistently high, one in which caregiving was consistently low, and one in

Table 4

Descriptive Statistics and Bivariate Correlations for the Primary Variables (N=26)

Primary Variables	M	SD	Range	Correlations with:	
				CC	CP
Number of snapshots	4.23	1.14	3 to 6	-0.26	0.12
Number of unique caregivers	2.50	0.81	1 to 4	-0.27	0.28
Age at testing in months	85.38	14.11	61 to 105	-0.30	-0.27
Cognitive Competence (CC)	3.62	0.31	3.17 to 4		0.30*
Cognitive Performance (CP)	107.54	9.35	88 to 128		
Intercept (average level of caregiver sensitivity)				0.24	0.06
Slope (rate of change in caregiver sensitivity)				0.24	0.10

* $p = 0.13$

which caregiving was inconsistent. The cumulative pattern of sensitivity was determined to be consistently high when the CIS scores on the graph remained at or above 11, consistently low when the CIS scores on the graph remained below 11, and inconsistent when the CIS scores on the graph transected the threshold score of 11 between high sensitivity and low sensitivity.

There were only 2 children whose caregiver sensitivity pattern was consistently low; because of the low number of children in the consistently low group, they were combined with the

inconsistent group for analysis. Refer to figure 3 for representative examples of the consistently high sensitivity group and figure 4 for representative examples of the consistently low/inconsistent sensitivity group.

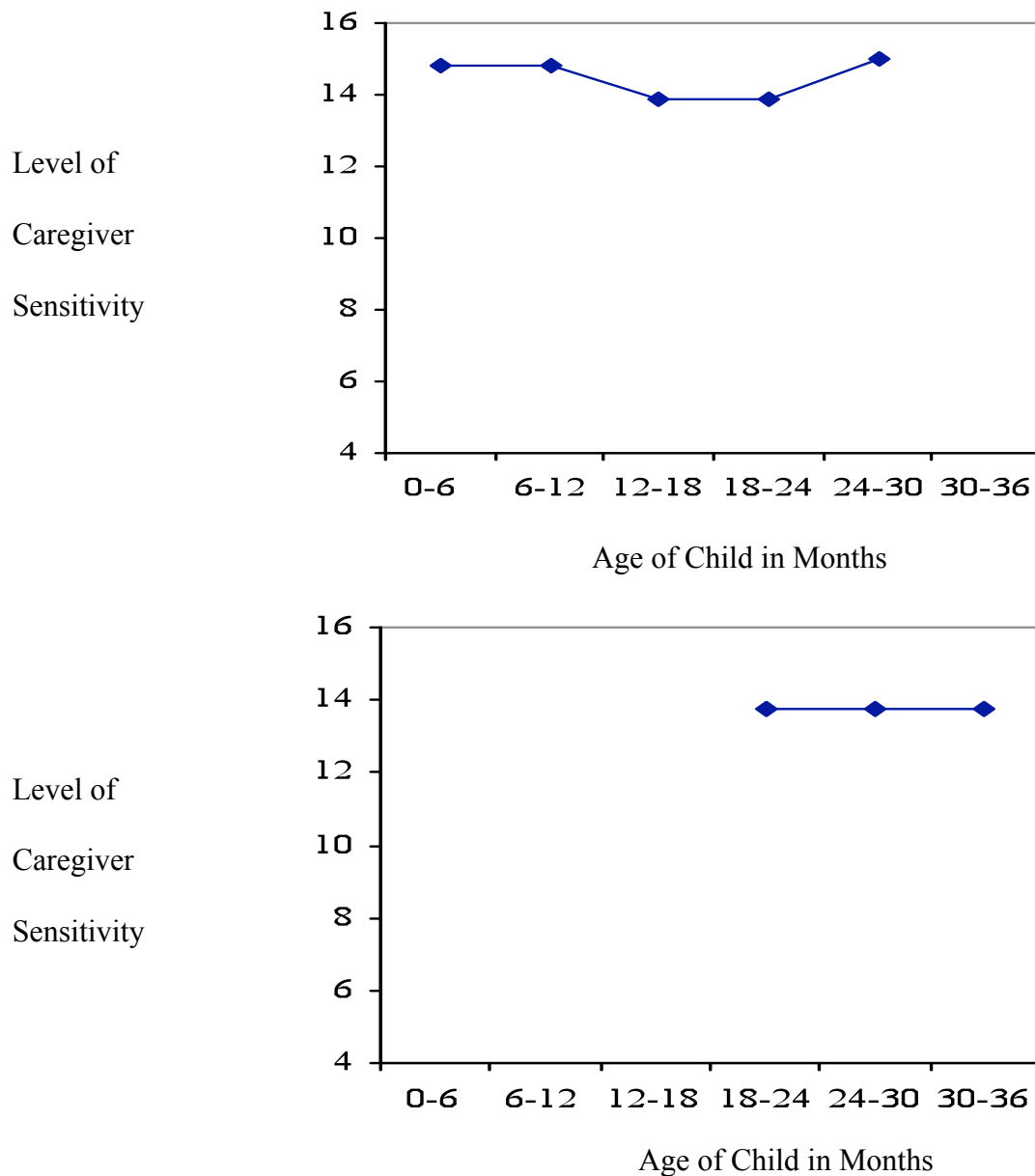


Figure 3. Examples of Consistently High Caregiver Sensitivity Profiles for Two Children

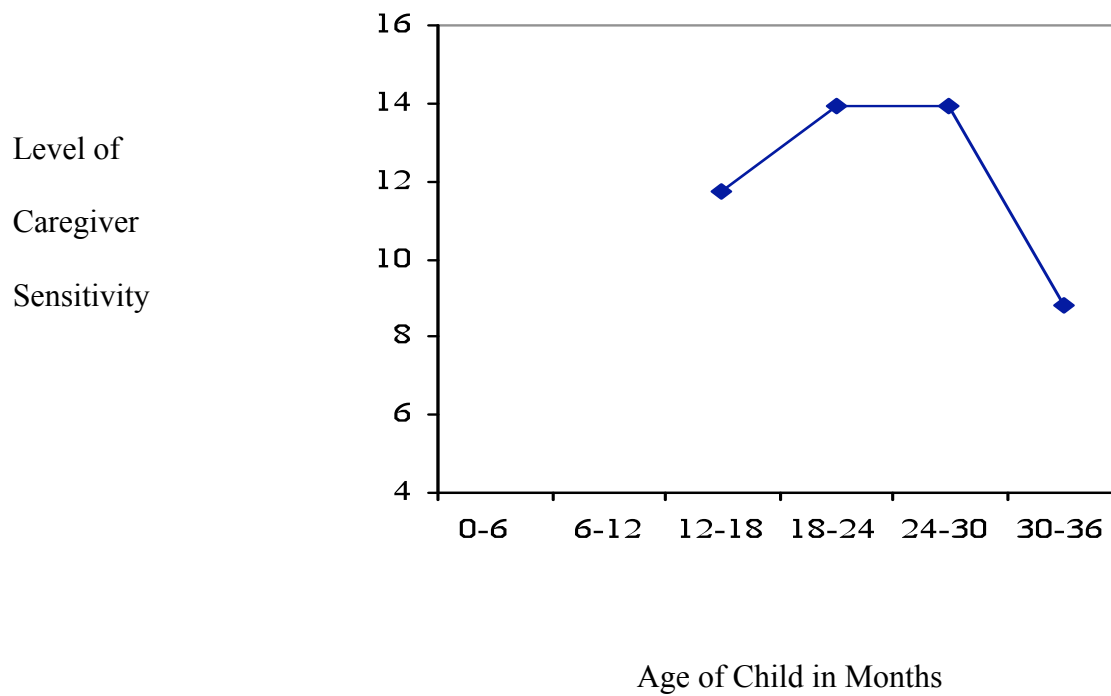
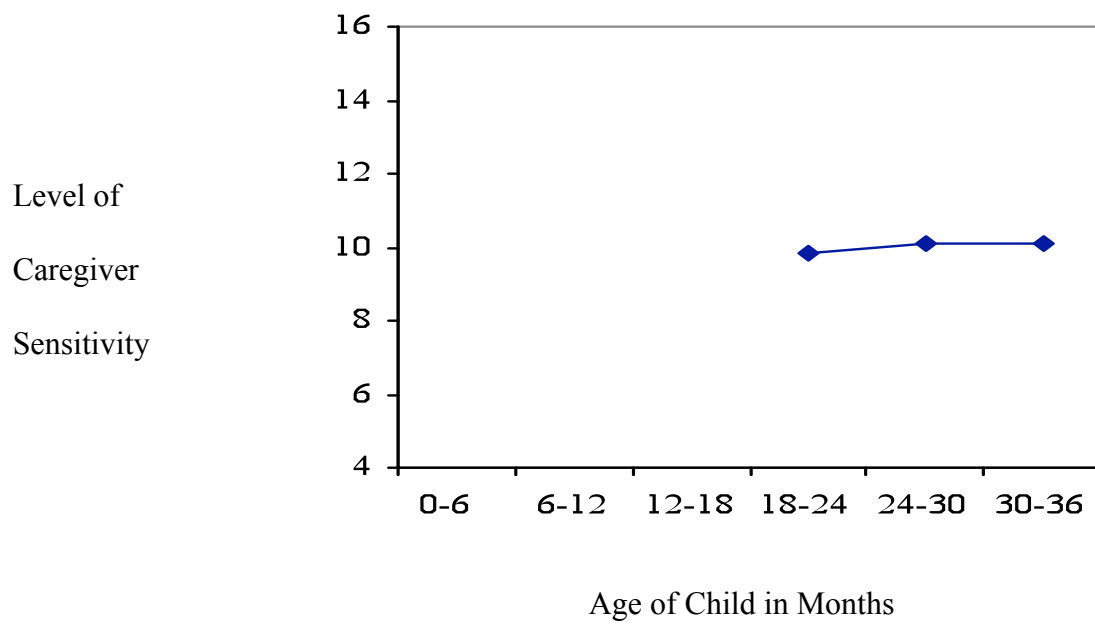


Figure 4. Examples of Consistently Low or Inconsistent Caregiver Sensitivity Profiles for Two Children

The consistently low sensitivity group and the inconsistent sensitivity group were integrated because outcomes that are expected in children whose caregiver sensitivity pattern is consistently low are believed to be similar to outcomes expected in children whose caregiver sensitivity pattern is inconsistent. Because the internal working model is influenced by repeated and consistent patterns, children who experience low sensitivity will develop an insecure attachment and a more insecure IWM. Children whose caregiving pattern is inconsistent will develop a similar attachment style and IWM because variations in sensitivity will fail to instill a positive expectancy mental framework that is integral to developing a secure attachment and secure internal working model.

Description and Relationships among the Primary Variables within Two Sensitivity Groupings

There were 16 children whose caregiver sensitivity pattern was consistently *high*. The mean number of snapshots per child in this group was 4.3 and the mean number of unique caregivers was 2.4. Their mean score for the cognitive competence subscale on the PSPC was 3.7 with a range from 3 to 4. Their mean score on the PPVT was 108 with a range from 88 to 120.

There were 10 children whose caregiver sensitivity pattern was consistently *low or inconsistent*. The mean number of snapshots per child in this group was 4.1 and the mean number of caregivers was 2.7. The mean score for the PCCS was 3.6 with a range from 3.2 to 4. Their mean score on the PPVT was 106.7 with a range from 68 to 105 (see Table 5).

A series of *t*-tests were conducted to analyze the means of the two groups for the 6 variables of interest: cumulative caregiver sensitivity, number of snapshots, number of unique caregivers, age in months at testing, cognitive competence, and cognitive performance. The *t*-tests revealed no statistically significant differences between the two groups on any of the variables of interest.

Table 5

Means and Standard Deviations for Children's Primary Variables Grouped by Patterns of Cumulative Caregiver Sensitivity (N =26)

	Cumulative Pattern of Sensitivity	
	Consistently High	Consistently Low or Inconsistent
	<i>n</i> =16	<i>n</i> = 10
	4.31	4.10
Number of snapshots	(1.14)	(1.20)
	2.38	2.70
Number of unique caregivers	(0.72)	(0.95)
	83.12	89.00
Age in months at testing	(13.78)	(14.60)
	3.66	3.57
Cognitive competence	(0.31)	(0.32)
	108.06	106.70
Cognitive performance	(8.20)	(11.38)

Statistical Analysis

A statistical measure of cumulative caregiver sensitivity was calculated for each child by submitting each of the child's individual caregiver sensitivity scores to hierarchical linear

modeling (HLM). Because repeated measures data, which is the type used in the present study, consists of observations that are nested within individuals and individuals who are nested within the environment, there is a tendency for increased homogeneity over time within the sampled population (Bryk & Raudenbush, 1992). Other analytic methods require an independence of observations as the basis of analysis so as to extricate individual and group effects on the outcome of interest (Thum, 1997). HLM provides a flexible framework for the number and timing of observations as well as an allowance of variability in the number and spacing of data points (Bryk & Raudenbush, 1987). HLM, which is a type of individual growth curve modeling, yields parsimonious, longitudinal scores that indicate the overall level of caregiver sensitivity and the rate of change in caregiver sensitivity over time.

In order to derive statistical measures of the caregiver sensitivity trajectory for each child, HLM was used to estimate the slope and intercept for each child. The slope provided by the HLM analysis describes the change in caregiver sensitivity experienced by each child over the duration of the study in relation to the whole group. HLM also computes an intercept, that is, an average cumulative caregiver sensitivity score for each child in relation to the whole group.

Correlations between intercept scores, slope scores, cognitive competence scores, and cognitive performance scores were estimated to test the hypothesis of whether the average level of cumulative caregiver sensitivity and the rate of change in caregiver sensitivity are related to measures of later self-perceptions (see Table 6 for definitions of constructs and primary variables). Correlations were also estimated between the intercept scores, slope scores, number of unique caregivers, number of snapshots, and age at testing. Table 4 shows the finding of only weak correlations between HLM measures of cumulative sensitivity (intercept and slope) and the six primary variables.

Table 6

Definition of Constructs and Primary Variables

Sensitivity	The degree to which an adult caregiver accurately reads and responds promptly, contingently, and appropriately to a child's cues.
Attachment System	A psychological and behavioral organization in which a child's bids for proximity to a caregiver are activated by one of many possible environmental anxieties that can be attenuated by sensitive caregiving and soothing on the part of the caregiver to relieve the stresses felt by the child.
Internal Working Model	<p>A mental framework of expectations of others, representations of self and others, and conceptualization of relationships, that begins to develop early in life and continues to be influential in one's future interactions.</p> <p>The IWM guides attention and organizes memory in such a manner as to confirm existing beliefs about oneself, others, and relationships, deemphasizing experiences that are not congruent and by paying special attention to those experiences that are congruent to one's held expectations and representations.</p>
Self-representation	An individual's knowledge or view of oneself that is present across many domains.

(Table 6 Continued)

Self-perceived Cognitive Competence	The degree to which an individual perceives themselves as academically, mentally, or intellectually capable across a variety of cognitive contexts (Harter, 1999).
Cumulative Caregiver Sensitivity	A child's history of caregiver sensitivity across multiple caregivers, that is, the possible different levels or different patterns of caregiver sensitivity that a child may experience.
Attachment Classification	One of four categories that describe a child's security of attachment or an adult's relationship style, which indicates a cluster of behavioral tendencies and emotional dispositions.
Accuracy of Self-representations	The degree to which one's perceptions of self are congruent with those held by others and with objective measures of specific domains of the self-concept (i.e. physical competence, cognitive competence, maternal acceptance, peer acceptance). (Harter, 1999)
Intercept	When estimated using hierarchical linear modeling, the average caregiver sensitivity of one child relative to the whole group of children.
Slope	When estimated using hierarchical linear modeling, the increase or decrease in caregiver sensitivity for one child relative to the whole group of children.

CHAPTER 5

DISCUSSION AND CONCLUSION

The present relational study examined the relationship between the cumulative sensitivity levels experienced by young children during their infant and toddler years and their later self-perceptions of cognitive competence and cognitive performance. Previous research has identified early consistently high levels of caregiver sensitivity as a strong predictor of later cognitive and emotional outcomes. Measures of cumulative caregiver sensitivity were obtained using the CIS (Arnett, 1989), measures of cognitive competence were obtained using the PSPC (Harter & Pike, 1984), and measures of cognitive performance were obtained using the PPVT (Dunn & Dunn, 1997).

Bivariate correlations among the variables that measured the six primary constructs revealed no statistically significant relationships among cumulative caregiver sensitivity, number of unique caregivers, number of snapshots, age at testing, cognitive competence, or cognitive performance. *T*-tests that were performed on the two groups that were created from visual inspection, one group in which cumulative caregiver sensitivity was consistently high ($n = 16$) and another group in which cumulative caregiver sensitivity was consistently low or inconsistent ($n = 10$), found no statistically significant differences between the means of the two groups for the six constructs of interest.

The type of data obtained in the present study, repeated measures data, warranted further analysis using hierarchical linear modeling to derive intercept and a slope scores for each child that could describe the average level of sensitivity and the change in sensitivity over time relative to the whole group. No statistically significant correlations were found between the intercept scores, slope scores, and the six constructs of interest.

Although no evidence was found to support the proposed relationship between caregiver sensitivity in the first three years of life and either children's self-perceptions of their cognitive competence or their cognitive performance in early grade school, it is speculated that specific improvements in the study design may yield data that is supportive of the proposed relationships. Although the instrument used to assess caregiver sensitivity is assumed to be valid, measures were taken only once per caregiver while she interacted with an entire group of children. A future study may derive more sensitive and precise measures of caregiver sensitivity with observations of each caregiver as she interacted with each child participating in the study. Sensitivity measures may also be further validated by taking repeated measures of sensitivity over time, instead of using only one taped observation on which to base the caregiver's sensitivity. It may also be useful in analysis to utilize more than one scale to measure sensitivity and to utilize scales that measure child care center quality, stability of caregiver over time, and quality of home care to produce a more inclusive ecological representation of the child's environment.

The present study gathered data on only 26 participants, which weakened the power of statistical analyses, but a substantial increase in sample size would remedy this effect and would be likely to produce stronger correlations among the constructs of interest. While acknowledging the possibility that there may not be a relationship between early cumulative caregiver sensitivity and later self-perception of cognitive competence or cognitive performance, the author believes that a more rigorous examination of caregiver sensitivity, adopting an ecological perspective of children's experiences, and an increase in sample size will increase the validity of the total measure of caregiver sensitivity history, and generate results that are congruent with current research that examines similar constructs and relationships.

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APPENDIX A

CAREGIVER INTERACTION SCALE (ARNETT, 1989)

1. Speaks warmly to the children.
2. Seems critical of the children.
3. Listens attentively when children speak to him/her.
4. Places high value on obedience.
5. Seems distant or detached from children.
6. Seems to enjoy the children.
7. When the children misbehave, explains the reason or the rule they are breaking.
8. Encourages the children to try new experiences.
9. Doesn't try to exercise too much control over the children.
10. Speaks with irritation or hostility to the children.
11. Seems enthusiastic about the children's activities and efforts.
12. Threatens children in trying to control them.
13. Spends considerable time in activity not involving interaction with the children.
14. Pays positive attention to the children as individuals.
15. Doesn't reprimand children when they misbehave.
16. Talks to the children without explanation.
17. Punishes the children without explanation.
18. Exercises firmness when necessary.
19. Encourages children to exhibit prosocial behavior, e.g., sharing, helping.
20. Finds fault easily with children.
21. Doesn't seem interested in the children's activities.
22. Seems to prohibit many of the things the children want to do.

- 23. Doesn't supervise the children very closely.
- 24. Expects the children to exercise self-control: e.g., to be undistruptive for group provider-led activities, to be able to stand in line calmly.
- 25. When talking to children, kneels, bends or sits at their level to establish better eye contact.
- 26. Seems unnecessarily harsh when scolding or prohibiting children.

APPENDIX B

BATON ROUGE EARLY CARE & EDUCATION STUDY: PHASE II IRB APPROVAL DOCUMENT



Institutional Review Board
203 B-1 David Boyd Hall
Louisiana State University and A&M College
Baton Rouge LA 70803

(225) 578-8692

FAX: 578-6792
irb @lsu.edu

INSTITUTIONAL REVIEW BOARD

ACTION ON PROTOCOL APPROVAL REQUEST

TO: Sarah Pierce
School of Human Ecology

FROM: Robert C. Mathews
Chair, Institutional Review Board for Research with Human Subjects

DATE: June 17, 2005

RE: IRB# 2530

TITLE: "Baton Rouge Early Care & Education Study: Phase II"

New Protocol/Modification/Continuation : N

Review type: Full _____ Expedited X **Review date:** 06/17/2005

Risk Factor: Minimal X Uncertain _____ Greater Than Minimal _____

Approved X **Disapproved** _____

Approval Date: 06/17/2005 **Approval Expiration Date:** 06/17/2006

Re-review frequency: (annual unless otherwise stated) _____

Number of subjects approved: 75

By: Robert C. Mathews, Chairman

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING – Continuing approval is CONDITIONAL on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. SPECIAL NOTE:

*All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at <http://www.fas.lsu.edu/osp/irb>

APPENDIX C

BATON ROUGE EARLY CARE & EDUCATION STUDY: PHASE II CONSENT FORM

*** RETURN THIS SHEET TO DR. PIERCE ***

The Baton Rouge Early Care and Education Study: Phase II

Dr. Sarah Pierce
work: 578-1725
home: 383-0509
cell: 505-9267

School of Human Ecology
LSU
Baton Rouge, LA 70803
email: pierce@lsu.edu

1. Purpose of the study: To continue the examination of the effects of high-quality early care and education on infants that we began in 1999 (BRECES, Baton Rouge Early Care and Education Study: Phase I).
2. Participants: Children of families who have remained active in the BRECES study.
3. Performance sites: Children will be interviewed at their summer child care arrangements.
4. Procedures: Children will be asked to participate in two short "picture choosing" tasks, each of which takes about 15 minutes. First they will be shown line drawings of children, and asked to indicate which child is "most like them." Examples include drawings of children who are working puzzles, climbing trees, and looking at letters of the alphabet. Second, the children will be shown several pictures, given a vocabulary word, and asked to point to the picture that represents that word. The children's height and weight will also be measured.
5. Benefits: There are no expected immediate benefits to the participants, but the results will hopefully help professionals provide better early care.
6. Risks: There are no physical or psychological risks to the children or their families. No information is of a sensitive or clinical nature. The interviewers will be trained female undergraduate students who are majoring in early childhood education, and who are sensitive to young children's needs.
7. Participants' rights: Participation is voluntary; parents are free to withdraw their child from the study at any time.
8. Privacy: Data will be kept confidential unless release is legally compelled. Research records will include only an identification number after all the questionnaires and observations are complete. No names will be included on any final research records. All results will be reported as group averages. All information will be destroyed when it is no longer needed for the reporting of the research.
9. Release of information: The general findings of the study will be available to the participants when it is published. Information about individual families or children will not be available to parents, future teachers, or school systems.

*** TURN OVER FOR SIGNATURE ***

*** RETURN THIS SHEET TO DR. PIERCE ***

The study as been discussed with me to my satisfaction and all my questions have been answered to my satisfaction. I may direct additional questions regarding study specifics to the investigator, Dr. Pierce. If I have questions about subjects' rights or other concerns, I can contact Robert C. Mathews, Chairman, LSU Institutional Review Board, (225) 578-8692. I agree to participate in the study described above and acknowledge the researchers' obligation to provide me with a copy of this consent form if signed by me.

parent's signature

date

please print your name

relationship to child

phone number and times of day when we can reach you

your mailing address

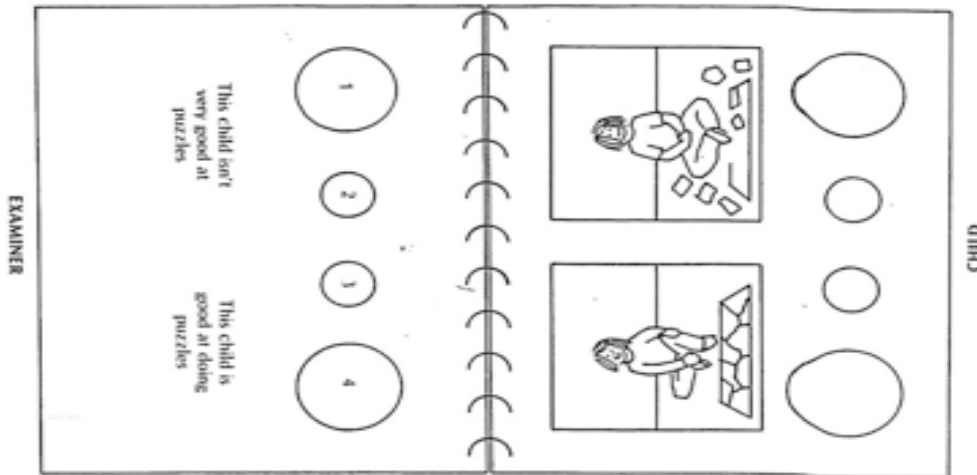
your email address if you have one

where your child is during the summer: please provide as much contact information as you can

child's name

APPENDIX D

SAMPLE OF PICTORIAL MATERIALS FROM THE PICTORIAL SCALE OF PERCEIVED COMPETENCE AND SOCIAL ACCEPTANCE FOR YOUNG CHILDREN (HARTER & PIKE, 1983)



Accompanying the verbal description, which the examiner reads, is a scoring key for that item.

For each of the four possible circles, which the child may choose as his or her response, there is a corresponding circle on the examiner's page designating the numerical score for that choice.

These scores range from 1, for the least competent choice, to 4 for the most competent choice.

Instructions

The child is given a sample item at the beginning of the booklet and instructed as follows:

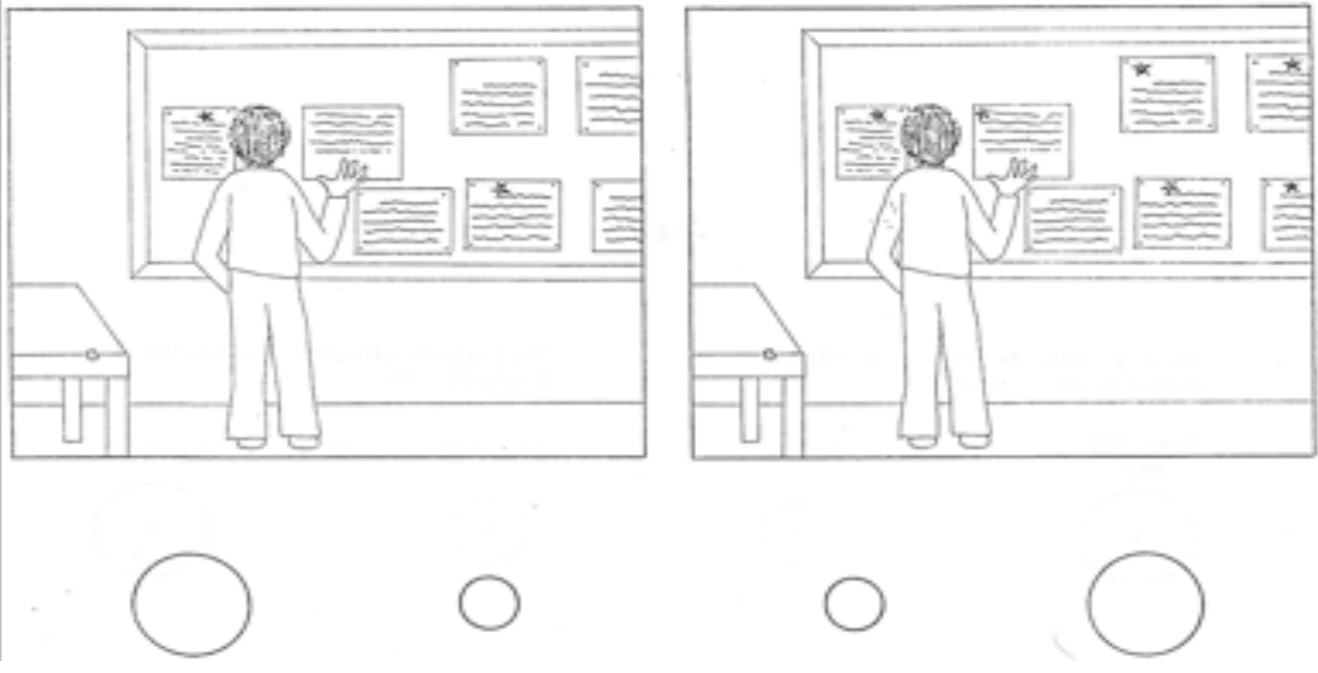
I have something here that's kind of like a picture game and it's called WHICH BOY
(GIRL) IS THE MOST LIKE ME. I'm going to tell you about what each of the boys
(girls) in the picture is doing.

Sample: In this one, (E then points to the picture on the left) this boy/girl is good at doing
puzzles, and this boy/girl (E points to the picture on the right) is not very good at doing puzzles.

Now, I want you to tell me which of these boys/girls is most like (Child's Name).

APPENDIX E

PICTURE PLATE #5 FROM THE PICTORIAL SCALE OF PERCEIVED COMPETENCE AND SOCIAL ACCEPTANCE FOR YOUNG CHILDREN (HARTER AND PIKE, 1983)



This boy usually gets stars on his papers.
Do you:

Always get stars OR Get stars most
 of the time



This boy usually doesn't get stars on his
papers. Do you:

Sometimes OR Never get stars
get stars



APPENDIX F

INDIVIDUAL SCORING SHEET FOR COGNITIVE COMPETENCY ITEMS FROM THE PICTORIAL SCALE OF PERCEIVED COMPETENCE AND SOCIAL ACCEPTANCE FOR YOUNG CHILDREN (HARTER & PIKE, 1983)

Child's Name _____ Age _____ Gender: M F

Class/Grade _____ Teacher _____ Testing Date _____

Item Order and Description

- | | | | |
|-----|----------------------------|----|-------|
| 1. | Good at puzzles | 1 | _____ |
| 5. | Gets stars on papers | 5 | _____ |
| 9. | Knows names of colors | 9 | _____ |
| 13. | Good at counting | 13 | _____ |
| 17. | Knows alphabet | 17 | _____ |
| 21. | Knows first letter of name | 21 | _____ |

Column (Subscale) Total:

Column (Subscale) Mean:

Comments:

APPENDIX G

COGNITIVE COMPETENCY SUBSCALE ITEMS FROM THE PICTORIAL SCALE OF PERCEIVED COMPETENCE AND SOCIAL ACCEPTANCE FOR YOUNG CHILDREN (HARTER & PIKE, 1983)

Pre-School/Kindergarten (P-K)

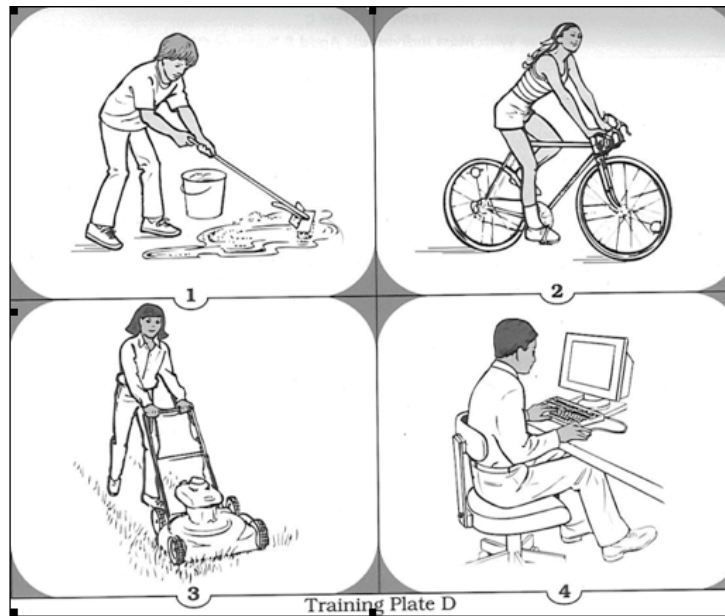
- a. Good at puzzles
- b. Gets stars on paper
- c. Knows names of colors
- d. Good at counting
- e. Knows alphabet
- f. Knows first letter of name

First/Second Grades (1-2)

- a. Good at numbers
- b. Knows a lot in school
- c. Can read alone
- d. Can write words
- e. Good at spelling
- f. Good at adding

APPENDIX H

SAMPLE TRAINING PLATE FOR PEABODY VOCABULARY TEST (DUNN AND DUNN, 1997)



Experimenter says, "Show me 'mopping.'"

VITA

Jenna Rae Watson was born in Marrerro, Louisiana, in October, 1980, to Lettie May Watson and Kenneth Wayne Watson. She graduated from Belaire High School in 1998 and attended Louisiana State University in Baton Rouge, Louisiana. She received her Bachelor of Arts degree in 2005 in general studies with minors in anthropology, English, and philosophy. She began contemplating work on her master's degree during this time, influenced by working with children in the Nicholson School during a Service Learning Course in her last year of bachelor study. She applied for and enrolled in the School of Human Ecology in the fall of 2006 and received a Graduate Assistantship and has been working under the guidance of her major professor, Dr. Sarah Pierce.