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Consistent Environmental Stimulation from Birth to Elementary School

The Combined Contribution of Different Settings on School Achievement

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This chapter starts with the premise that children's school-readiness skills and capacities are fostered through everyday interactions and relationships with adults across the settings they experience in the years prior to school. As they grow from birth, children engage in increasingly elaborated and symbolically mediated interactions with caregivers (parents and teachers) in which emotion, cognition, behavior, and communication are intertwined and organized. Out of this exceptionally complex, dynamic, multisystem process emerges the capacity, skill, and interest to read, understand, and produce written language, to self-regulate, to engage in academic activities, and to acquire knowledge of the world (Clements & Sarama, 2008; Dickinson & Tabors, 2001; Foorman & Torgesen, 2001). School readiness, which could be viewed as a "behavioral system" in much the way Bowlby (1969/1982) viewed attachment as a behavioral system, recruits and organizes many processes, among which are: interactions at home, in child care, and school with people that provide foundations for learning and self-regulation; the understanding and production of oral language; the capacity for short-term memory and attention; and even sensitivity to the properties

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of print and sounds (Dickinson, Anastapolous, McCabe, Peisner-Feinberg, & Poe, 2003; Lonigan, Burgess, & Anthony, 2000; Morrison, Bachman, & Connor, 2003). From a developmental perspective, it is within the context of adult–child relationships that these processes are stimulated and become organized as a system of behaviors serving the functional goals that are observed and assessed as school-readiness skills. The following discussion focuses on the role of relationships in the development of school-readiness skills, and the consequences of this perspective for research and theory, with an emphasis on literacy and language development because of their prominence as gateway capacities in early school functioning.

Relationships, Interactions, and Development of School-Readiness Skills

Children's early school experiences are a matter of national concern, as evidence consistently points to the significance of early achievement in predicting future educational accomplishments. Although two thirds of America's first-time kindergartners a decade ago entered school proficient in the recognition of letters (West, Denton, & Germino-Hausken, 2000), this is perhaps a deceptively bright picture of current affairs. Moreover, then and now, children's preacademic skills upon entry into school vary consistently as a function of multiple risk factors (e.g., family poverty, race/ethnicity; Denton & West, 2002), and concerns about very large learning and performance gaps among groups is growing (Pianta, Barnett, Burchinal, & Thornburg, 2009).

Increasingly, early childhood is viewed as a sensitive period for the development of key cognitive, literacy, and language competencies—skills shaped by child characteristics and family, child care, and early classroom experiences (Morrison & Connor, 2002; NICHD ECCRN, 2002a). Pathways for later educational success or difficulty are formed during young children's early adjustment to school (Entwisle & Hayduk, 1988; Hamre & Pianta, 2001). Prekindergarten cognitive skills and math and reading achievement during first through third grade tend to be maintained into early and late adolescence (e.g., Vandell et al., 2010), although there is clear evidence that stability is only moderate in the early grades (La Paro & Pianta, 2000). In addition, early academic problems place children at risk for grade retention and school dropout (Vandell et al., 2010). Because apparently few opportunities occur after third grade to alter an academic development trajectory, understanding the factors that shape the early phases of achievement trajectory, during the preschool to primary grade period, has implications for early mobilization of educational resources. These resources could then be targeted based on findings about the relative influence of child, family, child-care, and classroom factors on children's cognitive skills and academic achievement. Weighing the relative contribution of early and concurrent experiences also provides a context for interpreting the effectiveness of school-based programs that seek to raise achievement.

Children's early experience within their family and aspects of family structure are consistently strong predictors of preacademic skills, as well as later academic achievement and cognitive functioning (McWayne, Hampton, Fantuzzo, Cohen, & Sekino, 2004; Morrison & Connor, 2002). Maternal education and family income are key elements of family structure that have been associated with young children's academic outcomes, language development, and cognitive abilities (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Duncan & Murnane, 2011; Vandell et al., 2010). In addition, aspects of the parent–child relationship, in particular maternal sensitivity during parent–child play interactions, are especially robust predictors of children's academic competence in kindergarten and first grade, even after accounting for factors such as maternal education (NICHD ECCRN, 2006; Vandell et al., 2010). Relatedly, a stimulating home environment is another well-established element of the family associated with young children's academic and cognitive development (Bradley, Corwyn, Burchinal, McAdoo, & Coll, 2001). There is general consensus that early family context—and, in particular, parenting quality and the stimulation of language skills—tends to make a stronger contribution to children's development than other early childhood contexts (NICHD ECCRN & Duncan, 2003).

Early child-care experiences, particularly high-quality care, also appear to enhance children's development of language and academic skills prior to school entry (Burchinal et al., 2002; Vandell et al., 2010), even above and beyond the effects of the family environment as a "value-added" factor (NICHD ECCRN & Duncan, 2003). Across several naturalistic, longitudinal projects, including the Cost, Quality, and Outcomes Study, NICHD Study of Early Child Care, and the Multi-State Study of Prekindergarten, findings consistently demonstrate that quality experiences in a child-care context predict language, cognitive, and achievement outcomes after controlling for family selection factors such as socioeconomic status and parental sensitivity (Vandell et al., 2010; Peisner-Feinberg et al., 2001). Definitive evidence from quasi-experimental and experimental studies with samples of children who experience social and economic risks further indicates a positive effect of comprehensive, high-quality early child care on children's cognitive ability and academic success in elementary school through adolescence (see Pianta et al., 2009). Effects of the most thorough and concentrated of these early child-care interventions are reported to have been sustained into early adulthood, leading to positive academic achievement and increased rates of employment (Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002).

In sum, experiences with adults in homes, child care, preschool, and the early grades of school are formative assets for the development of skills that translate into success in elementary school and beyond. Understanding and ultimately strengthening the role and impact of these experiences, particularly as transmitted in relationships and interactions, is addressed in the sections to follow.

Interactions with Contexts: Relationships and Distributed Competence

One of the most common ways in which relationships and interactions have been a focus in research on early literacy and language development has been in studies of joint storybook reading by mothers/teachers and children (deJong & Leseman, 2001; Zevenbergen & Whitehurst, 2003). Yet relationships with adults play a much broader and long-standing role in literacy development and school readiness than simply being a setting for book reading. Relationships support literacy, cognitive development, self-regulation, and ultimately early achievement by providing language stimulation and conversation, co-regulation of attention, arousal, interest, and emotional experience, direct transmission of phonological information and content, and engagement in the understanding of language that fosters cultural understanding (Baker, Mackler, Sonnenschein, & Serpell, 2001; Dickinson & Tabors, 2001; Whitehurst & Lonigan, 1998). In relationships and interactions with adults, experience supporting school readiness occurs at multiple levels and across multiple domains, engaging and activating motivational and belief systems that produce interest in printed words that hold meaning and information, as well as cognitive, linguistic, and attentional mechanisms (e.g., Dickinson et al., 2003).

A young child's capacity to engage in a book-reading task, a puzzle, or to playfully explore a learning opportunity is dependent on skills that are embedded in his or her experiences and interactions with personal and material resources in a variety of settings: with adults and peers at home, in child care, or in school. From a developmental systems perspective, children's interactions with these settings are active and dynamic exchanges of information, material, and energy (Ford & Ford, 1987). Developmental process and growth, particularly in infancy and early childhood, is so dependent on these interactions, that it is possible to view the developing child as having permeable "boundaries" such that competencies that appear to reside in the child are actually *distributed* across the child and the resources (personal and material) they engage within these various settings (Hofer, 1994; Resnick, 1994). Given this point of view, it is not surprising to find that the most powerful and ubiquitous predictor of young children's functioning on skills related to social and academic competence as they enter school is the quality of interactions observed between mother and child during the preschool period (NICHD ECCRN, 2006; Storch & Whitehurst, 2001). For example, literacy behaviors displayed by children, even those at the level of skills involved in processing phoneme–grapheme associations, are embedded in these interactions and organized within adult–child relationships (Pianta, Hamre, & Stuhlman, 2003).

Most comprehensive views of the development of school readiness recognize the central role and function of child–adult relationships, as evinced by the scores of articles on parent–child storybook reading, child–teacher interactions and instructional practices in child care preschool and in elementary-school settings, and intervention approaches that target parent–child interactions. Relationships between children and adults are a central, and most likely *necessary*, conduit for energy and information that fuel developmental change in the capacities that ultimately take form in school readiness.

Relationships, Interactions, and School Readiness: Birth to Elementary School

Most considerations of adult–child relationships and school readiness focus on literacy and language as the medium of interaction and/or limit the time frame to the toddler or preschool age and older; this is particularly true when the role of the adult is defined as a teacher/educator. A more comprehensive view of how adult–child relationships function to support literacy competence starts in early infancy and moves through the preschool early elementary period, involving systems other than language or phonological processing. This argument and its implications are outlined below.

In his theory of development and the formative role of parent–child relationships, Sroufe (1996) describes the developmental themes around which interactions between children and caregiving adults (parents, child-care providers, teachers) are organized over time. Pianta (2003) extends this perspective by aligning these relational themes and processes with phases and processes in literacy development with a specific focus on the role of teachers. In considering the role of teacher–child relationships in literacy acquisition, two key starting points are: (a) the recognition that the school-readiness behavioral system recruits skills and processes that begin in infancy (Dickinson & Tabors, 2001; Lyon, 2002) and (b) the teacher–child interactions and transactions that take place around specific school-readiness skills and processes (such as sensitive stimulation of oral language) also support other readiness outcomes, such as social competence and self-regulation, some of which, in turn, also support literacy skills. When discussing the role of teacher–child relationships in the development of school readiness, the multilevel, reciprocal, dynamic nature of development is clearly both a challenge and an opportunity for deeper understanding.

Developmental progress in the increasing organization and complexity of relationships between children and adults can be characterized according to a set of relational themes described by Sroufe (1996). These adult–child relationship themes include: (a) regulation and modulation of physiological arousal, (b) formation of an effective attachment relationship, and (c) self-reliance and the organization and coordination of environmental and personal resources. The relational processes embedded in these themes, starting in infancy, are platforms and mechanisms that support activities such as dialogic reading, playing rhyming games, storybook reading, or learning vocabulary or letter names. For example, if a mother fails to respond sensitively and responsively to the infant's interactive cues during feeding situations at 6 months, the ensuing problems with interacting cooperatively undermine the value of storybook reading or interactive rhyming games for supporting emergent literacy skills when the child is 2 or 3 (e.g., Bus & van IJzendoorn, 1995). These relational themes, and the developmental progression that characterizes the infancy–elementary period, are described below, with attention to the specific ways in which these themes contribute to literacy.

Infancy and Toddlerhood: Parents and Care Providers as Teachers

Infancy is a period of intense development as infants learn how to interact with the world based on their primary relationships. Rapid changes in physiological and social development during infancy allow for important teachable moments through interactions with adults (Crockenberg & Leerkes, 2005). Infants learn most of the skills they will need to navigate the world through interactions with their environment. First relationships are typically established with a parent or primary care provider. However, as infants enter day-care settings, important relationships are established with caregiving adults. These relationships foster social and emotional development and shape self-perception and self-regulation. Positive interactions between infants and adults can lead to healthy intellectual and social development (Nelson & Bosquet, 2005). The relationships between caregivers and infants in child-care settings serve as important mechanisms for learning about the world and developing social and emotional competence. Relationships built through positive interactions between infants and caregivers can shape the development of essential school-readiness skills such as inhibition, working memory, and cognitive flexibility (Thompson, 2009) and stimulate curiosity, exploration, and communicative intent (Raikes & Edwards, 2009). These interactions include physical connections as well as back-and-forth exchanges between caregivers and infants. Young children who are securely attached to their teachers are more likely to explore their environment, exhibit higher levels of play, and develop a sense of independence or autonomy (Gonzalez-Mena & Widmeyer-Eyer, 2007).

Regulation of arousal.

In the first 6 months of life, adult–child relationships and interactions are organized primarily around a theme of establishing and maintaining regulation and modulation of physiological arousal and joint attention. In these months the infant (and adult) must tolerate increasingly complex physical and social stimulation and maintain an organized state in the face of this increasing complexity. When established during episodes of interaction, this dyadic state supports periods of joint attention and mutuality, which, in turn, form the basis of exploration of the object and interpersonal world. Cycles driven primarily by the infant's physiological needs: sleep and alertness, feeding, interest, and arousal, all begin to become organized within the interactions the infant has with the caregiver very early on within this period (Hofer, 1994; Sroufe, 1996). Because the infant is not capable of establishing and maintaining organized states in response to cyclic physiologic, arousal, and state variations on her own, interactions with a caregiver are *required* (Hofer, 1994).

When the dyad is functioning well, the infant responds to routines set by caregivers and, with caregivers, establishes regular rhythms of feeding, activity/alertness, and sleep in the context of smooth, regular, and predictable caregiving interactions marked by contingency upon infant cues. Over time, these fairly basic interactive patterns focused on physiological variation broaden to include domains such as interactive play (e.g., peek-a-boo games) and form a relational matrix that organizes the infant in the face of increasingly complex stimulation. This lays the foundation for processes related to communicative intent, function, and skill, key aspects of language that lay the groundwork for the early stages of reading (Dickinson & Tabors, 2001; Hart & Risley, 1992; Morrison et al., 2003), as well as for emotional development, self-regulation, and attention control. On the other hand, disordered child–caregiver interactions disrupt the ways that adult–child interactions transmit knowledge and skill to children and affect literacy-specific interactions such as those that occur during bookreading (Bus & van IJzendoorn, 1999). At later ages, well-regulated and contingent (e.g., sensitive, responsive) interactions between children and teachers in early elementary classrooms have been shown to predict improved growth in literacy, vocabulary, and social skills in prekindergarten (Howes et al., 2008) and first-grade classrooms (Connor, Son, Hindman, & Morrison, 2005), particularly for children who already show problems in self-regulation (Hamre & Pianta, 2005).

Developmentally, this early phase of adult–child relationships has marked consequences for school readiness and can be easily underestimated, which has particularly negative consequences for understanding and responding to the needs of children who are struggling academically or behaviorally and socially in subsequent years (Dickinson, St. Pierre, & Pettengill, 2004). For example, to the extent that the vast majority of language development supporting later literacy occurs within the home setting between birth and 3 years of age, is fairly stable through the preschool and early elementary years (e.g., Dickinson & Tabor, 2001; Sparling, 2004), and is predicated on these early interactive rhythms, communicative styles, and skills, then attempts to enhance literacy for underachieving children can only be strengthened by attention to the earliest patterns of dyadic regulation. Difficulties in establishing shared attention and engagement predict problems in behavioral and emotional regulation that have consequences for the level of enjoyment and motivation for engagement in joint book reading or a range of other learning-related interactions that take place later in toddlerhood and the preschool years. The quality of these early child–adult interactions affect whether the child will be a willing or skilled partner with parents or teachers in activities in which language and communication are involved in the transmission of knowledge and skill (Foorman & Torgesen, 2001; Zevenbergen & Whitehurst, 2003).

Attachment.

The next relational theme, emerging toward the end of the first year of life and continuing throughout childhood, involves the formation and maintenance of an effective attachment relationship. Effective attachment to an adult affords the child a sense of emotional security in the context of a relationship and provides the basis for early exploration of the object and interpersonal world (Howes & Ritchie, 2002). Attachment processes regulate emotions and behaviors when the child feels threatened and are critically important for the infant beginning to explore (Sroufe, 1996). Attachment processes recruit mechanisms related to attention, motor behavior, fear and wariness, and signaling systems between the caregiver and child. Adult responsiveness, emotional availability, and an effective signaling system are key aspects of determining the nature and quality of how these behaviors and processes are organized as are the adult's previous attachment experiences (Zeanah et al., 1993).

The link between attachment and exploration advances cognitive skill through enabling efficient and active exploration of, and attention to, information in the environment. This is often called the "secure-base" function of attachment, by which the adult–child relationship serves as a conduit to information. Whether a relationship functions as a secure base for exploration is related to the child's sense of emotional (and physical) safety and security, the effectiveness, depth, and complexity of communication and emotional expression between adult and child, and the adult's skilled integration of new information into ongoing interactive sequences. One can easily see the linkage between secure-base processes and language development and communicative skills.

With regard to the areas of school readiness related to literacy skills and language development, secure attachment predicts language complexity, emergent literacy and reading, aspects of cognition, and social interaction with peers and other adults (see Sroufe, 1996). It figures prominently in the joint book-reading interactions of parents and children; children with secure attachments to an adult display more positive emotions during joint storybook-reading interactions and engage in more extended discussions of the book (Bus, Belsky, van IJzendoorn, & Crnic, 1997), while those with insecure attachments are less attentive and engaged (Bus & van IJzendoorn, 1997), thus less able to make use of the value of these book-reading sessions.

Toddlerhood—interactions and autonomy.

Toddlerhood is a period of rapid development for young children, with major skill acquisition and growth across the developmental domains that collectively foster a sense of autonomy and mastery. The skills acquired and the sense of self that emerges in this phase remain closely linked to experiences with adults and provide important precursors to skills required to adjust to and engage in elementary classrooms. For example, in this period children move from crawling to walking, running, and jumping; they change from being primarily recipients of language to having the potential to express more than 900 words. Toddlers are grappling with exerting emerging independence as they are beginning to understand rules and limits and balancing their independence with their need for security and comfort from adults (Calkins, 2007; Sroufe, 1996). Toddlers are in a developmental phase heightened by factors such as their emerging capacity for regulation of their physiological and emotional arousal; the demands of compliance with adult directives, and challenges in formal group settings that often require children to end a pleasurable activity and begin something less desirable (e.g., the transition from playing with toys to putting the toys back on the shelves or from running around chasing peers to a more stationary activity). In addition, conflict often arises for toddlers in early care and education settings because they and their peers explore social relations and the variety of opportunities and challenges presented in exploring people, materials, and activities. The unique developmental characteristics of toddlers to have "autonomy with connectedness" (Sroufe, 1996, p. 620) increase the importance of the emotional and behavioral support in toddler child-care settings.

Relationships with adults in their environment help guide and foster toddlers' development and independence; for toddlers, these relationships provide the context for development (Thompson, 2006). Children's experiences and success in classrooms are optimized when the teacher monitors children's behavior, sets clear expectations, uses positive phrasing in re-direction, and consistently provides children with activities and materials (Bredekamp & Copple, 2008; Feldman & Klein, 2003). Positive emotional and behavioral support in toddler classrooms is important for children to feel secure enough to form relationships with their teachers. For positive early social and behavioral development, toddlers need warm and consistent interactions with the adults in their environment.

A large proportion of children enter child care as toddlers, and have opportunities to develop an attachment with teachers in these settings (Calkins, 2007; Gianino & Tronick, 1988; Raver, 2004) as well as advance in behavioral regulation (Calkins & Johnson, 1998; Da Ros & Kovach, 1998; Eisenberg et al., 1997). Children with secure attachments to a teacher tend to explore their environment more fully, try new things, exhibit higher levels of play, and develop a sense of independence or autonomy (Gonzalez-Mena & Widmeyer Eyer, 2007). Toddlers' relationships with teachers and caregivers provide them with a secure base from which to explore all facets of their world, and these emotional bonds play a prominent role in toddlers' language and cognitive development.

These early relationships with teachers also foster cooperation and behavioral regulation. The term "behavioral regulation" (Calkins, 2007) generally refers to children's abilities to control impulsive behavior and comply with external requests. Relatedly, the acquisition of these standards of conduct allows children to function successfully in school environments and with peers (Calkins, 2007). Hence, the relationships developed and sustained for toddlers in child care contribute to their development and learning in significant ways. The back-and-forth exchange of information provides the foundation for learning and development and language development during the toddler period (Hendriks-Jansen, 1996). These interactions not only advance children's thinking, reasoning, and verbal skills, they also impart knowledge about the world as well as capacities such as persistence, attention, and motivation. Cognition and language development are closely related; although adults can label and "teach" words to young children, a child's "ability to infer referential intentions of others" (Katz & Snow, 2000, p. 84) refers to the child's ability to understand an adult's intention. However, the adults' interactional behaviors of pointing and engaging set up the context for children to begin to make inferences (Nelson, 2007). The properties of the interactive exchanges between teachers and children — the information conveyed, feedback loops, and conversational sequences — are critical to teachers' fostering of children's learning.

Preschool and Early Childhood: Parents at Home and Teachers in Schools

The ability to maintain caring and supportive relationships with students is crucial for all teachers of young students (Pianta, 1999). Sensitive teachers and teachers that create a positive climate in their classrooms tend to be more familiar with the academic needs of their individual students (Helmke & Schrader, 1988). These features of teacher–child interactions collectively, and separately, predict students' performance on standardized tests of literacy skills in pre-K, and grade 1 (Mashburn et al., 2008; NICHD ECCRN & Duncan, 2003); lower levels of mother-reported internalizing behaviors in kindergarten and first grade (NICHD ECCRN, 2003); and students' engagement in the classroom across all grade levels (Bryant et al., 2002; NICHD ECCRN 2002b, 2003). Although these processes are important for all students, they may be particularly important for students at risk of school failure. For example, among a group of students who displayed significant behavioral and emotional problems in kindergarten, those who were placed in first-grade classrooms offering high levels of emotional support made academic progress at levels similar to their low-risk peers, while students at risk placed in classrooms offering lower levels of emotional support fell further behind their low-risk peers (Hamre & Pianta, 2005). Importantly, these studies demonstrate that these aspects of classroom experience *uniquely predict* student outcomes, adjusting for selection effects and prior student functioning.

Home and preschool settings in which *behavior*, *time*, and *attention* are well regulated through interactions with adults foster more positive gains on a range of school-readiness outcomes (Cameron, Connor, & Morrison, 2005). These settings function best and children have the most opportunities to learn when their behavior is within a range of tolerance, they consistently have things to do, and they are interested and engaged in learning tasks (Pianta et al., 2003). Research on the importance of *time* management, provides consistent evidence that when children are engaged, this is directly associated with learning. A recent study suggests that effective classroom managers spend more time on management activities at the beginning of the school year and that this early investment in management pays off for students and teachers by enabling them to spend less time in transition and more time in child-managed activities over the course of the school year (Cameron et al., 2005). Finally, for students to learn they must not only have something to do, but they must be effectively engaged and interested in the instructional activities provided to them (Yair, 2000). Consistent with constructivist theories that guide much of early childhood practice (Bruner, 1996; Rogoff, 1990; Vygotsky, 1979), when teachers provide activities in which there are multiple pathways for engagement, students are not just *passively* engaged in learning, but are *active* participants in it. Taken together, these dimensions of classroom management set the stage for learning in preschool to third-grade classrooms.

Functional self-reliance.

Starting in the toddler/preschool years and continuing throughout childhood, a key theme of child–adult interaction is the child's functional self-reliance and coordination of personal and environmental resources in the context of relationships with adults. This theme, in fact, dominates interactions and relationships between children and teachers for most of a child's school career (Pianta, 1999). The child's use of her own and others' resources to engage information and tasks available to her to meet social and task-related demands is the hallmark of self-reliance, evident when the child enthusiastically engages problems in the world, persists in using her own efforts to address the problem, and, before disengaging, signals for and uses resources from others (Pianta, 1999). In this period, increasingly explicit literacy-related activities and interactions— listening to and telling stories, engaging in conversations, participating in and attending to joint storybook reading, playing games with words and songs, and even starting to learn letters—are a frequent focus of adult–child interactions at home (e.g., Storch & Whitehurst, 2001) and in child-care/preschool/school settings (Dickinson et al., 2004). In fact, by age 3–4 most children are enrolled in a preschool or other early education setting and interactions with parents at home and teachers in those settings are increasingly focused on transmitting literacy skills.

A teacher and child looking at or reading a storybook together one-on-one or in a small group in one of the main settings of literacy-supporting interaction is one of the most common learning activities, which starts in toddlerhood and extends into early childhood. Children's motivation to engage in interactions teaching reading-related skills, such as learning letter names and playing rhyming games, is cultivated through joint storybook reading, because through storybook reading they learn that understanding print is a tool for enjoyment and for learning. Storybook interactions also convey information about how oral and print forms of communication are integrated (Dickinson & Tabors, 2001), particularly when teachers call attention to connections that provide cues to unlocking the phonetic code (Whitehurst et al., 1994). The child's willingness to explore and practice these abstract forms of language and cognition and engage in the more instructionally focused interactions that they require is a consequence of the child's relationships experience with regard to prior relational themes of attachment and secure-base functioning.

A child's emotional experience in relationship with a teacher can be a key feature influencing the nature and extent of learning in early childhood. When the child experiences security, interactions are cooperative and responsive, reading together occurs more frequently (Bus & van IJzendoorn, 1995), is more enjoyable and rewarding, and more information is transmitted through instructional sequences. It is not at all controversial to suggest that teachers' emotional sensitivity and a child's sense of security are important elements of early childhood learning environments.

However, emotional security and sensitive responsiveness during this period, although perhaps *necessary* for establishing relationship-level functioning that supports ongoing enjoyment of reading and engagement in communication and language-focused activities, are not *sufficient* for competence in a young learner (Baker et al., 2001; de Jong & Leseman, 2001; Foorman & Torgesen, 2001). For example, being emotionally warm as a teacher probably is not enough if children are to acquire competence in decoding print, particularly for children whose prior experiences have been understimulating of language- and literacy-related processes. This is because the complex and multicomponent processes involved in knowledge and mastery of receptive and expressive forms of print–sound correspondence, particularly at the level of phonemes, *requires explicit instruction from a teacher*, whether in the home or at school (Burgess, Hecht, & Lonigan, 2002; Foorman & Torgesen, 2001; Lyon, 2002; Morrison et al., 2003). Cleaving the instructional and emotional dimensions of teacher–child relationships is a somewhat unfortunate by-product of the differential attention these aspects of teaching have received over the years. From a relationship-systems perspective, emotionally sensitive interaction and appropriately stimulating instruction co-occur in adult–child relationships that are bestsuited for supporting children's skills: these aspects of interaction are not mutually exclusive in skilled teachers or parents (Pianta et al., 2003). In one specific example of this in prekindergarten classrooms, emotional and instructional quality both contribute to growth in literacy skills, vocabulary, and social skills (Howes et al., 2008).

As just one example, the intentionally instructional component of teacher–child literacy-focused interaction, in which the adult provides cues to phoneme–grapheme relations and elicits the child's performance and practicing of these relations, has been shown to be the mechanism by which the child learns decoding skills that enable him or her to read text independently and ultimately to understand print (e.g., Foorman & Torgesen, 2001; Storch & Whitehurst, 2001). It is apparent now that such skills are taught, hopefully in the context of emotionally warm and sensitive teacher–child relationships. At the phase of literacy development when learning decoding skills is critical, teacher–child interactions with print that once served social, communicative, and meaning-focused functions, must become integrated with instructional elements that have the acquisition of skills related to phoneme–grapheme associations as their goal. In preschool, and certainly by the elementary years, the extent to which the explicitly skill-focused instructional dimension of interaction appears necessary for later reading is related to a range of prior conditions, some of which involve the themes of adult–child interaction discussed above that predispose children for difficulty in learning to read.

The relationship transition that involves introduction of a skill-focused, instructional component to adult–child interactions in the context of their emotional side is perhaps the single most challenging aspect of adults' facilitation of children's growth in early academic skills considered important in school readiness. This transition is difficult because it requires a transformation and reorganization of the relationship from a primary focus on emotions and support to a focus on instruction in challenging skills. In early childhood, how teacher–child relationships integrate the intentionally *instructional* dimension of interaction with the ongoing *support* dimension and balance phonological skill-focused interaction and instruction with enjoyment/meaning-focused interactions is a challenge that may determine whether or not the child will competently read.

Available data suggest that the challenge of integrating these two forms of interaction—(a) motivational and meaning/communication-focused and (b) instructional and skill-focused—continues throughout early childhood, with increasing prominence of instruction in the early elementary school years (Baker et al., 2001; Whitehurst et al., 1994), particularly if children are having difficulty learning to acquire key readiness skills (Foorman & Torgesen, 2001). As noted above, this integration is an enormous challenge to teacher–child relationships. For example, nearly all teachers of reading from pre-K to third grade show enormous variation in the instructional component of literacy-related interactions with children; yet, at the same time, their social and emotional interactions are less variable and on average fairly positive (Pianta, Belsky, Houts, Morrison, & NICHD ECCRN, 2007). This variation in the frequency, nature, and quality of teacher–child instructional interactions is evidence of the degree to which instruction challenges their relationships (e.g., NICHD ECCRN, 2002b; Whitehurst et al., 1994).

In short, teacher–child relationships have both support and instructional components that provide for the development of school readiness through competencies related to communication, self-regulation, attention, understanding, and eventually print–sound correspondence. These components of relationships and of readiness have interrelated developmental sequences and at the same time coexist in parallel in a dynamic tension. These dynamics at work are what are observed in readiness-related interactions between teacher and child in classroom lessons and at home at bedtime.

How We Think about Risk: Challenges to Interactions, Relationships, and School Readiness

Elliott and Hall (1997) provide a comprehensive definition of characteristics of children that place them at risk for a range of negative outcomes as they mature. They include "difficulty in using language fluently and effectively . . . inability to attend to and persevere with tasks and activities, lack of purposefulness, imagination . . . initiative, [and] 'normal' social and emotional maturity" (Elliott & Hall, 1997, p. 198). This framework is useful in many ways, particularly in that it highlights the many types of early "warning signs" of risk for difficulty adjusting to the school setting that are apparent in young children's behavior. The presence of any or all of these warning signs should alert parents, teachers, and other interventionists that steps need to be taken to ensure these children's healthy development.

A potential shortcoming of this definition of risk is that it focuses predominantly on child-centered characteristics such as language, attention, and social maturity. Although delays or difficulties in these areas certainly place children "at risk" as they make the transition to school, another way of thinking about factors that place children at risk is in terms of relationships: interaction patterns, quality of relationships, and how significant adults in children's lives perceive interactions and child behaviors all impact development. In fact, one could conceptualize characteristics typically considered to reside within young children (such as language, attention, and social skills) as aspects of regulatory processes involving adult–child dyads. In this view, risk in children is better conceptualized in relational terms, and therefore assessments and interventions that purport to address risk would involve a significant relational component or focus.

Substantial evidence suggests that both caregiver–child and parent–child relationships are related to children's peer competence, relationships with future teachers, and cognitive development and function as regulators of development. If these relationships are nonoptimal in nature, they may be conceptualized as representing developmental risk factors. Conversely, if these relationships serve as health-promoting systems, they may mitigate the negative impact of other factors (including poverty and maternal depression) that are typically related to the risk of social, emotional, or academic problems (Pianta et al., 2009). The type of interactions that enable children to form close, positive relationships with parents are believed to be the same factors that facilitate this type of relationship with caregivers. Specifically, sensitivity to children's needs and providing emotional support to children are emphasized in the literature on both parent–child and caregiver–child relationship quality.

The cognitive and social characteristics of children at risk for negative outcomes around the time of school entry listed by Elliott and Hall (1997) are likely linked with the quality of children's relationships with salient adults such as mothers and child-care providers. As these individual and dyadic factors are so closely related, one might conclude that research and intervention could be equally well informed by conceptualizing risk in either child-focused or relationally focused terms. However, several benefits are gained by conceptualizing risk from a relational as opposed to an individual perspective. First, social interactions between children and significant adults in their lives represent the interface between the internal characteristics of a child and the characteristics of the environment in which the child exists (Farmer & Farmer, 2001). Thus, elements of risk may be most clearly manifested in the context of social interactions. In addition, it may be in the context of such relationships that potentially deleterious factors can be most effectively addressed (Farmer & Farmer, 2001). Conceptualizing risk as existing first in dyadic interactions and then manifesting within individual children also generates more intervention strategies. For example, if risk is conceptualized as occurring, at least in part, in the context of interpersonal interactions, then relationship-building strategies can be employed to address those aspects of risk in addition to efforts to address the aspects of risk that are situated in an individual. Pairing relationship-oriented interventions with individual interventions is likely to be a more powerful method of promoting health because such strategies will both reduce demonstrated risk and build positive "buffers" against future risk in young children. Furthermore, according to developmental theory, problems observed in children are not failures of the child per se, but rather failures of the larger systems that provide the context for the child's development.

In short, recent efforts to focus on children's school readiness in the context of national and state policy, and in terms of program evaluation, call attention primarily to a set of skills and competencies (or lack thereof) more or less "located" in the child. Measuring and conceptualizing and even improving these skills have reified this sense that young children's competencies are in some sense independent of the environment and settings in which they have been developed and elicited. And to some extent that is true: reliable and valid assessment of young children's school-readiness skills and their precursors are widely used and should be important and thoughtful anchors of early education systems. However, it remains a parallel, and an equally if not more important consideration to measure, conceptualize, and improve school-readiness competencies through processes located in the interpersonal relationships between children and adults. Not only may this be the most effective way to address a child's difficulties acquiring developmental competencies at any given time, but such a relational or transactional approach to fostering skills may also increase the likelihood that the child will be able to successfully develop needed competencies in the future.

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