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Understanding School Readiness

The Social and Emotional Foundations for Learning

Supporting Brain Development for School Success

Strengthening the Collaboration Between Parents and Professionals

Effective Strategies for Early Childhood Programs

THIS ISSUE AND WHY IT MATTERS

School readiness entered the spotlight as a national concern in the 1990s, when the National Education Goals Panel, a bipartisan group of governors, members of Congress, and State legislators, set as a priority that, "By the year 2000, all children will start school ready to learn" (National Education Goals Panel, 1998). Defining what it meant to be "ready to learn" proved to be a challenging task, and as early childhood programs felt increasing pressure to ensure that increasingly younger children were being adequately prepared for school entry, many questions and misconceptions arose about what school readiness meant for infants and toddlers. Early childhood professionals raised the concern that some were putting an inappropriate emphasis on teaching discrete skills, such as the ability to count or recite the alphabet, without an understanding that a key component of school readiness lies in a child's sense of their own competence, developed through close, nurturing relationships with caring adults.

Today, the concept of "readiness" continues to be debated and refined. Understanding school readiness for infants and toddlers has required further reconceptualization of what children, families, and communities need to foster school success beginning in the earliest years of life. In the past 2 decades, there has been an explosion of new research on early brain development and a greater understanding of the unique developmental needs and abilities of infants and toddlers. These advances have informed our understanding of how to set appropriate school readiness goals and how to support children, families, and communities in reaching those goals.

As described in the articles in this issue, school readiness is best conceptualized as a process that occurs over time, in the context of caring relationships with informed and supportive adults who can nurture both the qualities and the developmental skills that help children become successful learners. We know that kindergarten is not the beginning of a child's educational experience, nor is it the endpoint for school readiness. We know that infants and toddlers explore, process, and understand their world differently than older children. Furthermore, infants and toddlers are dependent on their relationships with adults in distinct ways that have an effect on their learning and development. In addition to unique cognitive and developmental processes, infants and toddlers are developing the foundational qualities of curiosity, mastery motivation, and other approaches to learning that are critical precursors to school success. Finally, social and cultural contexts add another layer of complexity to early development that further influences the goals and expectations for early development, learning, and school readiness. Thus, the infant and toddler period is a rich and fertile time to support families and ensure that young children are on the path that allows them to realize their full potential during their years in school and beyond.

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Social–Emotional School Readiness

How Do We Ensure Children Are Ready to Learn?

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If you were to sit down with a kindergarten teacher and ask her what most makes a child ready to succeed in that critical transition to formal schooling, what do you think she would be most likely to say? The number of colors and shapes a child can label? How high the child can count? How many letters he can name? The answer: none of the above. In fact, a survey of nearly 3,000 kindergarten teachers found that these skills ranked at the bottom of the list of traits that teachers rated as essential to school readiness.

What skills ranked at the top of the list of what, according to teachers, makes a kindergarten child ready to learn? A child's ability to verbalize her needs and thoughts, follow directions, take turns, and be sensitive to others. Teachers also emphasize a child's ability to not disrupt classroom activities (Lin, Lawrence, & Gorell, 2003).

Our kindergarten teachers overwhelmingly tell us that children's social–emotional competencies—not just their cognitive ones—are what make them ready to learn in the context of formal schooling. Learning in a classroom requires attention, compliance, and emotional and behavioral self-regulation skills (Blair & Diamond, 2008).

Unfortunately, our youngest learners are not necessarily entering school prepared with these skills. In a different national sampling of kindergarten teachers, teachers indicated that over half of the children in their classrooms demonstrated problems that limited their ability to learn, including social–emotional problems (Rimm-Kaufman, Pianta, & Cox, 2001). Readiness for school requires children to have certain social–emotional competencies; it also requires schools to be able to serve a wide range of children. At the extreme, preschoolers may actually be expelled from schools that are unprepared to manage problem behaviors: Preschoolers are expelled from school programs for behavior problems at three times the rate of expulsion from elementary schools (Gilliam & Shahar, 2006).

This article reviews research providing evidence that social–emotional competence is a key component of school readiness and that the foundations of social–emotional competence are laid down in the earliest years. We go on to discuss interventions and programs that have been found to strengthen children's social–emotional competencies before school entry.

The Case for Social–Emotional School Readiness

It is a fundamental tenet of developmental science that the domains of development are intertwined: Especially in early childhood, a child's cognitive development depends on his social–emotional development. Developmental lags in any one domain often negatively affect others. When it comes to ensuring school readiness, social–emotional competence is just as important as achievements in literacy, language, and number skill.

Evidence from developmental, educational, and clinical research documents what kindergarten teachers have been telling us about children's readiness to learn. Longitudinal studies clearly have

Abstract

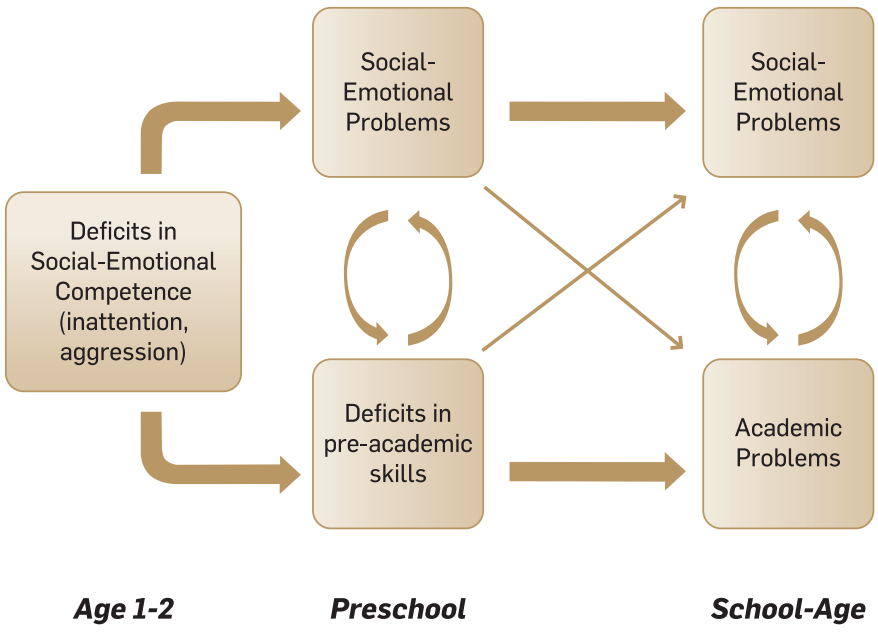
Research provides evidence that social–emotional competence is a key component of school readiness and that the foundations for social–emotional competence are laid down in the earliest years. This article describes some of the social–emotional skills that help prepare children for formal schooling and reviews effective practices and specific interventions that have been found to strengthen children's social–emotional competence. The authors suggest that providing resources for early social–emotional interventions is an important component of enhancing school readiness.

documented paths between early behavior problems and later academic difficulties, although more research is needed to understand the nature of these reciprocal relations (La Paro & Pianta, 2000; Ladd & Burgess, 1999; McGee, Margot, Williams, Smart, & Sanson, 2002). Strong links between behavior problems and school outcomes have led leading scholars in this area to call for interventions promoting self-regulation as a way to target and prevent school failure (Blair & Diamond, 2008).

Of course, the critical foundations for these self-regulatory competencies are laid down in the earliest years. Furthermore, they are laid down in the contexts of nurturing relationships between the child and caring adults and nurturing communities that support parents in optimizing their children's development, be it with formal programs or with resources such as neighborhood playgrounds and libraries. Beginning in infancy and through the toddler and preschool years, children show dramatic gains in their ability to regulate their attention, emotion, and behavior, drawing on the adults around them to help them organize and make meaning of those attempts (Eisenberg, Smith, Sadovsky, Spinrad, & Baumeister,, 2004). To date, most of the research on social–emotional school readiness has focused on the preschool years (La Paro & Pianta, 2000).

Recent research from our team clearly demonstrates that we can document pathways from early social–emotional problems to later academic difficulties even in the earliest years, before school performance is a developmentally salient task. In a longitudinal study of over 300 young children, parents' ratings of toddlers' aggressive, inattentive, and overactive behaviors at 12–36 months, as well as changes in these behaviors across the toddler period, predicted children's reading abilities in second grade (Gray, Carter, Briggs-Gowan, & Jones, 2012). In particular, deficits in children's capacities for attention regulation in the first year of life (How long can a child play with a toy? Or sit while a story is read?) predict later reading skills, even when the shared risks of low cognitive ability and sociodemographic risks are taken into account. Thus, even before we can measure preacademic competencies, such as phonemic awareness or sensitivity to sounds in words (e.g., rhyming), we can measure factors that place children at risk for struggling with reading. This means that we may be able to halt the developmental cascade in which behavior problems lead to academic problems even before those academic problems start to develop (see Figure 1).

Figure 1. A Developmental Cascade: The Relationship Between Social–Emotional Competence and Academic Problems Over Time



The Components of Social–Emotional School Readiness

Imagine two kindergarteners: Sophie and Lesley. Although she doesn't have any books at home and can't name her letters, Sophie enjoys looking through picture books, is able to sit quietly in circle time, and can wait her turn in back-and-forth games with peers; in other words, she has entered school with strong self-regulatory capacities. Lesley can label her letters and count to 10, but she jumps from activity to activity, becoming distressed and tearful when the teacher asks her to stay with the activity she chose, and she is often observed to snatch toys from other children's hands and hit others when frustrated; in other words, she struggles with self-regulation.

As humans, we tend to stay away from scenarios that threaten our self-worth; young learners are no different (Blair & Diamond 2008). So which child is more likely to derive pride and self-worth from her experiences at school? Which child is more likely to feel motivated in the classroom? Research teaches us that children who have difficulty in behavior regulation and social–emotional competence in the first years of elementary school are more likely to drop out of high school (Vitaro, Brendgen, Larose, & Tremblay, 2005).

What, then, are the major components of social–emotional competence that underlie school readiness for our youngest learners? In the following section, we describe some of the cognitive and social–emotional skills that help prepare children for formal schooling.

Executive Functioning: Regulating our Attention and Behavior

Executive functioning is an umbrella term that describes the ability to control and manage cognitive processes, including attending to tasks, inhibiting behavior, solving problems, and monitoring actions. Executive functioning measured in preschool has been found to predict children's reading and math ability at the end of kindergarten, even beyond what was explained by children's general intelligence (Blair & Razza, 2007). In other words, children's abilities to coordinate attention across activities and inhibit behavior—for example, walking slowly after being encouraged to run or not peeking when someone is noisily wrapping up a prize for you—are key components of social–emotional school readiness.

Emotional Competence

In addition to regulating attention, regulating emotions, both positive and negative ones, seems to be a key part of early school success. Emotional competence includes such skills as empathy, labeling emotions, regulating emotions, and using words to describe one's feelings. In one study of children living in the adverse context of poverty, those who entered preschool with a stronger ability to regulate their emotions—for example, bouncing back from being upset or showing positive feelings when adults are friendly—ended the year with better adjustment to schooling. Also associated with better adjustment was children's emotional understanding; in other words, their ability

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Children's social and emotional competencies—not just their cognitive ones—are what make them ready to learn in the context of formal schooling.

to take another person's perspective and to identify situations that may be more likely to provoke certain emotions (Shields et al., 2001). Emotional competence is something we can teach children in the earliest years to help prepare them for school entry.

Social Skills and Relationships

Think back on Sophie and Lesley. Which child is more likely to have peers choose to play with her? To have a teacher expect better work of her? To develop strong relationships with her teacher? Also, these relationships are important for children's early success. Strong student–teacher relationships have been shown to be protective for young children who struggle academically and behaviorally (Hamre & Pianta, 2001). Of course, the foundations for these relationships are laid down in children's earliest caregiving relationships, which have been shown to predict how children adjust to formal schooling (La Paro & Pianta, 2000).

Key components of early social competence include the ability to: label emotions in oneself and others ("emotional literacy"); take others' perspectives (empathy); communicate effectively; manage negative emotions such as anger adaptively (e.g., using words and minimizing the outward expression of intense negative feelings); build effective relationships with peers and adults; and solve interpersonal problems effectively (Webster-Stratton & Reid, 2004).

Vulnerabilities and Disparities

Just as the foundations for school learning are laid down in the first years of life, the roots of educational disparities are established well before the school years. Early academic difficulties and behavior problems share several early risk factors such as low cognitive ability and sociodemographic risk factors such as low birth weight, poverty, low maternal education, and single-parent status, as well as other risk factors such as exposure to violence (Brooks-Gunn, Klebanov, & Liaw, 1995). These common factors, which may underlie both difficulties in regulation and difficulties in school, are important to take into consideration when we think about how to help children come to school prepared to learn.

Emotion regulation may play a role in mediating the effects of the risks of poverty and behavior problems on later academic achievement—protecting children who may otherwise be at risk because of living in poverty (Raver, 2004). It seems that children's capacity to regulate their attention and inhibit behaviors explains a unique and critical part of what makes preschoolers ready to learn and succeed (Blair & Diamond, 2007)

Applying Our Knowledge

Screening

If we know that early attention and behavior problems matter, can we identify children who may need extra help in getting ready to learn? The answer is yes: Early screening for social–emotional functioning in the infant and toddler years can help us to identify children who may be at risk for struggling in the transition to formal schooling.

We have valid and reliable tools that can help us to screen and identify very young children with behavior problems and delays in competence that may get in the way (Bricker, Davis, & Squires, 2004). For example, the one-page Brief Infant–Toddler Social and Emotional Assessment has been shown to identify around half of 1- to 2-year-old children whose teachers will later rate them as demonstrating subclinical and clinical symptoms in second grade (Briggs-Gowan & Carter, 2008).

Perhaps even more important, we have evidence-based programs that are designed to target early social–emotional problems, help parents and teachers facilitate children's behavioral development, and make sure that all children are entering school with the social–emotional competencies necessary to learn.

Early Social–Emotional Intervention

Numerous programs exist to prevent the development of social–emotional problems (usually in combination with other goals, such as promoting academic competence) or to treat existing problems in very young children. These programs may reach children and families in their homes or in school/day care settings. With 52% of children in the United States in center-based care by age 4 (U.S. Department of Education, National Center for Education Statistics, 2010), improving infant–toddler care is a critical component of ensuring that children are well prepared for school. At the same time, improving access to center-based care for families living in poverty is necessary to ensure that these families benefit.

Intervention programs are often described as having three levels: health promotion, prevention, and intervention. Health promotion programs are typically designed to be universal, targeting populations assumed to be healthy, whereas prevention programs tend to target populations at known risk for developing problems, and intervention programs target those for whom problems are already evident. Most social–emotional development programs operate at the level of prevention or intervention, with some doing both. It is beyond the scope of this article to review systematically all programs known to be efficacious at each level of intervention, but we review some common factors of effective programs here and describe a sample of programs with particularly strong research support.

Effective Interventions

The roster of effective programs to promote social–emotional competence include programs in which clinicians or paraprofessionals work with parents and/or early education and care professionals, individually and in groups. This work takes place in homes, in clinics, in day care centers,

and in schools. What these programs have in common is helping caregiving adults support children's optimal development through nurturing relationships. Common strategies used by these programs include educating caregivers about development and encouraging them to engage in playful, positive interactions; praise children's positive behaviors; model adaptive regulation, problem-solving, and interpersonal skills; coach children through successful social interactions or verbal expression of their emotions; and emphasize play as a critical context for early learning (see Table 1).

Many programs for children under the age of 3 focus on the quality of parent–child interactions, structuring interactions to facilitate back-and-forth exchanges (e.g., getting down on the floor with the child) and teaching positive parenting behaviors such as displaying warmth and affection (e.g., using praise, hugging the child) and responsiveness (e.g., joining an activity the child is interested in, smiling back at the child when she smiles), as well as providing anticipatory guidance on child development. Programs using these strategies, such

Photo courtesy of Lindsay Alvis Cochrane

Beginning in infancy, children show dramatic gains in their ability to regulate their attention, emotion, and behavior, drawing on the adults around them to help organize and make meaning of those attempts.

Table 1: Early Social–Emotional Competencies and Practices to Support Them

Component	Definition	In infancy, looks like...	In toddlerhood, looks like...	In preschool, looks like...	Evidence-based practices to promote skill development
Executive functioning	Ability to manage attention and behavior	Looking and then reaching for a hidden object; pointing to show you something far away	Sorting blocks into big and little; following rules	Exhibiting restraint when asked to wait; sitting through a whole children's book	• **Set up** routines so children know what to expect. • **Look** at books with children. • **Play** games like "freeze" or "Simon says" that require impulse control • **Praise** self-regulation skills, such as when a child is listening well.
Emotional competence	Ability to express, regulate, and interpret emotions in yourself and others	Looking to a caregiver when distressed; showing distress at others' distress	Asking for help when frustrated; patting or giving a toy to someone who is distressed	Able to "use words" when frustrated; can label emotions of characters in children's books	• **Model** emotional awareness by noticing and labeling your own and your child's emotions. • **Label** children's frustration. • **Praise** when children are being patient or using their words. • **Encourage** children's self-soothing, such as with stuffed animals. • **Support** and soothe children when they are upset. • **Problem solve** after both the child and you are calm (e.g., think about other things the child might have done in a difficult situation).
Social skills	Ability to get along with others, including parents, teachers, and peers	Imitating adults; preferring caregiver over other adults; showing interest in others by looking, smiling, and babbling	Showing interest in other children his own age; able to play alongside others without aggression; beginning to share	Able to take turns and play with other children; solving interpersonal problems with flexibility (e.g., "I know, we can both be firemen!")	• **Model** interpersonal skills, such as sharing and interpersonal problem solving. • **Coach** children in problem solving and taking the perspective of others. • **Praise** children's appropriate social behavior, such as sharing or waiting for a turn. • **Play** with children and monitor their play with others to ensure success, scaffolding when necessary.

Photo: Kiwi Street Studios

Improving infant–toddler care is a critical component of ensuring that children are well prepared for school.

as the Nurse–Family Partnership, have been shown to have meaningful effects on parenting behaviors as well as on children's behavior problems and their development through adulthood (Olds, 2006; Olds et al., 2004). Parenting interventions may be conceptualized as health promotion (offered universally), targeted prevention (offered to specific risk groups, such as young mothers or first-time parents), or intervention (targeting groups with identified problems, such as parents who physically abuse their children or have children who have difficulty regulating aggression or attention).

Many programs focus on children in school or day care settings. For example, the Pyramid Model combines health promotion, prevention, and intervention strategies, depending on the level of need of children in the center (Strain, Joseph, & Hemmeter, 2009). In programs like the Pyramid Model, health promotion strategies, such as building positive relationships between children and teachers, are applied to all children in the classroom. Targeted prevention strategies such as the use of curricula teaching social–emotional skills are utilized with children at risk of social–emotional problems. Finally, intervention (e.g., an individualized support plan with parental involvement) is applied to children already exhibiting social–emotional problems.

The most effective programs appear to be those that provide comprehensive services across settings, intervening with children and providers in the school/day care setting as well as working directly with parents and other family members (Raver, 2002). These programs facilitate communication across the adults in the child's nurturing system, including parents, child care providers, and mental health experts.

A model comprehensive program, the Incredible Years, has been shown to be effective for families from a variety of cultural and linguistic backgrounds (Shepard & Dickstein, 2009). Incredible Years combines health promotion, prevention, and intervention components and has typically been delivered in school settings with a high percentage of at-risk children (e.g. children living in poverty). The basic program, designed for 3- to 8-year-olds, involves parent training, teacher training, and a classroom social–emotional curriculum. An adapted version for infants and toddlers, which only includes the parent/caregiver training component, has been successfully used with parents and early education and care providers (Gross et al., 2003), although more research is still needed on its efficacy (Shepard & Dickstein, 2009).

Another comprehensive, cross-setting program is Early Head Start, an extension of the nationwide Head Start program. Early Head Start is a targeted prevention program, providing services to low-income parents and their infants and toddlers, with the goal of preparing children to succeed in school. In addition to offering home-based and center-based services, Early Head Start also focuses on community development, helping communities to become more supportive environments for young children and families, and on staff development, providing staff with professional training and support to increase their ability to provide high-quality services. Early Head Start has more than 1,000 programs, with centers in all 50 states (Early Head Start National Resource Center, 2011), although researchers have noted a need to expand access to eligible families (Knitzer, 2008).

Early Head Start promotes social–emotional development through a number of pathways, including parent training and development of nurturing classroom environments. In addition, individual Early Head Start centers have effectively incorporated programs such as Incredible Years and the Pyramid Model into their curricula, although such programs have not been implemented on a national scale across Early Head Start centers. Increased funding to promote the dissemination of evidence-based best practices across centers could further increase the efficacy of Early Head Start programming for early social–emotional competence.

Accessibility of Intervention

In addition to knowledge of best practices, accessibility is a key issue for programs focused on improving young children's social–emotional development. We know that, for families with multiple risk factors and stressors, attending intervention sessions or making time for a home visit may not be experienced as a high priority or may be impossible. Novel strategies are being used to improve accessibility; for example, services directed at parents can be delivered over the Internet or by phone, or if in-person visits are essential, transportation and child care can be provided to facilitate visits to a clinic. Services directed at children can be integrated into the preschool/child care curriculum to avoid adding burden to families.

In addition, auxiliary services can be incorporated into interventions with families to alleviate some of the chronic life stressors that make engagement in intervention so challenging. We have seen that families with multiple risk factors may be unable either to participate in or to benefit from intervention for psychosocial problems if other stressors, such as unstable housing or food insecurity, are not addressed (Raver, 2002). Case management services provided simultaneously with direct intervention with the child or with parent–child interventions can increase the effect of these interventions (Wagner & Clayton, 1999). When such services cannot be provided directly through the intervention program, referrals can be provided. In all instances, practitioners who are sensitive to the reality that chronic structural stressors may interfere with intervention can play a major role in enabling families to receive the support they need.

We also know that culture is of critical importance in planning and evaluating interventions with families of young children. Interventions with infants and toddlers often focus on parenting, and parenting behaviors are culturally mediated; that is, a family's culture determines how different parenting behaviors are appraised and function in that family. Relatedly, behaviors considered desirable by researchers or practitioners may or may not be reinforced at home, depending on a family's cultural values and beliefs. When selecting and implementing interventions, practitioners must work together with parents to ensure that programming is respectful of and responsive to family cultural values, beliefs, and practices.

Summary and Implications

Evidence clearly supports that social–emotional competence is a critical component of a successful transition to formal schooling. Moreover, the roots of these competencies are laid down in the earliest years, and we have evidence-based programs that can identify and support children and families in need of early intervention. Research teaches us that early intervention for social–emotional and behavior problems may improve not only parent–child relationships

and children's behavior problems but also children's learning as well.

With President Obama's 2013 budget proposing increases in spending for early intervention, policymakers appear to be recognizing the critical importance of early intervention. Thus, this is a critical time to focus on effective practices and appropriate goals. Our message as clinical researchers to practitioners and policymakers is that academic preparedness goes hand in hand with social–emotional preparedness. When we provide resources for early social–emotional interventions, we are enhancing children's school readiness.

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The Foundations of Learning Framework

A Model for School Readiness

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In 1990, the National Education Goals Panel was convened for the purpose of improving education in America. The panel identified eight national goals for improving our nation's school system and for providing equal opportunities for educational achievement for all children. The first of these goals states, "By the year 2000, all children in America will start school ready to learn." Over the past 2 decades, this statement has generated a great deal of discourse on what it means to be "ready." Despite the fact that a special panel of experts articulated a comprehensive definition of "readiness," a great deal of confusion and misguided interpretations remain regarding the concept of readiness. In the current culture of high-stakes testing and accountability, discrete knowledge that can be easily measured is how most school districts define and assess readiness. A child who can write his name and identify letters, numbers, colors, sounds, and shapes is deemed to be ready to learn.

The concept of readiness is far more complex than the simple memorization of a few basic facts. The Foundations of Learning Framework (see Figure 1) is a tool to help parents and educators understand what it means for a child to be ready. The framework begins with three basic assumptions: All children are born ready to learn; not all children enter formal schooling ready to achieve educational success; and educational success is primarily a function of nurture, not the memorization of a discrete set of facts. The implications of the framework are many for infants and toddlers. This article explores some of the more salient components.

Self-Awareness

The foundation of development and educational success is a healthy sense of self-awareness. In the earliest years of life, infants and toddlers are developing a personal and social identify. The belief in oneself as someone who is valuable and worthy of love and care is the basis of mental health and educational success. This fundamental understanding of self can only emerge when a child has a strong emotional connection or secure attachment to at least one warm, responsive parent or caregiver. The emotional closeness and psychological intimacy found in the attachment relationship provides a secure base from which the child is able to venture out into the world with confidence and optimism (Lieberman, 1993). They have the courage to try new things, take risks, and explore the world. The attachment relationship also provides a place of retreat when the world becomes stressful and overwhelming. It is a place where the child finds psychological

Abstract

Since the National Education Goals Panel was convened in 1990, school readiness for all children has remained a high priority across our nation. The Foundations of Learning Framework is a tool to understand what it means for a child to be "ready." Preparation for educational success requires two key ingredients—relationships and play. In the context of relationships, infants and toddlers develop self awareness, self-regulation, and social skills. In the context of play, they develop positive dispositions toward learning, think like scientists, develop conceptual understandings of the world, and practice important skills. Readiness is a function of nurture that begins the first day of life.

safety and a place to regain her moorings. Without a secure attachment relationship, healthy development and learning are compromised.

A second aspect of self-awareness that is crucial to educational success is the awareness of an "autonomous" self. Babies begin life completely helpless and dependent on their caregivers; however, in the course of healthy development, toddlers begin to separate psychologically from adults and come to a gradual understanding of their own individuality. The word "no" becomes the toddler's favorite word and is his declaration of independence. Behind this wall of "no's," the toddler is discovering and experimenting with his own likes and dislikes, his own interests and aversions, without being overshadowed by the more powerful adult. As Neufeld and Maté (2006) explained, it is as if the child erects a protective barrier around his fragile and emergent sense of self until his ideas, unique perspectives, and individuality are in full bloom and the fear of being trampled is gone.

Research indicates that a strong sense of autonomy is a necessary component of educational success. Children with a strong sense of autonomy are found to have increased engagement, enjoyment, and interest in learning, as well as higher levels of creativity and cognitive flexibility (Walker & MacPhee, 2011). These characteristics support the child's innate drive toward mastery. Autonomous children are able to persevere and "puzzle through" challenging tasks, pursue a goal to its completion, and engage with the world.

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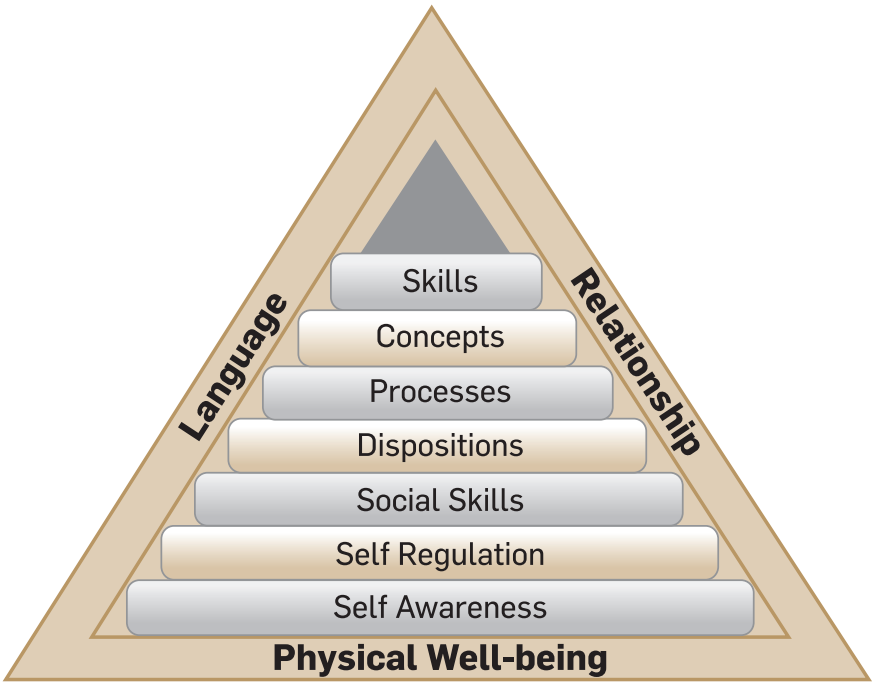
In teachable moments every day, children can learn basic skills such as identifying colors, shapes, letters, and numbers.

What does this mean for infants and toddlers? The foundation of secure attachment and autonomy are established in the first 2 years of life. From the beginning of life, infants need parents and caregivers who are attentive and responsive to the needs of the baby that are communicated through behavioral cues and crying. Babies always cry for a reason, and timely, affectionate responses over the course of time are the connective tissue of secure attachment. It also means that adults not only respond to the baby's distress but are also equally as responsive to the baby's initiations for social interaction and play. Around 4 months of age, the infant becomes a very social little person, and playful engagement is just as important as attention to distress. The emotional energy and time invested in building strong emotional connections in the first 3 years of life is an investment in the future.

Parents and caregivers support the toddler's emerging independence by honoring the child's request, "Me do it!" whenever possible. A child-friendly environment provides the minimal assistance necessary for the toddler to perform the task as independently as possible. Low hooks for hanging jackets, finger foods, and toddler stairs by the changing table promote self-help skills and the child's budding independence. Supporting autonomy requires an enormous amount of patience, unhurried time, and a level of tolerance for mess. Toddlers are not meant to be hurried, and attempting to rush children through an activity is likely to create havoc. Learning to feed oneself can be somewhat messy and time consuming, as are other self-help endeavors such as brushing one's teeth and potty training.

Autonomy is also supported when toddlers are allowed to make age-appropriate choices. This does not mean that parents and caregivers surrender control to toddlers. There is a difference between being autonomous and being a tyrant. Giving a toddler inappropriate power undermines the child's sense of security, as young children need to have the confidence that they are surrounded by adults who are psychologically

Figure 1. The Foundations of Learning Framework



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When adults engage a child in common games such as "peek-a-boo" or "pat-a-cake," she begins to understand reciprocal relationships .

strong enough to take care of them. "Would you like apple juice or milk?" is an appropriate choice that gives the toddler an appropriate degree of power.

In the article, "*How Home Gets to School: Parental Control Strategies Predict School Readiness*," Walker and MacPhee (2011) have cited several studies linking coercive parenting behavior to behavioral problems in school. They reported that a parenting style that involves excessive use of control, harshness, or coercion has been found to contribute to aggression, impaired social competence, and behavioral problems. Children with behavioral problems on entry into formal schooling typically experience increased risk of school failure and poor approaches to learning.

Self-Regulation

Self-regulation refers to the ability to control one's emotions, behavior, and thinking. Many experts believe that human development is essentially an increasing capacity to self regulate. There are many components and facets to the development of self-regulation, but two key capacities begin to emerge in toddlerhood and affect educational success—the ability to pay attention and the ability to identify one's emotions.

Until recently, it was generally accepted that socioeconomic status was the strongest predictor of school success. More affluent children typically do better in school than those of lower socioeconomic status. However, in 2011, researchers revisited the Early Childhood Longitudinal Study—Kindergarten Class of 1998–1999 to examine the link between a child's capacity to pay attention and academic achievement (Georges, Brooks-Gunn, & Malone, 2011). Their findings revealed that a child's ability to pay attention has a bigger effect on academic achievement than socioeconomic status.

A second regulatory skill learned in toddlerhood is the capacity to identify and name personal emotions. Naming is the first step in controlling the emotion. An unidentified powerful feeling can be frightening to a young child and is likely to result in some sort of behavioral disregulation. By age 3, children should be able to identify three key emotional states—sad, mad, and happy. This is the first step in developing intentional and more sophisticated strategies for managing strong emotion throughout the preschool years.

What does this mean for infants and toddlers? Many well-meaning parents and caregivers have been duped into buying DVDs, flash cards, and educational programs for infants and toddlers that are supposedly designed to develop the child's attention span and teach important readiness skills. Among the concerns of subjecting young children to a highly didactic, adult-driven form of learning is the danger of undermining the child's innate curiosity in pursuing things that truly capture his interest. When infants and toddlers are given the opportunity to pursue activities that truly engage their curiosity, they are more likely to attend and stay focused for longer periods of time than when presented with activities developed and chosen by adults (see Box, Choice, Interest, and Opportunity). In other words, focused attention is driven by interest and curiosity in play-based environments with a variety of intriguing materials that engage children's senses. This does not require expensive "educational" toys and equipment. Ordinary household items such as the pots and pans in the cabinet or the shoes in Mom's closet can be sources of immense intrigue and the inspiration for focused attention.

Adults support toddlers' emerging ability to identify emotions by naming their own emotional state and that of the child. For example, the parent or caregiver might say, "I'm sad today because the dog died." When adults do this consistently, children become increasingly able to identify body language and facial expressions that correspond to the emotion of "sad." Adults also support this skill when they identify and "hang the language" on the child's emotional state. For example, "Your tears tell me that you are very sad at the moment," or "The big smile on your face tells me you are happy." Such statements are also an invitation to the children to tell their stories. When children emerge at age 3 with an awareness of their own inner life, they can more easily move into more sophisticated strategies for managing and regulating their own emotional state.

Choice, Interest, and Opportunity

At 18 months, my daughter Ashley took a 32-piece puzzle behind an overstuffed chair in the family room. I was somewhat curious as to what she would do with it as, until this time, she had only put together single-object puzzles typical for toddlers. To my surprise. she spent most of her waking hours behind the chair methodically working the puzzle, coming out from behind the chair only for diaper changes, meals and snacks, and an afternoon nap. It took her until lunchtime to get the puzzle together the first time. By bedtime, she could do it in about 60 seconds. Choice, interest, and opportunity intersected at just the right moment to inspire an extraordinary degree of focus and attention.

Social Skills

Formal schooling typically takes place in group settings that requires the ability to get along and cooperate with others. Knowing how to be a friend and make a friend is a complex skill that involves the capacity to share, take turns, negotiate, give compliments and apologies,

solve conflicts, and join in existing forms of play. Research indicates that children who struggle with social skills enjoy less academic success in school, are less likely to graduate, are more likely to engage in aggressive behavior, and are more likely to experience serious mental and emotional problems later in life (Riley, San Juan, Klinkner, & Ramminger, 2008). Because of the social nature of school, it is a frustrating and lonely experience for those who struggle to make friends.

What does this mean for infants and toddlers? Although infants and toddlers are developmentally unable to demonstrate the sophisticated social skills named earlier, the foundation of such skills is established in infancy. A key emotional capacity for making and being a friend is empathy. The ability to empathize with another is rooted in the first year of life, as the infant's needs are met with warmth and affection. Well-nurtured children understand what empathetic care feels like and looks like from life experience. Signs of the child's emerging capacity to empathize begin to appear in the second year of life. Toddlers will often stand next to or even pat a child who is crying. When infants grow up in harsh or emotionally repressed environments, this important capacity is diminished and sets the child on a trajectory that will make it difficult to enjoy making and being a friend.

A second contribution that parents and caregivers can make to the development of social skills is to simply play with the baby. The child's first playmate is typically an adult—a parent or caregiver. Around 4 months of age, the baby will begin to initiate playful interactions with those around them. When adults respond to the baby's playful invitations or engage them in common games such as "peek-a-boo" or "pat-a-cake," the child begins to understand reciprocal relationships. Rolling a beach ball back and forth is the first step toward turn taking. As babies become mobile, their play becomes increasingly active, and they often invite their caregivers to join in. They will enjoy playing "chase," "hide-and-seek," and other high-energy games. These are the first (and important) steps in the journey toward socialization.

Toddlers will enjoy playing in the company of others, but it is important that parents and caregivers have appropriate expectations for social interaction. Toddlers will typically play alongside other children without any real interaction in what is called "parallel play," one of the first steps in learning to be social. Toddlers will often pause to observe what the other child is doing. He may decide that it looks like great fun and grab the toy away from the other child. This behavior is not an intentional act of ill will but rather a developmental incapacity to understand the concept of sharing and turn taking. Redirecting the child's attention to some other activity rather than scolding or punishing is an appropriate way to respond to this behavior and set the child on a positive course of social development.

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Children with a strong sense of autonomy are found to have increased engagement, enjoyment, and interest in learning.

Dispositions

A disposition is an attitude or habitual ways of responding to a given situation. Children who enter formal schooling with a positive orientation toward learning are more likely to experience success than those who have negative attitudes. Dispositions that have been identified as important to educational success include curiosity, perseverance and courage.

What does this mean for infants and toddlers? Babies are born with an enormous curiosity that motivates them to discover and master their world. Curiosity is believed by many to be the primary motivating factor in learning (Perry, 2001). Parents and caregivers support children's curiosity by creating child-friendly environments that give children lots to see, hear, touch, taste, and feel. There is minimal restraint and children are allowed to make choices and pursue activities and materials that are of high interest. Once again, the danger of inappropriate academic expectations is the likelihood that the child's innate drive to master the world will be compromised.

Perseverance is an attribute that is often undermined in current culture. Believing that stress is unhealthy for children, well-meaning parents and caregivers may intervene and rescue them from experiencing any degree of frustration and disappointment. This is unfortunate, as self-esteem is established as children successfully meet manageable challenges. Children are hardwired to grapple with the world and puzzle through situations and dilemmas. However, there is a fine line between a manageable challenge and one that overwhelms. Parents and caregivers must be astute observers of children and know when to step in to help and when to step back and let the child struggle. If the child is intently engaged and absorbed in the task at hand, that is the cue to step back and let them pursue. If, on the other hand, the child turns to the adult with a look of distress or a cry of frustration, that is the cue to step in and assist. However, this does not mean that the child is removed from the situation or the task is completed for him. It means that the adult provides the least amount of scaffolding necessary for the child to accomplish his goal without undue stress. Infants and toddlers who are allowed to be curious and puzzle through challenging tasks are more likely to persevere through academic challenges and experience educational success.

Processes of Learning

Despite rhetoric to the contrary, most American education is based on a "mug and jug," or banking model of education. Traditional approaches to teaching and learning attempt to pour discrete knowledge and facts into the mind of a child much like milk is poured from a jug into a cup or money is deposited into a bank account.

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A language-rich environment for infants and toddlers is created when we sing and read to them on a daily basis.

Learn More

The following are available online from the National Association for the Education of Young Children (NAEYC):

Developing Young Children's Self-Regulation Through Everyday Activities
www.naeyc.org/files/yc/file/201107/Self-Regulation_Florez_OnlineJuly2011.pdf

Creating Health Attachments to the Babies in Your Care
www.naeyc.org/files/yc/file/201109/Rocking%20and%20Rolling_Online_0911.pdf

Helping Babies Play
www.naeyc.org/files/yc/file/200305/HelpingBabies_Sawyers.pdf

Children's Developmental Benchmarks and Stages: A Summary Guide to Appropriate Art Activities
www.naeyc.org/files/yc/file/200407/ArtsEducationPartnership.pdf

The Visible Empathy of Infants and Toddlers
www.naeyc.org/files/yc/file/200607/Quann709BTJ.pdf

Self-Regulation: A Cornerstone of Early Childhood Development
www.naeyc.org/files/yc/file/200607/Gillespie709BTJ.pdf

The accumulation of facts is measured and quantified to determine whether "real learning" has taken place. Typically, education is primarily about teachers telling students what they need to know and students getting the right answers.

This view of teaching and learning is contrary to infants' and toddlers' intrinsic nature and approach to the world. Yes, they are learning many facts about the world, but they are much more than blank slates waiting for adults to tell them what they need to know. Young children innately approach the world much like a scientist does. They intuitively understand the processes of learning. In other words, they are born knowing how to learn. Day in and day out, they are making observations about the world around them. They recognize patterns of behavior, notice likenesses and differences, make comparisons and predictions, and form theories about how things work and test those theories to see if they hold true. If necessary, they revise and refine their theories until they are satisfied. Throughout the early years, children are continually refining and revising their thinking as they develop cognitive maturity and gain new knowledge.

What does this mean for infants and toddlers? A child-friendly, play-based environment with intriguing, sensory-rich materials to explore allows infants and toddlers to approach the world as little "scientists" and supports the processes of learning. Ordinary household materials, open-ended store-bought items, and materials from the natural world give young children lots to explore and investigate (see Box, Everyday Learning). Open-ended materials are those that do not have one "right" way to use them. Blocks, toddler finger paints, and a dollhouse are examples of open-ended materials that invite exploration and discovery.

Concepts

As infants and toddlers interact with people and the world in which they live, they develop conceptual understandings about how the world works. Many of these understandings operate at an unconscious level, yet they provide the foundation on which more sophisticated and complex understandings will be built. For example, most adults are all too familiar with a young child's propensity to throw food or toys from the high chair to the floor. When babies do this day in and day out, they make observations about the effect of gravity on falling objects. You will never see a baby look up at the sky when she drops a toy; she will often anticipate the object's movement by looking down to watch it fall. Even though the baby does not know the word gravity, she has an intuitive understanding of its meaning. As the child's mental capacities mature, she will someday learn the word *gravity* and will develop more sophisticated knowledge about the implications.

Everyday Learning

Joey, age 11 months, pulls the pots, pans, and plastic bowls out of the kitchen cabinet. His mom strategically places a basket of wooden spoons, plastic measuring cups, measuring spoons, and other baby-safe items within reach. Joey beats a plastic bowl with a wooden spoon and laughs. He drops the spoon, picks up a metal serving spoon, and flails at a pot. Joey startles at the sharpness of the sound. He pauses for a moment, and then tentatively begins hitting the pot. In a few moments, he is pounding with gusto, obviously pleased with the racket he is making. He stops and puts a plastic bowl on his head, looks at his mom, and laughs. In this simple activity, Joey is learning about the properties of materials and their effects on quality of sound. He is learning about spatial relationships and self-awareness as he dons a bowl for a hat. His sense of humor is evident as he looks at Mom and laughs at his own antics.

Conceptual understandings about the world are the building blocks of learning and lead children to further construct more complex understandings. For example, the toddler who has some experience playing with a water wheel in the bathtub or a garden hose in the yard gains an intuitive understanding of the power of water to move objects. As this child grows, he will likely be found making "boats" to float down the gutter after a summer rain or using funnels and tubing to create a water system. His earliest experiences with the water wheel and garden hose gave him the opportunity to develop an understanding of some basic properties of moving water, which will lead him to more complex conceptual understandings.

Conceptual understanding is also directly related to reading comprehension. A more varied and complex conceptual understanding about the world and how it works allows a child to more readily comprehend and interpret what he reads. Children with very limited life experiences will struggle with reading comprehension.

What does this mean for infants and toddlers? The richer and more varied a child's life experiences are, the richer and more varied the child's conceptual understandings will be. Infants and toddlers need to participate alongside the family in everyday living. They need to accompany Mom and Dad to the grocery store where they see the colorful array of fruits and vegetables, see cans of foods categorized according to type, and see the many types of pastries. They can visit the pet store, the local drugstore, or the ice cream shop. They can go on walks through the neighborhood or local park and feel the texture of the grass on their bare feet, hear the chirping of birds in the trees, or see the colorful array of flowers growing in yards. They may learn that leaves fall off the trees in autumn, flowers blossom in spring, and snow falls when it is very cold outside.

Many infants and toddlers today live in a world that is very small. We live in an economic climate that often requires both parents to work, and young children spend long days in child care centers from the earliest weeks of life. The cost, logistics, and safety considerations of taking groups of infants and toddlers out and about in the community is challenging and usually prohibitive. Parents work long hours and often run their errands before picking up children from care. In the evenings, there is little time or energy to accomplish anything more than the necessary routines of daily living. The variety of life experiences afforded the infant and toddler is, therefore, primarily defined and determined by the quality of the child care environment. For many of our nation's infants and toddlers, the richness of life experience is lacking. Quality child care for infants and toddlers is costly, and our nation as a whole has yet to understand fully the implications of substandard care in the first years of life. The quantity and quality of life experiences are crucial to the development of a rich, conceptual understanding about the world and how it works.

Skills

The current emphasis on accountability and standardized testing across our nation has led to an obsession with the acquisition of discrete knowledge that is often referred to as "skills." For most school districts, a "ready" child is one who knows his letters, numbers, colors, sounds, and shapes. The acquisition of skills is primarily the function of visual or auditory discrimination and memory. Acquiring discrete knowledge rarely involves higher level thinking capacities. This is not to say that skills are not important—they are crucial to a child's interpretation and understanding of the world. For example, being able to identify and name colors is fundamental to clear communication. Knowing the name of the letters of the alphabet facilitates the learning of sounds, but when teaching and learning is reduced to the simple act of assessing and acquiring skills, the child's capacity to reach his cognitive potential is diminished. Parroting information should never be confused with thinking and creativity.

What does this mean for infants and toddlers? When it comes to skills, how children are taught is as important as what is taught. The brain is always seeking to make meaning of the stimuli provided through the environment. Skills are best learned in the context of activities and experiences that are meaningful to the child, not through worksheets, flash cards, and adult-driven exercises. As the toddler puts on his clothes, Mom might comment, "You are wearing your favorite blue shirt today," or when taking the toddler out for a walk, Dad might say, "Let's count the birds sitting on the fence." Such an approach not only teaches skills in a meaningful way but also reduces the likelihood that curiosity and the child's innate drive to master the world will be snuffed out.

In an environment that is focused on quantity and quality of experience, there are many "teachable" moments in the course of an ordinary day to teach children basic skills such as identifying colors, shapes, letters, and numbers. An infant or toddler's ability to acquire discrete skills is highly variable according to individual capacity and life experience.

The Context

The boundaries of the pyramid in Figure 1 identify the context in which readiness takes place. Warm, responsive relationships give infants and toddlers the secure base and the courage to venture out and explore the world. Most adults find it easy to enjoy babies in the earliest months of life, but with increased mobility comes increased potential to displease caregivers. Navigating the toddler years requires a huge dose of patience and appreciation for the child's emerging independence and capabilities.

A language-rich environment deepens children's thinking about the world and provides verbal tools for sharing their discoveries with others. A language-rich environment for infants and toddlers is created when we sing and read to them on a daily basis. When babies point to objects, label the object and describe it. Engage in "sports casting"—simply narrating the baby's activities. For example, "I see you shaking the rattle. Shake, shake, shake the rattle." Talk to the toddler about the things that he is interested in and playing with at the moment. These experiences lay the foundation for language development.

Last, ensure the physical well-being for infants and toddlers through adequate nutrition, rest, movement, and medical care. Physical health gives the infant and toddler the energy to robustly embrace the world and all it has to offer. Undiagnosed physical ailments and conditions not only undermine the long-term health of the child but also undermine his potential for educational success.

Conclusion

All children are born ready to learn, but not all children are prepared for academic success. The Foundations of Learning Framework clearly illustrates that preparation for educational success need not be costly, highly technical, or complicated. Two key ingredients for educational success are relationships and play. Educational success is founded on nurturing relationships with adults who are invested in the well-being of the child and play-based environments give children the opportunity to think like a scientist, develop focused attention, form conceptual understandings about the world, and practice important skills.

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School Readiness Is About More Than Knowing the A-B-Cs and 1-2-3s

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Lilly, 17 months old, looks into the glass aquarium at the local zoo, watching two otters swimming and playing right at her own eye level. She reaches toward them, stomping her feet and squealing in delight. Her finger points to the otters as she glances back at her dad on her left. Looking right, Lilly notices a lighted display. She looks at the otter again, then back at the display. With confidence, Lilly walks toward the display, her pointing finger leading the way. She finds the picture of the otter on the lighted board, looks at the otter in the tank, then glances back at her father, and then, once again, looks at the display picture. She's made the connection: The picture of the otter and the live, swimming otter are related. Exuberant at her discovery, Lilly runs back and forth between the aquarium and the display. Her confidence and excitement about learning is clear.

The great thing about this scene in the context of school readiness is that it is not extraordinary at all. For a very young child, a natural science lesson occurs every time it rains or snows. A child learns math when she discovers that her brother has more milk than she does or when her dad comments on the circle she drew on her picture. Reading emerges through nighttime stories, identifying the letters on the cereal box, and coloring with crayons.

A secure, flexible, and trusting relationship with a primary caregiver prepares infants and toddlers for academic and social competence. Lilly's thoughtful, engaged parents are helping her reach her full potential by following her interests, encouraging play, and providing a secure environment filled with opportunities for learning. As Lilly matures, she will be able to use words as well as gestures to communicate her discoveries. Her interest in the world will broaden beyond the simple labeling of objects to the creation of themes and storylines. She will be able to imagine through dress-up that she is an otter and represent experiences from the zoo in her play, along with other real-life episodes and whimsical ideas. By developing and communicating narratives of her experiences, Lilly will be able to reflect on her feelings, put into words what she has learned through her encounters, and share her thoughts with others.

On the first day of kindergarten, Lilly's backpack for success will include confidence, attention, interest, and a history of engaging in learning as a source of pleasure. We can imagine a future kindergarten teacher's delight in Lilly's self-assurance, motivation, and the ease at which she engages in learning, even at 17 months old. To be formally determined as ready for school, Lilly will show that she can follow directions, recognize the letters in her name, get along with other children, and identify concepts such as more/

Abstract

Gaping disparities in educational achievement exist at kindergarten entry. Research indicates that school readiness requires a holistic approach directed by the pivotal question: What will allow babies to become successful learners? By understanding the real-life situations of babies and their families in the context of their communities and cultures, we can improve the academic and social competence of young children and ensure that all children enter kindergarten with confidence, fully capable of building and sustaining relationships with teachers and handling the everyday challenges in the classroom and on the playground.

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The skills that teachers want children to have when they start school are the abilities to pay attention, get along with others, not be disruptive, and follow directions.

less and bigger/smaller. Looking to adults for acknowledgment, sustaining her attention to the task at hand, and putting crayons back into the container from which they came are all indicators that she is ready to learn in a school setting.

The skills themselves are not that important. What is essential is that Lilly demonstrates the capacity to be one of 20 learners in a classroom and that she brings her interest, motivation, and joy. Her desires to *want* to draw a circle with a crayon and cut it out with scissors, sing songs, and meet new friends will drive her success. Kindergarten teachers confirm that the foundational skills of readiness are what we call *emotional health*. A survey of 800 kindergarten teachers conducted by Mason Dixon Polling and Research (2004) found that the skills that teachers want children to have when they start school are the abilities to pay attention, get along with others, not be disruptive, and follow directions. Fewer than 35% of the teachers surveyed included knowing the alphabet and counting to 20 on their list of essential kindergarten readiness skills.

Emotional health sets the stage for school readiness by equipping the child with the ability to form close relationships, express and regulate emotions, and learn through exploration and engagement (Parlakian & Seibel, 2002). A child who begins school with this sturdy foundation is able to participate in the full range of classroom experiences that promote learning and accomplishments. Teaching a child to read is much easier when she finds enjoyment in her discoveries and eagerly shares her delight with those around her. A child who is ready for learning in kindergarten is more likely to continue on a trajectory of academic success.

How do we help *all* children to be ready for school? Lilly's story demonstrates that academic competencies and school readiness are under construction well before the first day of kindergarten or even of preschool. Her earliest experiences and environments provide the building blocks for her future development and success. School readiness requires a holistic approach directed by the pivotal question: What will allow this baby to become a successful learner? This perspective commands an integrated and knowledgeable approach to the real-life situations of babies and families in the context of their communities and cultures.

Getting School Ready

Healthy Start

All babies deserve a healthy start to life. We can take a profound step toward addressing school readiness by making it a matter of policy and practice to nurture and protect pregnant women. A pregnant woman who takes her vitamins, eats nutritious foods, reduces her stress, and gets proper prenatal care dramatically improves the chances that her baby will be healthy. Community efforts to increase the preconception health of women, improve maternal nutrition, reduce teenage pregnancy, and facilitate early health management can go a long way in safeguarding school readiness of future generations. Effective strategies for improving pregnancy and birth outcomes have been demonstrated by public health campaigns, national organizations such as Healthy Start, and doula and childbirth support services such as The Birthing Project.

Unfortunately, about one in every 12 babies is born too soon or at lower birth weight. These birth outcomes are often associated with pregnancy with twins or more, women living in poverty, racial disparities, and teenage pregnancy (Isaacs, 2012; Reichman, 2005). Children who begin life with health challenges tend to have more difficulties with the skills necessary for school readiness and are at greater risk for poor school performance and cognitive difficulties, particularly in the areas of attention, emotional regulation, and problem solving (Reichman, 2005).

Pregnant women who experience high levels of stress and untreated depression can unknowingly adversely affect the brain development of their unborn children, as shown in some research studies (Davis & Sandman, 2010; Diego et al., 2009; Oberlander et al., 2008). Newborns born to mothers who experienced depression during pregnancy appear to have a less mature regulatory system, resulting in an increase in fussiness and irritability and difficulty at self-soothing. Studies indicate that, for these children, the emotional center of the brain develops differently than that of infants whose mothers did not experience depression (Oberlander et al., 2008). Toddlers whose mothers experienced high levels of stress, particularly early in the pregnancy, demonstrate lower general intellectual and language abilities (Laplante et al., 2004).

The most widespread and preventable cause of school and learning difficulties is prenatal exposure to tobacco and alcohol (March of Dimes, 2011). There is no amount of drinking that is considered safe prenatally or during pregnancy. The U.S. Department of Health and Human Services (2004) has reported that, if a mother smokes a cigarette or drinks a beer, so does the baby. The likelihood of a child being ready for school when his mother smoked during pregnancy is 10% lower than that of a child whose mother did not smoke. At least 14% of women use alcohol or binge drink during pregnancy, which is a leading cause of permanent brain dysfunction (Ethen et al., 2008). A recent study of school-age children estimated that fetal alcohol exposure affects 7 of every 1,000 children (May et al., 2009). The medical and

special education expenditures for these children are nine times higher than those for healthy children and nearly twice as high as those for children with autism spectrum disorder or sickle cell anemia (Mvundura, Amendah, Sprinz, Kavanagh, & Grosse, 2009).

Caring Adults

At its most basic, the solution to school readiness must start with a shared societal conviction—the architecture of success is dependent on the baby's opportunity to engage in safe, trusting relationships with a small number of consistent and responsive adults. The requirements for school readiness are relatively simple: A baby needs his caregivers to show up, physically and emotionally, in consistent and responsive ways. When parents comment on the baby's experience, expressions, and emotions, they fulfill the role of interpreter and buffer. Countless ordinary experiences with Mom and Dad help a baby learn the pleasure, comfort, and security of relationships.

Babies are born ready to engage. A newborn remembers his mother's voice:

Two-month-old Trevon is positioned on the lap of his mother, Sondra. She watches Trevon's eyes and mouth and coaches him to smile by using a higher-than-normal voice and forecasting his next action: "You're going to smile. I see you thinking about it. Yes, there it is! What a smiley boy you are."

Opportunities to foster trust and show affection present themselves in ordinary moments like changing a diaper and playing patty-cake: "Showing up" doesn't require a huge bag of tricks, nor does it require perfect parents. The goal is simply to be "good enough" by being consistent, responsive, and sensitive to the baby while providing structure and guidance. This is good news for overwhelmed and sleep-deprived parents.

Here's what "good enough" looks like:

Sondra gets into bed after staying up late studying for her GED. Five-month-old Trevon stirs, then cries. Sondra is exhausted and lies still, hoping Trevon will fall back to sleep. He cries louder. Sondra heaves herself out of bed and looks down at her son in his crib. Trevon's cry turns to a whimper as he sees his mom. Sondra sighs, then sits down in the rocker to feed him. As Trevon finishes, Sondra strokes his hair and watches him falls back to sleep. Gently placing her son back in the crib, Sondra tiptoes back to bed. (Adapted from Pawl & St. John, 1998)

Through everyday experiences, Trevon comes to expect his mother's help with the daily dilemmas that he is too young to conquer on his own and learns to trust the abilities of his mom and the other caring adults in his life. As Trevon develops, the caring adults who surround him will act as cheerleaders, marvel at his accomplishments, and revise their expectations for his developing capacities in attention, relationship building, and communication. Through these responsive relationships, his confidence, self-esteem, and capacities for communication, emotional regulation, and problem-solving will unfold (Cassidy, 1994; Sroufe & Waters, 1977). These essential ingredients of emotional health—and, therefore, school readiness—are baked in during everyday moments like waiting for dinner in the kitchen, playing with blocks, and reading a picture book.

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School readiness depends on the baby's opportunity to engage in safe, trusting relationships with a small number of consistent, responsive adults.

Children who begin life with a sense of security and basic trust in relationships bring this perspective with them into new relationships and situations. Their "neutral" setting is an understanding that others can be trusted and that they themselves are competent, important, and lovable. Substantial research indicates that early supportive and responsive care results in children who will have positive regard for themselves and others and possess a prototype of "I matter" (National Institute of Child Health and Human Development [NICHD] Early Child Care Research Network, 1997; Sroufe, Egeland, Carlson, & Collins, 2005).

Because of this early foundation, children with secure attachments are ready for school. These children enter kindergarten with confidence, fully capable of building and sustaining relationships with teachers and handling the everyday challenges on the playground. They are easily engaged and intrigued by learning and discovery in the classroom (Pianta, Cox, & Snow, 2007). Third graders who have had loving, responsive early experiences achieve higher math scores than those who have not. It is not that loving relationships literally make children smarter; rather, these relationships build a child's self-confidence, communication skills, and ability to ask for help. Learning—and life—is easier when you have these tools in your toolbox. Imagine being a third grader and getting stuck on a math problem. Children with confidence turn to a neighbor or seek help from a teacher and persist until they meet academic challenges.

This is the time to shout from the rooftops and become steadfast in our conviction that a secure, flexible, and trusting relationship with the primary caregiver is the single most important predictor of a child's academic and social competence. The good news is that responsive and consistent caregiving can be learned. A parent who does not start out with the necessary internal resources can gain greater parenting knowledge, enhance her skills at reading her baby's cues, develop social supports, and build adaptive responses to the everyday stresses of parenthood. Parents who find (or learn to find) parenting enjoyable and adapt to the parenting experience prepare their children for school and beyond.

The bad news is that, according to the Minnesota Children's Defense Fund, children under age 2 experience more changes in child care providers during a week than any other age group—and 55% of the mothers of children under age 3 are in the workforce. At a time when relationship formation is most critical, we ask our youngest children to adapt to the expectations of multiple adults and caregiving situations. Because of the lack

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A secure, flexible, and trusting relationship with the primary caregiver is the single most important predictor of a child's academic and social competence.

of a national early child care policy—and perhaps because of a misguided idea that, because the baby cannot talk, transitions and child care providers must not matter—we are creating harm. A baby cannot talk, but she can understand much more than she can put into words. Having to adapt to the styles of multiple adults, being told to "just keep quiet," or being ignored changes a baby's expectations of herself and others. Multiple changes in child care providers create numerous experiences of loss. As a result, the baby may stop looking to adults for engagement, approval, and joy, continually revising and updating her perception of how relationships work on the basis of the reinforcement she gets (or does not get) from those caring for her.

During the first week of child care and despite the teachers' best attempts to engage, 14-month-old Maria shows a consistent pattern of disengagement and unresponsiveness that pervades all her interactions. During the 9 hours that Maria spends at the child care center each day, the staff observes that she seems content to sit wherever she is placed, play with whatever toys are within reach, and feed herself from a bottle. By showing no preference for who cares for her, playing by herself, and rarely crying except when she has an urgent need, Maria demonstrates that she has come to have minimal expectations of those most intimately involved in her life.

This inconspicuous infant might easily become an aggressive, unfeeling, and unruly toddler, a preschooler who shows no remorse when taking someone else's toy, and a kindergarten student void of empathy and the interest to learn. Her early caregiving conditions are placing her at risk for school failure. Finding effective strategies to help children like Maria and their families at the earliest sign of deviation must be at the top of our list.

Brain Development

An inherited and genetically prescribed sequence develops the brain's circuit of neurons during fetal growth. While the structure of brain development is set before the baby is born, establishing the operation of the brain is an active, lifelong process. A newborn brain is a quarter of the size of an adult brain; it will grow rapidly as the neurons previously produced in utero are instructed by current experiences to connect. The brain is the only organ in the body that continues to develop and change over a human life span. Unlike a heart or liver, which functions the same way in a newborn as in an adult, the brain is uniquely adaptable and does not reach its mature functioning until the individual is in his early 20s.

The newborn brain is immature, particularly in the areas responsible for thought, feelings, memories, and voluntary actions. At birth, the only well-developed areas of the brain are the ones responsible for basic biological functions like breathing and sensing pain. Even at age 2, with a hundred trillion synaptic connections, a toddler's higher order cognitive and emotional capacities have yet to develop.

The first few years after birth are sensitive periods in which the brain is primed for specific actions. A young infant has the neurological capacity to learn to speak any world language. Over time and with experience, the sounds and blends of the language spoken in the baby's home shape and reinforce very specific neurocircuitry, so the baby's first words match his parents' language. This adaptive and responsive capacity magnifies the influence of a baby's early environment and experiences. Neuroscience and psychobiological research reveal the interplay between biology, brain development, and early experience: the ways in which the earliest interactions allow children to develop optimally (Fox, Levitt, & Nelson, 2010).

The significant role of caring adults is not—and cannot be treated as—separate from overall brain development. Fundamentally, the brain is relationship dependent: Early relationships help attune the neural pathways, helping drive brain development. We see simultaneous, mutually dependent growth. The swaddled newborn strives to focus his attention on his mother's lips as she is talking to him. The 10-month-old persists in getting a rounded block into a shape sorter and looks to his father for acknowledgement. Focused on the task of cutting a circle out of construction paper with scissors, the preschooler waves his accomplishment for the teacher to see.

The richer the interactions and stimulations, the faster these connections develop. The baby uses the experiences of his body, senses, and movements to start storing memories, perceptions, and knowledge about the world. The baby does not require a curriculum to learn; he needs no more—and no less—than consistent, responsive, safe, playful, language-rich engagement. We now know that infants and toddlers learn best in the context of consistent relationships surrounded by interesting opportunities for exploration and growth.

As school readiness programs become mainstream, our systemic response often takes the form of miniaturized second-grade classrooms and curriculum. Toddler programs are furnished with lots of tiny tables and chairs and oversized letters of the alphabet painted on the walls. Often, too few teachers staff these settings for too many children, which requires unreasonable expectations for attention span and self-regulation. Researchers have found that 70% of toddlers in these kinds of miniaturized group child care settings have elevated cortisol (stress hormone) levels, compared with the levels they show on days when they stay home (Gunner & Donzella, 2001). Infants and toddlers are not merely smaller versions of older children; they have unique needs, abilities, and ways of interacting with their world.

Safeguarding School Readiness

With an eye toward school readiness, opportunities that promote success for infants and toddlers and intervention at the earliest sign of variations in development should top our list. Babies succeed when caring adults provide consistent love and support with opportunities for engagement and learning. How do we as parents, providers, workers, and neighborhoods get this information infused into our communities?

Parents, Grandparents and Teachers

Many of us think of the primary caregiving relationship as being between mother and baby. A baby is also likely to form significant relationships with other caring adults, such as grandparents. A baby's development relies on an intimate "team" of caring adults. Research demonstrates that babies are highly sensitive to harmony between their parents. At 2 ½ years old, babies with parents who worked together as partners had greater capacities of self-regulation, fewer behavioral problems, and stronger pre-academic skills (McHale, Lauretti, Talbot, & Pouquette, 2002).

WHAT YOU CAN DO

- Embrace the critical nature of your job in developing your infant's "I matter" outlook by providing nurturing, sensitive, and responsive interactions. The strength and security of your child's relationship with you sets the stage for what he will expect in the future and his future success in school and in relationships.
- Talk and read to your baby. A rich language environment supports a growing vocabulary and interest in the world.
- Provide a safe environment for play and exploration. A soap bubble-filled sink, a lower drawer in the kitchen cupboards filled with Tupperware, a walk through the neighborhood collecting leaves . . . all of these are rich learning experiences.
- Develop an understanding of your child's feelings by becoming a keen observer—behaviors have meaning. Watch how she handles transitions, new situations, or a favorite toy. While she is too young to tell you in words what she likes and what makes her worried, her face, body, and behavior will show you. Label her experiences for her: "You are excited." "So mad!"
- Pay attention to sudden changes in behavior, interactions with others, or sensitivities. If you are worried about whether your child's behavior is normal, there are valid screening tools (e.g., the Ages and Stages Questionnaire—Social Emotional). A reliable screening measure available through your medical clinic, early childhood program, or public health service, can help you determine if your child is on track or may confirm that your nagging little worries merit a professional evaluation.
- Develop caregiving support networks that allow you to continue to build your understanding of child development, social support, and strategies for managing the daily grind of responsive caregiving. Surround yourself with others who have a realistic understanding of the joys and challenges of parenting and who resonate to the old adage, "The days are long, the years are short."
- Reduce the number of caregiving transitions. Although some changes are unavoidable, a baby needs consistency and predictability in her "team" of caregivers. Changes in work hours, a new sibling, deployment, and teacher transitions are significant events for infants and toddlers.
- Ratio matters. Particularly in a group setting, the number of children must be determined by the ability of the adult to provide consistent and nurturing care. Too few adults can require infants and toddlers to behave in ways that are developmentally most challenging: following rules, waiting their turns, and managing their peer relationships (NICHD, 1999).

Practitioners and Leaders

Parents who receive support from their family, friends, and professionals are better able to garner the resources needed to be predicable and sensitive caregivers and to attend to their children's social, emotional, and academic needs.

WHAT YOU CAN DO

- Give voice to the critical role of early experience and the fundamental connections between early emotional health and school readiness. Babies and families need advocates to promote prenatal birthing supports, paid family leave, breastfeeding, and quality child care.
- Demonstrate that the importance of parent–infant relationships and the significance of emotional wellness within communities begins with leadership. Our agencies, management, staff, and daily interactions communicate volumes about the social–emotional needs of infants, toddlers, and families. Take the time to make sure that these messages are consistent, reliable, and sensitive and that the culture of your organization supports the emotional health of young children and families.
- Recognize that babies are neither resilient nor unbreakable. The staff:child ratio in child care and early experience matters. If we want children to be ready for kindergarten, we must be certain that, as we create environments and systems for infants and their families, we must reorient our perspective to include the baby's point of view.
- Honor parents' expertise and knowledge of their own children within the context of their families and cultures. Create opportunities for parents to develop shared goals and methods for accomplishments.
- Encourage exploration, play, and reading through neighborhood-based opportunities for infants, toddlers, and their caregivers.
- Give parents the tools to know what emotional health is in very young children and to notice when their children are not showing signs of typical development. Health care providers, early childhood programs, and public health agencies can provide easy, reliable, and frequent access to early childhood emotional health screening.
- Develop neighborhood-based parenting support and education opportunities that focus on the pivotal role of relationship stability and responsiveness.

Community Members and Policymakers

The evidence is clear that the best way to ensure school readiness is to support healthy infant and toddler development. Policies

Learn More

School Readiness: Helping Communities Get Children Ready for School and Schools Ready for Children
Child Trends (2002)
www.childtrends.org

Public School Kindergarten Teachers' Views on Children's Readiness for School
S. Heaviside & E. Farris (1993)
Washington, DC: National Center for Education Statistics
www.nces.ed.gov

Characteristics and Quality of Child Care for Toddlers and Preschoolers
NICHD Child Care Research Network (2000)
Applied Developmental Science, 4(3), 116–125

established by our communities can enhance the chances of school success by ensuring healthy birth outcomes, supporting secure parent–child relationships, attending to the quality of daily experiences of infants and toddlers, and providing access to high-quality child care.

WHAT YOU CAN DO

- Include infant/family-friendly amenities in public spaces (e.g., playgrounds, museums, zoos, parks) that encourage learning and shared experiences.
- Create neighborhood-based programs that encourage healthy mothers and healthy babies by providing education and support to women during pregnancy and during the first year of parenting.
- Establish universal paid leave of at least 14 months for new mothers (Skinner & Ochshorn, 2012).
- Create a national initiative that recognizes that, with a high percentage of mothers in the workforce, we must have high expectations for the quality of experience and stability of care that children receive in child care.
- Recognize that high-quality early childhood programs show the strongest promise for safeguarding school readiness and reducing the poverty-based disparities in kindergarten readiness. Infants and toddlers most at risk for school failure are those who are growing up in financially distressed households and with parents who still have yet to develop the protective factors most related to successful parenting.
- Require health care providers and health insurers to provide developmental and social–emotional screenings for infants and toddlers as part of routine well-child care (Rhode Island KIDS COUNT, 2005).
- Invest in mental health campaigns and services at the earliest sign of distress for children under the age of 5 and their families to address difficulties in relationships and emotional regulation (National Research Council & Institute of Medicine, 2000).

Meeting the social, emotional, and development needs of infants and toddlers must be at the core of our school readiness initiatives. Having policies and programs that value and support the central role of the family in ensuring the baby's emotional health and readiness for school is essential. For families struggling with trauma, unexpected transitions, or their own health difficulties, neighborhood-based early childhood programs offer the best opportunity for safeguarding children and promoting school success.

Terrie Rose, *PhD, is a psychologist and entrepreneur building a network of practical solutions for improving outcomes for young children residing in poverty and experiencing trauma. Baby's Space, which she founded while at the University of Minnesota, is a full-spectrum, birth-through-third-grade transformative model that combines child care, elementary education, parent education, and community employment. The first facility was in a converted school across the street from an American Indian housing development, one of the financially challenged communities in Minneapolis. For her pioneering work in creating high-impact early intervention to provide at-risk babies and toddlers a strong start in life, she was chosen as Leadership Fellow for ZERO TO THREE, elected as an Ashoka Fellow in 2008, received the 2011 Lewis Hines Award from the National Child Labor Committee, and recognized by the Minnesota Department of Health for her statewide leadership and by the Minnesota Association of Children's Mental Health for outstanding service.*

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Approaches to Learning

Supporting Brain Development for School Success

SANDRA PETERSEN
ZERO TO THREE

Pretend that you went to Italy and came to love starting your day with cappuccino. On an impulse, you bought the best espresso machine you could find and had it shipped home. When you unpacked it, you were intimidated by all the pieces, the levers, the spigots, and the parts you couldn't name.

The instructions were in Italian.

Determined to make your own cappuccino, you started working with the machine. You studied it. You moved pieces. Sometimes you moved the same pieces with the same result until you made a point of remembering what you had already tried. You found information on the Internet. That information didn't help—but you stuck with it until you were able to produce a perfect cup of espresso with a froth of steamed milk any time you wanted one.

How did you master this challenge? You focused your attention, gathered information, used your memory, remained curious, considered alternatives for solving the problem, and persisted even when you were frustrated. You utilized the approaches to learning that you developed as an infant. For you, it was cappuccino; for an infant, it is an innate desire to learn about himself, others, and the world.

You were able to do this because, prenatally and in the first months of life, not only was your brain taking in enormous amounts of information, but you were also learning how to learn. Those skills, which became part of the physical structure of your brain, continue to guide your learning throughout your life.

Many skills and attributes can be included in the concept *approaches to learning*, the underlying frameworks in our brains that make it possible for us to learn. In this article, I discuss six: regulation or attention, curiosity, information gathering, memory, problem solving, and the ability to persist through frustration. These approaches to learning provide the foundation of school readiness and lifelong learning, and they develop in the first years of life.

The infant/family field has good reason to be concerned about bringing the term *school readiness* to infants and toddlers. Infant learning should occur through exploration and supportive interactions. School readiness connotes teaching and testing. It brings concerns about pressuring infants and toddlers to perform and meet standards. There is another way to look at this: If the infant's brain does not have the nutrition and early experiences it needs prenatally and in the first 2 years of life, it may never form the neural architecture needed for relating and learning. The same skills and attributes that

Abstract

Prenatally and in infants and toddlers, the brain is being constructed as a foundation for all later learning. Positive early experiences contribute to the formation of a brain that is capable, early in infancy, of utilizing and strengthening the basic processes of learning. Throughout a lifetime, a person will repeatedly use these approaches to learning: attention, curiosity, information gathering, memory, problem solving, and the ability to persist through frustration.

an infant or toddler uses to learn about her own environment will be used for learning throughout her life. The development of the brain that occurs in these first years is crucial to being successful in school.

Attention

Attention is related to regulation, or management, of one's emotional and physical reactions to internal and external stimuli and is a vital achievement in development. The infant is born predisposed to attend to the most salient parts of his environment—the human face, voice, and touch. As the infant responds to the adult, he is able to calm himself and focus, tuning out all of the competing information from the environment.

"*Self-regulation* refers to processes that serve to modulate reactivity, especially processes of executive attention and effortful control" (Rothbart, Sheesa, Rueda, & Posner, 2010, p. 207). Regulation and attention appear to have complementary roles in what is sometimes referred to as *emotional–cognitive development*. Not only does self-regulation help the infant to focus attention, but infants also use attention to help them maintain regulation. When an infant or toddler becomes distressed or overwhelmed in an interaction, he will avert his gaze to look at a neutral object to remain calm (Morasch & Bell, 2012). The corticol and subcorticol areas of the brain develop quickly in the second half of the first year of life. These regions control both regulation and attention, which also have rapid development during that time (Posner, 2004; Rothbart et al., 2010), and their development is complementary.

The infant and toddler, as well as the older child or adult, begins the learning process by first noticing or orienting to an object or event. With sufficient motivation, the infant or toddler observes, handles, tastes, listens, or thinks about that thing, filtering out extraneous information in the environment. At about 18 months, this level of attention is beginning to happen under effortful control, an early expression of executive attention. Executive attention is the system in the brain that responds to sensory or frightening information, assesses it, and plans what to do with it. The connectivity in the controlling area of the brain becomes physically denser (Gao et al., 2009).

The child's ability to regulate and then attend is highly dependent on the presence of a responsive adult, in a meaningful, long-term relationship with her, who can help mediate the world. This major foundation for learning is being built into the brain in the first 2 years of life.

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Infant learning should occur through exploration and supportive interactions.

Curiosity

Infants and toddlers display curiosity through their exploration of the people and objects in their environment. In the infant/family field, exploration is the counterbalance to secure attachment. Infants are able to play confidently and explore their environment if they believe that they are being kept safe by a reliable, sensitive adult partner.

Parents and caregivers support curiosity as much as they support attachment. For the infant to be motivated to explore and learn, to be curious, requires more than safety. Adults support curiosity by creating an environment that offers intriguing experiences at the child's developmental level and encouraging the child in his interest. The adult should be nearby and ready to provide just enough support for the child not to be overwhelmed by frustration yet not completing the desired action for the child.

"[*The adult also*] *takes her child's perspective and demonstrates flexibility in her attempts to keep her child on task; follows her child's pace, provides the child with the opportunity to make choices, and ensures that the child plays an active role in the completion of the task*" (*Whipple, 2009, p. 57*).

Curiosity is a foundational motivation for all other learning.

Information Gathering

Almost certainly, the first and most recurring information that infants and toddlers collect is whether their needs for safety, nourishment, warmth, and rest will be met. Throughout these years, they learn how to be a partner in a relationship with each close caregiver and then with peers. Through these same interactions, they learn how to be members of their gender and their culture. How do people behave toward each other? What is valued, a quiet or active environment? How and where do we sleep? Do we meet each other's eyes? Do we behave differently in different places? What are the rules?

Very young children are constantly collecting this information, using it when they are able and testing it when they are not sure. Brain research has shown that, when an infant sees an action, she not only perceives the event with her brain circuitry but also activates an overlapping circuitry system used by the brain as if the child were performing the action. The brain experiences perception and action in a way that gives the young child a great deal of information about how whatever she is seeing feels to her. Scientists call this a "neural mirroring system" (Marshall & Meltzoff, 2011). This may be a central mechanism for social learning.

Sensorimotor information gathering in the infant and toddler is truly self-evident—we can see it happening. The well-acknowledged discoveries of object permanence, cause and effect, use of tools, and spatial relationships were defined by Piaget (1953) and constituted much of our understanding of how children gathered information for a very long time. With new theories about learning and the ability to

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The infant is born predisposed to attend to the most salient parts of his environment – the human face, voice, and touch.

look into the active brain, we are getting a much broader picture of what are likely multiple ways that infant and toddlers gather information.

One new and influential idea is that infants use statistical probabilities and computations to learn. Very young infants can hear the sounds of all the languages in the world. By age 10 to 12 months, their perception has narrowed to only the sounds of their home language(s), but they are computing the use of those sounds in their own language. Infants use distributional frequencies to understand how the sounds of their language connect to make words. They discriminate the sounds that usually begin or end words from those in the middle. However, they use social cues to guide their attention to language. They need responsive adult partners. Kuhl (2010) wrote of a neural commitment made by the brain to dedicate large areas and a set of systems to language acquisition in infants. These systems create a simple framework in the brain for early language learning on which later, more complex language can build.

Learning about objects also appears to be computational. Infants are able to find patterns in their environments. A series of experiments with 9-month-olds showed them to be using repeated occurrences of objects to predict the future behavior of the object. Of most interest is that when the infants were presented with two sets of information at the same time, they used social cues to determine which set to study—as they would in a real environment filled with much information (Wu, Gopnik, Richardson, & Kirkham, 2011).

Information gathering is foundational to all other learning.

Memory

Memory allows one to benefit from past experiences, so building the brain capacity for memory in infancy is foundational to accumulating and holding knowledge. Long-term memory refers to recognition and recall. Recognition is the ability to identify something as having been previously encountered. Recall involves bringing to mind a sequence of actions and information that can be repeated at a later time without cues. Working memory describes the ability to take in new information while integrating it with established information.

With infants and toddlers, recognition is usually measured by habituating the child to a set of pictures one time and at a later time, showing the same and novel pictures. If the child has recognized, and therefore remembered, the original pictures, he will look longer at the novel pictures. Recognition requires more than a sense of familiarity. The memory is tied to the context of the earlier occurrence—who was there, where it was, in what context. For example, 6-, 9-, 12-, and 18-month-old children were repeatedly shown a picture of an object in front of a background. When the background was changed, the 6- and 9-month-olds no longer recognized the object (Jones, Pascalis, Eacott, & Herbert, 2011). The memory was tied to the context.

Recall is usually measured by demonstrating a series of actions to a child and having them attempt to repeat the sequence at a later time without another demonstration. For example, 6-month-olds were *taught* to run a toy train by pushing a lever, and they were able to repeat the action 2 weeks later without prompting. In a deeper look at memory, the same researchers *modeled* a puppet activity with the children, which they were only able to repeat 1 day later. However, when the puppet modeling occurred within sight of the toy train, the infants were able to remember that activity 2 weeks later as well. The infants may have been able to use their prior knowledge of the train workings to help them remember the puppet, just as adults use prior knowledge to build on for further knowledge (Barr, Rovee-Collier, & Learmonth, 2010).

Adults support infants' memory development by maintaining predictable routines, keeping toys and belongings in designated places, and talking about events in the recent past. Memory is foundational to all later learning.

Problem Solving

An hour or so of observing infants or toddlers at play will easily demonstrate early attempts—and successes—at problem solving. It may involve stacking rings on a pole or fitting shapes into matching holes, or it may be as complicated as having one toddler going up the steps to the loft when another is coming down.

Cognitive researchers have found that toddlers, children from 16 to 24 months old, are developing significant problem-solving skills. There are many examples of problem-solving studies in infant cognitive laboratories. In one series of studies, infants and toddlers were asked to use tools to achieve a goal. The first task was to bring a spoon with food in it to their mouths. The spoon was oriented horizontally in front of the child with the handle pointed toward the dominant hand half the time and away from it the other half. The 9-month-old infants would grab the spoon with the dominant hand even if it meant holding the bowl of the spoon. At 14 months, the child would grab the spoon but realize on the way to his mouth that it wasn't going to work. He might keep it in the dominant hand, twisting his arm to make it work; he might transfer the spoon to the other hand; or he might put it on the table and try again. By 19 months, the child had a plan for using the spoon and could use either hand, although he would first reach with the dominant hand, suppress it, and then reach with the subordinate hand. Two-year-olds

were proficient with both hands. Other tasks included a similar presentation with a hairbrush, a task involving getting a ball out of a tube with a rod, and using a rake to reach an object. In each of these, the children displayed a similar growing ability to plan and adapt (Keen, 2011).

Problem solving is also a social task for toddlers. They are highly attracted to peers but often have conflicts over ownership of certain toys. The most expedient resolution often involves biting or hitting. The parent or teacher should see this as a problem-solving opportunity, a time to help toddlers learn prosocial skills to resolve conflicts (Gloeckler & Cassell, 2012). This growing ability to be flexible in thinking in order to find creative solutions creates a brain that can work through much more complex problems later in life.

Persistence Through Frustration

Toddlers experience a great deal of frustration. There is so much they think of doing that they cannot yet accomplish. They may be frustrated by friends, by lack of language, by rules, or by fatigue and hunger. The responsive adult partner responds empathically to the toddler's feelings of frustration. He encourages the child to continue working toward her goal, provides guidance for the next steps the child might take, or simply comforts the child by acknowledging her feelings. Toddlers are likely to look to a trusted adult for help when a toy is too difficult to figure out or a jacket is caught on its hook. Sometimes frustration turns into a tantrum before an adult can intervene. Nonetheless, as the toddler finds ways to manage the frustration and return to the task, she is establishing brain circuitry that will support the development of diligence and resolve.

Summary

So, that cappuccino is the result of the strong approaches to learning established in the architecture of your brain in the first 2 years of your life. Exposure to developmentally appropriate environments with the support of responsive adult partners gave you many opportunities to build a brain that is capable of paying attention, being curious, gathering information, having a memory, problem solving, and persisting through frustration.

The infant/family field should be embracing the idea of school readiness because we have access to the most important period of brain development. We need to promote the development of solid approaches to learning. If these neural connections are not made in the first 2 years of life, they may never develop. We are building the brains that make school success possible.

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Problem solving is also a social task for toddlers.

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Children Are Ready to Learn, but Are We?

The Role of Adult Relations in School Readiness

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From as early as two, Angela loved playing school. She would watch her older brothers read and write, and pretend she could do the same. Her mother said she liked to play school even more than playing with her dolls. Angela's excitement about learning melted away when she started school. Instead of feeling excited, she felt stupid and dejected. The teachers were handing out "diagnostic" worksheets that Angela could not complete. Disappointed in the change in her daughter's attitude, Angela's mother asked, "Have you ever heard of a kid not being seen as successful in kindergarten?" (Adapted from Lightfoot, 2004).

Unfortunately, many children are not considered successful in kindergarten; hence, the scramble to get ready for school at increasingly younger ages. This article responds to contemporary interpretations of school readiness by weaving together perspectives from child development, early childhood education, anthropology, social justice, and multicultural scholarship to provide an exploration of the following questions: What does it mean for a child to be ready for school in a society characterized by increasingly diverse populations of children and families? What are the implications of school readiness discourses for the birth-to-3 age group? What are the respective responsibilities of parents and teachers, and of families and schools, in deciding what children must know and how they should acquire those skills and understandings? We orient the following discussion as a response to this guiding question: How can diverse responses to these questions be used to promote learning and development, not only of children but also of adults? In this article, we offer personal and professional vignettes to introduce some of the challenges and complexities surrounding the concept of readiness. Our aim is to promote more critical and inquiry-oriented practices among professionals who work with infants, toddlers, and families and more purposeful, reciprocal, and collaborative relations with children's families in the determination of both the means and the meaning of readiness.

Abstract

Contrary to the concept of school readiness as achieving a particular set of attributes considered essential for educational success, this article is grounded in the assumption that all children are ready to learn, but what they are expected to learn varies widely from one cultural setting and historic period to another. The authors challenge the notion of readiness as a finite characterization of children's learning potentials. Alternately, they conceptualize readiness as a reflection of the quality of the relationships between families and early childhood professionals. The authors discuss the various concepts of optimal child development and effective parenting; the pragmatic and social justice imperative of information exchange between families and early childhood professionals; and the potential of constructing communities of adult learners within contexts of early childhood services in lieu of traditionally separate parent education and professional development experiences.

Who Is Supposed to Be Ready and for What?

Whereas the school readiness movement has historically focused on preparing children for schools, the "ready schools" movement shifted the focus to preparing schools for children. Made popular in the 1990s by the National Education Goals Panel, the school readiness–ready schools concepts were the results of a taskforce of early childhood/K–12 educators, children's rights activists, and politicians who set national educational policy in terms of readiness goals and indicators for children and schools. The Panel affirmed that schools have the responsibility to be ready to meet the diverse needs of students and outlined 10 indicators, including smooth transitions between home and school, continuity between early care programs and elementary schools, and helping every teacher and every adult who interacts with children to be successful (National Education Goals Panel, 1998). This work was interrupted at a national level with the passage of the No Child Left Behind Act, but ready-schools initiatives have continued in several states (cf. Indiana, North Carolina).

Currently, discussions of readiness in early education and care are focused on learning goals for increasingly younger children. These interpretations of readiness are linked to broader policy-related conversations around standards and the establishment of early learning and development guidelines, including those for infants and toddlers. The aim is to promote intentional early care and education programs by providing frameworks for the learning of children in the first 3 years of life (ZERO TO THREE, 2009) Thus, infant–toddler professionals are increasingly included in discussions of how to align the guidelines (e.g., the importance of play) with K-12 standards (Kagan, Scott-Little, & Frelow, 2009). Within this context, several recurrent features continue to define school readiness, as noted in the National Educational Goal Panel's (2010) targeting of four groups of readiness foci: children, school, community, and family. Panel members described children's readiness as a function of specific developmental characteristics, including physical well-being and motor development, social and emotional development, approaches to learning, language development, and cognition and general knowledge. Readiness at school and community levels is described as a function of coordinating essential elements within the education and care system. These coordinated elements include cross-training and seamless provision of health, social services, and afterschool programs and other supports for children and families, as well as leadership development in program coordination, evaluation, fiscal accountability, and collaborative guidance for families by institutions. Family readiness is conceptualized as being willing to learn about and follow through on what schools expect families to promote in their children.

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School readiness is a reflection of the quality of the relationships between families and early childhood professionals.

The complexity of the readiness construct is illustrated by the necessary transactions among and between these four groups. Child readiness is dependent on family support, which is, in turn, associated with broad community supports and the school's ability to convey essential information effectively. Indeed, clearly communicating kindergarten standards to parents and other family supports in culturally and linguistically sensitive manners is the foundation of seamless transitions between home, early care, and elementary school settings (National Education Goals Panel, 2010). Readiness expectations for families of infants and toddlers include the promotion of language and literacy skills, thinking skills, self-control, and self-confidence (ZERO TO THREE, 2004). Supporting the surge of interest in early readiness, a recent analysis of U.S. Department of Education data on 3-year-old children's acquisition of specific cognitive readiness skills (e.g., letter recognition, counting to 20) found that the achievement gap was already in place by age 3 (Child Trends, 2010).

Implicit in much of the readiness discourse are deficit perspectives implying that children are not ready to learn because of some fault or risk factor in the children, their families, and their communities or social groups (e.g., ethnic, racial, socioeconomic status). This article shifts the discourse away from the deficit orientation to include a more promising view of children and families (Swadener & Lubeck, 1995). Children are ready to learn, parents almost always do what they think is best, and variations in "what is best" are generally based not on a lack of understanding but, rather, on sociocultural histories and the particular conditions in which families find themselves. This does not mean, however, that children's parents and other family members are not in need of new insights into children's early learning potentials, especially if they will be learned through more respectful and reciprocal relationships with early childhood professionals. So what is it that teachers, care providers, and program directors might do to support the development of those relationships?

The Readiness Paradox

"[T]*here is no more complex and tender geography than the borderlands between families and schools*" (Lightfoot, 2004, p. xi).

Given the acknowledged importance of communication between early childhood professionals and children's families, as well as the coordination between them as contributors to children's readiness, it seems paradoxical that discussions of readiness focus mostly on the children and child outcomes instead of on promoting functional practices and shared perspectives among all of the adults who must work together to promote child learning and development. The focus on coordinated services raises the question of why the relationships between adults do not figure more prominently in discussions about readiness. One reason may well be its profound difficulty. Parents and

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What children learn, how and when they learn it, and the meanings associated with that knowledge are deeply rooted in local sociocultural contexts.

educators have long been described as having adversarial relationships (Powell, 1988). Among the reasons for potential conflict is the diversity of underlying assumptions associated with early education in general and child development and readiness in particular.

Implicit within the various interpretations of the readiness construct are assumptions about the purposes of an early childhood education, socially acceptable and effective parenting, and normative/optimal pathways for child development. Within the United States, professional judgments of what parents should want and do for and with their children are often characterized by a deficit point of view; and those differences (or deficits) become the foci of parent education programs. However, the growing body of cross-cultural scholarship and research on immigrant and minority populations suggests that the sometimes wide disparity between parental beliefs, goals, and practices in relation to their children's early learning and development is a function of membership in particular cultural communities. What may seem unusual behavior to some may represent rational responses to cultural values and traditions mediated by contemporary demands and opportunities.

Educational Goals and Strategies: Differences or Deficits?

"In an early childhood classroom in Chinatown, some families were concerned that their children were not receiving enough instruction in math. They described this concern to Chinese-American researchers, but not to their children's teachers. Rather, they bartered with neighbors to serve as math tutors for their three-year-old children. Meanwhile, the teachers were concerned that the children lacked adequate self-help skills, and were frustrated that the families seemed so eager to dress their young children at the start and end of the day instead of encouraging them to rely on themselves" (Kirst, New, Fan, & Chau, 2006).

Cultural differences in the goals and processes of early education are well established in cross-cultural scholarship. Research on children's early educational experiences in nations such as China, Japan, Italy, and Sweden (New, 2001, Organization for Economic and Cooperative Development, 2001; Tobin, Wu, & Davidson, 1989) illustrates culturally distinct views about the children's learning and development. These differences are acknowledged in goals and programs designed for preschool-age children. In many modern nations, within-cultural differences are also present (cf. Holloway, 1988), including those designed for infants and toddlers (cf. Gandini & Edwards, 2001).

Despite the changing demographics in the United States, variations in international early educational programs seem to have little influence in our own classrooms. Research reveals profound differences within the United States regarding the aims and means of an early childhood education—differences that are often reflected in educational outcomes. These differences are associated with families' race and ethnicity as well as socioeconomic circumstances and other contributors to minority status, including presence in the United States as refugees or immigrants. While large-scale studies on children's school readiness convey a deficit view of many minority populations, other studies attend more closely to what it is that parents want for their children, suggesting a mismatch in educational goals and processes.

Cultural differences in educational goals may produce both positive and negative outcomes. Some children may benefit from cultural expectations, such as the Chinese immigrant child's advanced mathematical knowledge thanks to the family's "early intervention" in the form of intensive focus on early numeracy skills. Cultural differences may also result in misunderstandings that lead to missed opportunities for effective teaching and learning. For example, children of Latino origin are consistently overrepresented in the lower ranges of early readiness assessments (cf. Child Trends, 2010). One study involving Latino mothers found them less willing to enroll their children in "high-quality" early childhood programs because the teachers in those programs did not speak Spanish; the mothers wanted their children to learn Spanish nursery rhymes and songs (Fuller, Eggers-Pierola, Holloway, Liang, & Rambaud, 1996) before becoming known solely as English-language learners.

Some early childhood programs respond to cultural differences with theoretical and pedagogical orientations that reflect deficit perspectives about the targeted populations, funneling them toward early intervention (New & Mallory, 1996). While it is important to meet the special needs of all children, early intervention efforts that defined minority culture as pathological were decried decades ago as a form of institutional racism (Baratz & Baratz, 1970), with notable biases reflected in its origins. Several decades of subsequent research suggest that only when schools and teachers work together within the context of mutually respectful relationships can children from minority households benefit from their schooling (Slaughter-Defoe & Brown, 1997). After decades of scholarship underscoring the need, however, the notion of developing constructive relationships with children's families remains easier said than done, given the often conflicting perspectives of parents and teachers about what is in the "best interests of the child" (Kersey & Masterson, 2009).

What Is a "Good" Parent?

The Tiger Mother, the deadbeat dad—everyone, it seems, has a point of view given the "strong opinions, powerful emotions, and intense commitments" that the subject of parenting—especially mothering—elicits (Barlow & Chapin, 2010, p. 324). Parenting practices and the beliefs that accompany them have been topics of long-standing interest to psychological anthropologists and others working within the broad theoretical framework of cultural psychology.

Caudill's classic study of infant care in Japan and the United States illustrated culturally distinct notions of what constitutes good mothering as assessed by differences in mother–child interaction. Japanese mothers offered physical closeness through cosleeping, and U.S. mothers provided closeness through conversation (Caudill & Plath, 1966; Caudill & Weinstein, 1969). As interest grew in the study of infants and toddlers in the early 1970s, so too did comparative research on parental belief systems, child care practices, and child development outcomes.

Over the next 3 decades, cross-cultural and anthropological studies on child rearing provided new evidence of alternatives to Western conceptions of good parenting, as

well as the sources of cultural and ethnic differences in what researchers labeled as parental ethnotheories (Harkness & Super, 1996). Ethnographic studies have described multiple caretaking (including breastfeeding) of Efe (pygmy) infants (Tronick, Morelli, & Winn, 1987), sibling caretakers (Weisner & Gallimore, 1977), and German mothers who allow their infants to stay alone for hours in their beds (LeVine & Norman, 2001). Others described cultural perspectives on child abuse and neglect (Korbin, 1981); taunting (Briggs, 1998) and shaming as socialization strategies for moral development (Fung, 1999). These are among hundreds of studies that underscore the same points: (a) Parenting behavior is a reflection of the values and moral direction of particular cultural groups (LeVine et al., 1994); (b) human development and behavior cannot be understood independent of cultural context (Rogoff, 2003); and (c) this person–context relationship is dynamic and not easily understood without the empathic understanding that comes from careful ethnography study (LeVine, 2007). Although rare in the field of child development, good ethnographies can help us to understand seemingly aberrant parenting practices. They also illustrate the critical need for more such research that could inform a more inclusive theory of human development (Quinn, 2010).

What Is "Normal" Child Development?

Implicit in professional expectations of competent parenting and school readiness are interpretations of children's typical development and "appropriate" developmental pathways. These assumptions have served as the primary knowledge base for the field of early childhood education for most of the past century (Bloch, 1991), yet evidence suggests that current conceptions remain incomplete at best.

Landmark studies of the cultural nature of child development have paralleled those focused on the cultural bases of child care and parental behavior. This work, much of it conducted in the 1960s and 1970s, challenged the premise that cognitive development unfolds in a similar fashion for all children (Dasen, 1977; Greenfield & Bruner, 1969), including, for example, the notion that contingent responsiveness is crucial to optimal cognitive engagement. Research with the Kung-San Bush peoples, whose infants were often cared for by older and seemingly less responsive child caregivers (Konner, 1975), found no cognitive impairment in contrast to assessments of infants cared for by their mothers or other adults.

More recent scholarship provides further support for a critique of universal stage theory in cognitive development.

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Readiness efforts focusing on the adult relationships can serve as a catalyst for, and commitment to, more socially just classrooms, schools, and communities.

For example, very young infants display an elementary knowledge of mathematical concepts such as addition and subtraction, yet there is ample evidence of cultural influences on subsequent development of number and arithmetic skills (Cole, 2006). Further work on the role of sociocultural activity in cognitive development highlights the principle noted previously: What children learn, how and when they learn it, and the meanings associated with that knowledge are deeply rooted in local sociocultural contexts (Bruner, 1990; Rogoff & Morelli, 1989; Cole, 2009). Contributions to this richly developing theory of the cultural nature of child development include studies documenting environmental influences on motor development, such as African Infant Precocity (Super, 1976), the nature and meanings of a developmental disorder (Super, 1987), and the cultural production of "independence and interdependence as developmental scripts" (Greenfield, 1994) rather than indicators of (im)maturity. The most prominent details of children's sociocultural contexts are provided by their active participation in the family and larger community (Rogoff, 2003). Collectively this work rejects the notion that child development can be understood out of context; rather, it illustrates the need to study and interpret children's learning and development within their cultural contexts (LeVine & New, 2008).

This work has continued into the 21st century, much but not all of it reported in anthropological journals (cf. Barlow & Chapin, 2010; LeVine, 2007). Likely because of its absence in mainstream journals of child development, the field of early childhood has continued to rely heavily on research deemed ethnocentric, inadequate, and biased (Baratz & Baratz, 1970; Bloch, 2000; Slaughter-Defoe & Brown, 1997). Given the prominent but problematic role of child development theories in the determination of readiness goals and developmentally appropriate practice(s) (Mallory & New, 1994), and in spite of numerous efforts to the contrary (cf. Copple & Bredekamp, 2009), it is not surprising that some cultural groups within the United States do not feel well acknowledged in the determination and evaluation of their children's readiness characteristics. Fortunately, publications targeted to the birth-to-three population increasingly reference the cross-cultural literature, including publications for pediatricians and others who provide services for families of infants and toddlers (cf. Touchpoints by Brazelton & Sparrow, 2006; McKenna, 2000). As we continue to learn, however, we must also continue to act based on what we hope is in the best interests of young children.

Shifting the Focus to Adult Relationships

Given the pluralistic nature of American society, what do we do with knowledge regarding the cultural nature of children's development, parental behavior, and orientations to early education? For the next part of this article, we reposition the language of the ready schools movement back into the spotlight. Shifting

the readiness conversation to focus on adult relationships is itself supported by the recommendations of the National Education Goals Panel (1998, 2010) that adults—parents and teachers—take responsibility for results and that schools must change if they are not adequately serving children.

Reconceptualizing Relationships Based on Respect and Reciprocity

We began this article by advocating for early childhood professionals to take responsibility for developing effective communication and engagement strategies to exchange relevant information and negotiate differences in perspectives with families. Lightfoot (2004) described productive family–school encounters as being an essential part of the work but acknowledged that they are "complex and difficult to navigate" (p. xxvii). The uncertain navigation is often emotionally charged both for the families and for the teacher, suggesting that the primary goal must first focus on the establishment of respectful and reciprocal relationships. What does it mean to respect families of young children?

As a mother of premature twins, Maya (not her real name) wasn't getting much sleep. It was particularly difficult given what seemed to be the colicky nature of her daughter. All of her relatives from Egypt told Maya, "For that, give her boiled caraway seeds." Maya mentioned it to the pediatrician, at once worried about his reaction and about doing something that he would not approve of. He replied that, although such remedies are not approved by the American Pediatric Association, "Who am I to discredit remedies that have been used for thousands of years?" In that moment, Maya learned that she did not need to choose between parenting within her cultural context and her doctor's office. She also learned to trust her children's doctor, which made her eager to seek his advice on many other issues.

Sometimes respect is conveyed through validation of alternative approaches to common parenting challenges. The notion that there are "standard" and "approved" strategies to address the needs of children is a subtle affront to the diverse and culturally embedded ways in which families care for their children. Although it is reasonable for a professional to try to translate and make good use of research, it is also important to explore how diverse practices might further contribute to the acquisition of evidence. While the push for evidence-based practice seems both noble and an aspect of quality enhancement, it presumes evidence exists for all communities, which is not the case for many individuals from nondominant cultures, including American Indian and Alaskan Native individuals, who have been forced into cultural change for centuries (Spicer, Bigfoot, Funderburk, & Novins, 2012). Inviting parents to "please tell me more about why you do this so that I can better understand you and your child," adds a valuable layer to the foundation of respect—that of reciprocity. So too does acknowledging the struggles of minority parents "to manage the tension generated by the multiple competing influences on their parenting—influences that may include race, class, religion, gender, popular culture, and individual histories" (Mann, 2000, p. 7). Such empathic conversations are essential to the establishment of respectful relationships. Consider this scenario of an exchange between a mother and her daughter's pediatrician.

A toddler was found to be language delayed, and the early intervention team did not know if it was a global delay, a factor of being a dual-language learner, or associated with communication patterns that may signal a need for a broader range of receptive language and more opportunities for productive language. The pediatrician asked the mother to outline their typical routine, which included saying prayers aloud throughout the day. In addition to being too tired to communicate much with her toddler daughter, the mother and her family's cultural group did not direct much open-ended speech to children. The pediatrician suggested that the mother consider herself a radio announcer and narrate play-by-play what she was doing at home. "I know, it seems awkward to just narrate to yourself and to Nadia, 'I'm putting the bread in the toaster,' but this directed speech will help her pick up on words and relationships, and soon she may start echoing you."

Although this mother had not realized she was not talking much to her child, she was helped to see that her child's nonresponsiveness discouraged the mother from initiating conversations with her daughter. The specific advice from a trusted care provider persuaded the mother and the family to think more about how they could expose their daughter to their heritage language and also to English. Such a respectful conversation is preferable to the deficit assumption that, for example, language differences constitute a language delay. This conversation also respects the professional knowledge that children's early language development is crucial for subsequent social–emotional development and academic achievement. Respect in this case does not imply deference to the mother's current practices. Rather, assessment and monitoring of children's early language production and reception is a professional responsibility; so too is being culturally sensitive when alerting families to how they might promote the skills and dispositions children will be expected to display in school settings (Horton-Ikard, 2006).

The scenario earlier in this article about the Chinese family wanting more math instruction in their early education program illustrates the quandary that many minority families face when they have different ideas about what their children should be learning. In the absence of open and trusting relationships, such dilemmas can lead to separate experiences and incompatible expectations for children in the home and early childhood setting. In this particular case, the families avoided discussions of this or other conflicts, because it was unthinkable to appear disrespectful or unappreciative of the teachers' work. It was only when (Chinese American) research assistants asked whether they were "worried about their children" that the parents described their concerns (Kirst et al., 2006). More direct communication initiated by the teachers (who likely had some inkling of Chinese parents' reticence to express concerns) could have uncovered common ground in how to support children, as well as how to build stronger bridges and greater continuity between home and school. The teachers could have explained how classroom practices such as counting days on the calendar at circle time or playing with blocks and other manipulatives at the water table helped build a range of mathematical concepts and skills. They also could have invited parents to show them the types of mathematical activities they (or the tutors) engaged in with their children at home. Given the growing body of evidence that young children are eager to learn and have more advanced mathematical thinking than has been recognized (Bowman, Donovan, & Burns, 2001), teachers would be well advised to listen closely to parents to gain insights about how they might better promote early mathematics in the classroom. With such reciprocal exchanges, the parents benefit from the teachers' respect for their views, and the children benefit in ways far beyond early mathematics as they observe the mutual engagement of the adults who care most about their early education. Such demonstrations of respectful reciprocity would create a context in which teachers can validate the affection expressed when a family member assists a child with an everyday task such as putting on a coat, and at the same time introduce the notion that, within the larger classroom context, there may be value in promoting the child's self-help skills.

Negotiating the Nonnegotiable

The notion that seemingly aberrant parenting practices might well be reasonable under some circumstances—for example, the use of forced feeding within an historical context of high infant mortality; or swift punishment to promote compliance in a setting rife with dangers of communal violence —is helpful to early childhood professionals who wonder, "Why would that parent do such a thing?" Consider the situation of immigrant and refugee parents who may find that practices normal in their heritage country do not translate effectively in the U.S. context.

"I love my son very much, and try to be patient and teach him to behave well. But there are times he just won't listen to me—in Somalia, I would hit him to let him know I'm serious, but they tell us that is not allowed here. I do not know what to do and his behavior is getting out of control" (Schmidt, 2005, p. 3).

Parents may not have developed alternative ways to engage with their children, and service providers may be uncertain about what cultural sensitivity should look like in such a case. Understanding is not the same thing as accepting, especially when the parenting strategy no longer seems necessary or functional. Recent research on the consequences of adverse environmental circumstances and nonsupportive early experiences on children's brain development make clear that a failure to intervene can sometimes place children at grave risk (Blair, 2002; Blair & Raver, 2012). The challenge for the early childhood professional is to move beyond judgments to set the stage for constructive conversations. Teachers may say, "I understand how frustrated you are, but we can't hit children. Let's figure out what we can both do to try to change Noel's behavior. If we work on this together, that will surely be a step in the right direction." Statements such as this serve multiple functions—they validate the parent's frustrations and the teacher's professional knowledge and responsibilities; they acknowledge a mutual desire for change; and they propose a partnership to work together on something of vital importance to the child.

Parents as Partners

The language of "parents as partners" is increasingly found throughout the professional literature. However, many programs available to early care professionals describe these partnerships in unilateral terms. Indeed, recent recommendations for how to promote more active educational engagement with one's child was to urge the family to unconditionally accept program information (Gartrell, 2012). This orientation denies the legitimacy of parent concerns and denies the possibility that professionals and parents could learn from each other. As an alternative orientation, teachers could invite family members to work with them on projects in which the adults have expertise or a special interest or concern. While the shared goal is to promote children's early learning, much more can be gained through more authentic partnerships. Given the vast amounts of knowledge that parents have about their own children and the professional wisdom that teachers have accrued, the outcomes of such collaborative inquiry will surely lead to improved adult understandings, in turn, leading to more consistent and coherent support for children's early learning.

Italian early childhood educators have a long history of this sort of parent participation in the study and documentation of children's early development. Parents may be invited from the very beginning, for instance, to help analyze videos of the child in moments of distress when first being left at the asilo–nido [infant–toddler center] or to document children's peer relations in a mixed-age (birth-to-three) classroom (Bove, 1999; Gandini & Edwards, 2001). As teachers and parents commiserate with each other's emotional responses to the child's anguish in the first example, or marvel at the toddler's capacity for empathy when playing with an infant, the foundation for a respectful and reciprocal relationship is well on its way. Italy is not the only culture that values collaborative adult relations in the care and education of young children, but it is among the most dedicated to using those relations to design programs and practices for their young children (New, 2001).

Learn More

See the following Web sites for more Web-based and published resources on readiness as a function of culturally responsive and reciprocal family–professional relationships. Although some sites and publications place more emphasis on helping parents understand what children need to know (and know how to do) before entering school, each of these resources underscores the critical importance of close collaborations with parents. Look for ways that these perspectives on readiness and collaborations might inform your efforts to learn from and with families about their infants and toddlers.

National Association for the Education of Young Children (NAEYC)
http://www.naeyc.org/files/naeyc/file/positions/diversity.pdf
NAEYC has numerous resources for professionals and parents to support children's early development and school readiness, and some of these resources direct attention to the critical importance of respecting and learning about children's home cultures, traditions, and routines. See the "Where We Stand" position statements, especially "On Responding to Linguistic and Cultural Diversity," for critical components of effective, respectful and reciprocal home–school relationships.

Ready to Learn
http://pbskids.org/readytolearn/
PBS Kids Lab, in collaboration with the U.S. Department of Education, has designed a Ready to Learn series of programs and games focused on children's early learning and school readiness. Designed for young children ages 2 to 8, this series could serve as the content for focus group discussions with family members and early childhood professionals about their goals and expectations for children's development and as well as family–school relations. Note the special program, "Family Engagement."

The Clearinghouse on Early Education and Parenting (CEEP)
http://readyweb.crc.uiuc.edu/library.html
PBS Kids Lab, in collaboration with the U.S. Department of Education, has designed a Ready to Learn series of programs and games focused on children's early learning and school readiness. Designed for young children ages 2 to 8, this series could serve as the content for focus group discussions with family members and early childhood professionals about their goals and expectations for children's development and as well as family–school relations. Note the special program, "Family Engagement."

Touchpoints
http://www.brazeltontouchpoints.org/
Touchpoints was developed by pediatrician T. Berry Brazelton to support professionals in working more effectively with family members in response to changes and challenges associated with children's development. Today, the *Touchpoints* Web site is a treasure trove of resources for families as well as professionals on how to understand and support infants, toddlers, and young children and each other.

Much of the discussion thus far has focused on the need for respectful and reciprocal relationships between teachers and individual families, but this need extends to the promotion of relationships among and between parents as well. A small but robust body of research suggests that a strong social network is more likely to predict positive child outcomes than do other socioeconomic indicators (cf. Boykin & Toms, 1985; Sampson, Morenoff, & Earls, 1999). Such relationships contribute to a sense of collective efficacy characterized by interest in and knowledge about each other's children, reciprocal exchanges of advice as well as material goods, and at least some of the time, a move to more mutual goals (Sampson et al, 1999). It is easy to imagine, for example, that other parents would be interested to learn more about how Chinese parents promote mathematical thinking in very young children. Regardless of whether they want to emulate those practices, new understandings can replace old prejudices. Surely this too is a readiness project for the parents and teachers of young children.

Teachers as Researchers

A second change that may promote partnerships is to direct teachers' professional development experiences to learning more about themselves and the children they hope to teach. The concept of teachers as ethnographers of children's lives outside of school has been argued as essential to the determination of developmentally appropriate practices (New, 1994). More contemporary scholarship builds on, and urges teachers to play, the role of ethnographer to learn more about the cultural funds of knowledge available to children and their families in the home and community setting (Moll, Amanti, Neff, & Gonzalez, 1992). As teachers gain more precise knowledge of the range of household routines, they can design more culturally relevant curricula and pedagogy. As they become aware of particularly important features of a child's home life, such as a child's frequent trips to Mexico, teachers can acknowledge those trips in a manner similar to the attention given to other family vacations. Teachers also need to explore their personal experience with early nurturance, emotionally and culturally, to appreciate what it is they are asking of parents of infants and toddlers (Mangione, Lally, Poole, Tuesta, & Paxton, 2011). When teachers purposefully reflect on their own funds of knowledge, they are better equipped to develop respectful relationships and make meaningful and feasible readiness recommendations.

A bulk of the readiness literature reviewed for this article has focused on the need for readiness supports for children of minority populations, especially for those whose families live in conditions of poverty. However, looking flatly at socioeconomic status as predictive of children's readiness or subsequent school achievement is often misleading. Numerous other variables have been identified as stronger predictors of children's success in school, or lack thereof, including, in one study, the affective tone of mother–child interactions (Hess, Holloway, Dickson, & Price, 1984) and, in another, early math skills (Duncan, Dowsett, Claessens, Magnuson, & Huston, 2007). The presence of "chronic and persistent anger, conflict, and violence in close relationships" is not good for children no matter the socioeconomic status of the family (Weisner, 2010, p. 212). Thus, the principle that "Readiness is about relationships!" applies to all families, including those who are well educated and middle class. They too inhabit cultural worlds that inform their decisions about and roles in children's early development. These families also will benefit from the partnerships with teachers proposed here. For example, a family may have adequate income and a highly educated mother, but that may not translate into social capital or particular household practices essential to the promotion of readiness.

Another issue that is problematic for many children of more wealthy families is their easy access to new technologies. In concert with the growing frenzy around school readiness, parents eager to provide their infant or toddler a competitive edge are now the targets of sophisticated marketing campaigns that highlight technology's educational possibilities. Although ample research is now available about the risks of excessive time in the front of the television, limited research is available on the risks and potentials of very young children's engagement with handheld technologies (Wartella, Richert, & Robb, 2010). There is wide variation in how parents facilitate children's engagement with the content of such tools (Fender, Richert, Robb, & Wartella, 2010). Collaborative projects involving parents and teachers could help to document differences in, for instance, the conversational nature of book reading versus time with a smartphone.

Ready or Not—Choices to Be Made

The motivation for choosing to develop more authentic and participatory relationships with children's families versus maintaining the traditional and hierarchical distance between homes and schools seems clear. "When teachers and caregivers don't understand or when they ignore cultural contexts, they put children at developmental risk" (Day, 2006, p. 25). On the other hand, when teachers and families work together and learn from each other, they contribute to a more inclusive paradigm about child development (McKenna, 2000). By engaging in an iterative process of exchange with families, teachers are immeasurably better positioned to help young children navigate the distance between home and school, avoid undue emphasis on standardized practices or outcomes, and consider together how best to support young children by building on their strengths (Jones & Lorenze-Hubert, 2008). When readiness is construed as a collaborative project designed to ensure that all families feel respected, all teachers are also learners, and all children are supported at home and at school, it becomes much more than a pragmatic means to eliminate the achievement gap. Readiness efforts that focus on the adult relationships can serve as a catalyst for, and commitment to, more socially just classrooms, schools, and communities. With that aim in mind, the period of infancy and toddlerhood is not too early to start.

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From Research to Practice

Strategies for Promoting School Readiness in Programs Serving Infants and Toddlers

STEFANIE POWERS
ZERO TO THREE

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Early childhood programs recognize the importance of preparing children for success in school and later in life. Considering recent media attention on the importance of the early years of life, policymakers, researchers, parents, and child advocates have an increased interest in what it takes to fully prepare children to succeed in school. In addition, the rising number of working parents has increased the demand for high-quality child care for very young children.

Comprehensive early childhood programs are available to children from birth, raising new questions about what school readiness means for programs serving infants, toddlers, and expectant families. Research has revealed that the social and emotional development of young children and, more specifically, the nature of early relationships plays a critical role in fostering cognitive development. Both the parent–child relationship and the relationships that children develop with other significant caregivers, for example, in child care settings, have an effect on child development (National Research Council and Institute of Medicine, 2000). In fact, the emotional and social characteristics are what provide children with the skills to learn and the motivation to want to learn (ZERO TO THREE, 1992).

This article explores the scientific knowledge base concerning the remarkable developmental tasks that occur in the first 5 years of life, and the capacities that equip children with the skills they need to negotiate the relationships, responsibilities, and challenges they will face throughout their lives. Early childhood programs, beginning with support to expectant families during the prenatal period and through the first 5 years of life, can play a pivotal role in this process. In this article, we explore school readiness to illustrate how early development influences later learning. However, it is important to keep in mind that the characteristics that equip them for success in school also prepare them to become competent, resilient, effective human beings in all areas of their lives.

Abstract

Fostering healthy social and emotional development provides the foundation for school readiness in programs serving infants, toddlers, and their families. In this article, the author explores four key concepts that make the link between social and emotional development and early learning: (a) Cognitive and social–emotional development are interrelated; (b) relationships facilitate learning; (c) curriculum is delivered through relationships; and (d) early childhood programs can best support children by supporting their parents. The article provides strategies for early care and education professionals to create the most effective early care and learning environment for optimal development and school success.

Photo: Kiwi Street Studios

Relationships are the vehicle through which learning takes place.

What Does School Readiness Mean?

In the landmark report, *From Neurons to Neighborhoods: The Science of Early Childhood Development* (National Research Council and Institute of Medicine, 2000) the authors synthesized the research on brain development and findings about early childhood development and emphasized three critical developmental tasks that characterize the importance of the first 5 years of life.

1. **Acquiring self-regulation**—Self regulation is the process of "negotiating the transition from external to self-regulation, including learning to regulate one's emotions, behaviors and attention. This captures the emergence of self-control and independence and can provide an analogy for the movement toward competent functioning that characterizes development as a whole" (National Research Council and Institute of Medicine, 2000, p. 92). Consider the remarkable transformation that occurs in all areas of development during the first 5 years of life. A newborn is completely dependent on his or her caregivers to meet every physical and emotional need. Over time and in the context of supportive relationships, young children become increasingly competent in all areas of development.

   Typical preschoolers have developed many of the skills for feeding, bathing, and dressing themselves; have some understanding of societal and familial norms, values, and morals; and can share their own unique opinions, preferences, and interests.
2. **Communicating and learning**—Communication and learning refers to "acquiring the capabilities that undergird communication and learning. This includes the early development of language, reasoning, and problem solving"(National Research Council and Institute of Medicine, 2000, p. 92). The ability to communicate effectively begins in the earliest moments of life as newborns experience having their needs met through the sensitive response of attentive caregivers. Parents learn through experience and with support how to successfully read their child's cues and begin the back-and-forth "dance" of communication that sets the stage for language and learning. This process evolves in the preschool years into increasingly sophisticated skills such as the emerging ability to reason, think logically, and problem solve.
3. **Getting along with peers**—Developing positive peer relationships involves "learning to relate well to other children and forming friendships. This highlights the emerging capacity to trust, to love and nurture, and to resolve conflict constructively" (National Research Council and Institute of Medicine, 2000, p. 92). Relationships are the vehicle through which learning takes place. Clearly, the parent–child relationship is a child's first opportunity to experience trust, love, and nurture, and this relationship forms the basis for learning to relate well to others. Thus, programs that serve infants, toddlers, and their families focus on strengthening parent–child relationships throughout program activities and services.

The Emotional Foundations for School Readiness

Before the publication of *From Neurons to Neighborhoods*, ZERO TO THREE: National Center for Infants, Toddlers, and Families published a series of monographs that similarly pointed to the social and emotional development of infants and toddlers as the precursors to success in school. The authors identified seven characteristics of children who are best prepared to thrive in the school environment (ZERO TO THREE, 1992).

1. **Confidence**—A sense of control and mastery of one's body, behavior, and world; the child's sense that he is more likely than not to succeed at what he undertakes and that adults will be helpful.
2. **Curiosity**—The sense that finding out about things is positive and leads to pleasure.
3. **Intentionality**—The wish and capacity to have an effect and to act on that desire with persistence, a characteristic that is clearly related to a sense of competence and of being effective.
4. **Self-Control**—The ability to modulate and control one's own actions in age-appropriate ways; a sense of inner control.
5. **Relatedness**—The ability to engage with others based on the sense of being understood by others and understanding others.
6. **Capacity to Communicate**—The wish and ability to exchange ideas, feelings, and concepts with others, a characteristic that is related to a sense of trust in others and a sense of pleasure in engaging with others, including adults.
7. **Cooperativeness**—The ability in a group activity to balance one's own needs with those of others.

Characteristics such as these enable children to respond to direction, pay attention, communicate effectively with peers and adults, cope with stress, and feel motivated to learn. Children who are lacking these qualities face much greater challenges and typically experience both behavioral and academic problems. These children are at a greater risk to disrupt the classroom environment, become ostracized by their peers, fall behind in academic skills, and eventually experience greater behavioral and learning problems that lead to academic

failure and school dropout (Peth-Pierce, 2000).

Support is strong for the idea that school readiness is best considered in the context of fostering children's overall developmental competence so they can manage the demands and responsibilities of school and life. Developmental competence refers to optimal functioning in all areas of development and is expressed as curiosity and the motivation to learn; the resilience to cope with stress; and the ability to solve problems, communicate effectively, and develop close, satisfying relationships with peers and adults. This developmental competence is the result of positive, nurturing early experiences with sensitive, responsive caregivers and is equally important to the acquisition of specific academic skills. These nurturing experiences are what teach children to manage one's emotions and behavior, effectively communicate and learn, and sustain positive relationships with others (National Research Council & Institutes of Medicine, 2000).

From Research to Practice

The experiences of children and families in early childhood programs influence how they will approach experiences later in life. Comprehensive birth-to-five programs offer a tremendous opportunity to foster the competence necessary not only for school success but also in all areas of development. For staff members to effectively support the three developmental tasks discussed earlier—acquiring self-regulation, communicating and learning, and getting along with peers—they need to understand both child development and the critical link between social–emotional development and early learning.

Below are four key concepts that describe the link between social–emotional development and early learning, and how parents and significant caregivers help infants and toddlers regulate their emotions and behavior, communicate and learn, and develop healthy relationships with others.

These four concepts are:

- Cognitive and social–emotional development are interrelated;
- Relationships facilitate learning;
- Curriculum is delivered through relationships; and
- Staff members can best support children by supporting parents.

Cognitive and Social–Emotional Development Are Interrelated

For all children, but especially those in the earliest years of life, each area of development—physical, cognitive, social, and emotional—is related to and influences the others. For example, a 6-month-old baby will express his delight with a smile and a full body wriggle. During infancy and toddlerhood, it is impossible to separate one developmental domain from any other. In fact, because of the infant's complete dependency on his or her caregivers, all areas of infant development unfold within the context of the child's relationships with others. Through these most important relationships, a child develops not only his or her self-concept but also the characteristics noted earlier—confidence, curiosity, motivation, cooperation, self-control, and relatedness. This dynamic explains why we focus on relationships as the central component of early childhood experiences that support developmental competence and school readiness.

Photo: ©iStockphoto.com/Michelle Milliman

Expensive toys, flash cards, or other gadgets are not necessary to get a jump start on cognitive development or to "make a smarter baby."

As children mature, their strong sense of attachment to significant people in their lives nurtures the motivation to interact with the world around them. When an infant is reaching overhead for a toy swinging from the mobile and the adult says "That's right, you can get it," the baby is learning that his or her activity matters to someone. When a crawling infant pulls up to stand on an unsteady surface and the caregiver extends a supportive hand and says "No, no, that's too wobbly," the baby is learning that adults will keep him or her safe. When a toddler takes her first wobbly steps to the applause and delight of her parents, the child is learning that others share in the joy of her accomplishments. In each of these examples, the relationship is what guides the learning process and makes the difference in how the child develops a sense of self, what he or she can do, and the effect he or she has on others. This awareness ultimately builds the social and emotional characteristics that have been identified as the precursors for readiness to learn.

Implications for Practice

Learn more about how infant development unfolds by observing infants and toddlers during everyday routines and play. Use the two examples below to increase your understanding of the connections between each area of development.

- Pay close attention to your interactions with a particular child during a feeding routine. Reflect on the different ways the child was experiencing the feeding. What motor skills was he practicing? Perhaps he was reaching for the spoon or using his small motor skills to pick up a bite of food between his finger and thumb. What language learning took place? Did the child coo and babble, imitate sounds, and hear words associated with eating? What cognitive skills did he practice?

Photo: Kiwi Street Studios

Caregivers can spontaneously use teachable moments to address school readiness skills in all areas of development.

Perhaps he was engaged in a favorite game of throwing his food and utensils over the edge of the high chair for you to retrieve again and again (this popular activity demonstrates cause-and-effect learning and the emerging concept of object permanence, or how things continue to exist even when out of sight). What were the social and emotional messages that were communicated during this feeding? How did the child signal that he wanted more food or had eaten enough? From your actions, the child learns that eating is pleasurable, his hunger will be satisfied, people care about him, and many other lessons, depending on the tone of the interaction.

- Pair up with another staff member to observe each other in a free-play situation with a child. Each caregiver will take a turn playing and then observing. With a sheet of paper that lists each developmental domain on the left side, the observer should write down what the child is learning or experiencing in each area of development during the play. For example, consider a caregiver helping a toddler negotiate the playground equipment. In the area of motor development, the child is using her large muscles to climb, pull her body up, balance, and jump. In the area of language development, her vocabulary is expanding as she and the caregiver label the new experiences she is having and by how the caregiver talks to her during her play. In the area of cognitive development, she is learning concepts such as up, down, through, over, and under. Socially and emotionally, she is learning that her caregiver supports her as she tries new things, negotiates conflict with others, keeps her safe from harm, and brings joy to her play. She is learning to have confidence in herself, to be curious, to trust adults, and to get along with her peers.

Relationships Facilitate Learning

Early studies of institutionalized infants provide well-documented evidence of the physical, social, and cognitive deterioration that occurs in infants who experience a lack of intimate emotional relationships with significant caregivers (Spitz, 1945). More recent studies of children adopted from orphanages around the world demonstrate how children who did not receive stimulation or consistent relationships with caregivers dramatically improved their developmental functioning when placed in a nurturing and loving environment. For example, a child who is withdrawn and lethargic will begin to brighten and show interest in the surrounding world when he or she is with attentive, loving, focused caregivers.

The most recent research on early brain development highlights the "pruning," or the "use-it-or-lose-it" process that occurs in the connections among brain cells. This process strengthens the connections among frequently used cells and weakens, and eventually eliminates, the connections among brain cells that are not used. This "pruning" of the brain occurs during normal, everyday activities and experiences, and it literally shapes the structures of the brain (National Research Council and Institute of Medicine, 2000).

Daily caretaking routines such as holding, rocking, bathing, feeding, dressing, and talking to infants all help create new connections in the brain. Expensive toys, flash cards, or other gadgets are not necessary to get a jump start on cognitive development or to "make a smarter baby." Children play creatively and learn from the most ordinary of items—by crawling through cardboard boxes, sorting and banging with plastic bowls and lids, or playing peek-a-boo with Mommy's scarf. Parents and early childhood programs need materials that capture the child's imagination and interest, but they do not need to purchase special items that are marketed to boost "brain power."

Relationships guide learning in a number of ways. For example, adult caretakers are responsible for the child's environment and the amount of sensory stimulation in that environment. One of the first developmental tasks of the newborn is to regulate his or her states of arousal from deep sleep to drowsy awake to alert to fussing or full-blown crying. In each of these states, the infant is more or less able to respond and interact with his or her environment. The infant is most open to social interaction and exploration when in a quiet, alert state.

Parents and other caretakers play an important role in helping infants regulate their states of arousal by tending to their needs: changing a wet diaper, feeding a hungry baby, rocking a tired baby to sleep, keeping sounds and visual stimulation at a comfortable level. Significant adults are the guides for learning who and what is "safe." For example, a 9-month-old baby will look at a parent or a child care teacher when a new person comes into the room to check whether it is okay to interact, or a crawling baby will look at her father when approaching what looks like an area too steep to navigate.

During this kind of responsive caregiving is when infants begin to develop a sense of trust in the people who care for them and form the bonds of attachment that hold the parents and other caregivers in a special place in that child's life. In a secure relationship, a child learns, "I matter," "Someone understands me," and "My needs will be met," forming the basis for self-esteem as well as the expectation that people are good and the world is safe. This confidence and security ultimately builds the self-regulation that is necessary for young children to

become successful learners and it promotes competence in all areas of development.

Implications for Practice

The relationships that you build with the children in your program enhance or inhibit their learning. How do you build an effective relationship with a child? What happens when you have a child in your care that you just do not "click" with? How do you, the caregiver, take care of yourself so you have the energy to care for the children?

- Relationships take time and attention. Recognize that, like adults, children come to your program with a history of relationships that will influence how they approach a new relationship. Think about the characteristics of important relationships in your own life and the qualities that make them special—trust, acceptance, feeling understood, having your needs met. These are the same qualities that you want to bring to your relationships with children.
- Typically, adults have difficulty acknowledging that we do not always hit it off with all of the children in our care. Children affect us differently, and we need to recognize when a child in our care "pushes our buttons." Think about the children that you feel particularly close to and those who often leave you feeling frustrated. Although these feelings of closeness and frustration are normal, it is your responsibility to manage them so they do not interfere with the care of the children. Talking openly with a supervisor in a safe and supportive setting about your relationships with the children in your care provides the opportunity to get the support you need to respond to challenging children with sensitivity. The children who challenge us as caregivers are also the ones who provide us an opportunity to increase our self-awareness and understanding of how our own experiences influence what we bring to the caregiving role.
- Who you are as a person, your own temperament, past experiences, family and cultural values, and current life circumstances shape how you respond to the children and families in your program. Working with young children and families is challenging, rewarding, and emotionally hard work. As a caregiver, it is vitally important that you pay attention to your stress level and how you take care of your own needs. Stress relief means different things to different people. Explore what helps you—exercise, time with friends, time alone, a good book, a hot bath, listening to music, going out dancing—and recognize when you need to nurture yourself so you have the emotional energy to nurture the families and children with whom you work.

Curriculum Is Delivered Through Relationships

The idea of a curriculum for programs serving infants and toddlers has raised many questions in the early care and education field about what it means to support the development and learning of very young children. In a comprehensive approach to curriculum, learning goals address all the developmental domains: motor, sensory, language, cognitive, and social–emotional skills. Furthermore, the concepts of learning and skill development are different for infants and toddlers than for older children. Rote teaching of discrete skills is developmentally inappropriate. Infants and toddlers learn through play, exploration, and interaction with objects and people in the context of meaningful relationships with trusted adults. (See the sidebar, Learning Through Play, for examples of the amazing amount of learning that happens through play.)

Parents and early care and education professionals should collaborate to develop learning goals, identify the experiences they want children to have in the program, and do what is necessary to create these learning opportunities. The ongoing developmental assessment of children provides the information that is used to individualize the curriculum by identifying a child's unique skills, interests, resources, needs, and progress. Some of the strategies for ongoing assessment might include; (a) recording children's behavior to identify current functioning and emerging skills; (b) communicating with parents and other caregivers about behavior in the home and other settings; (c) identifying different ways children learn and expanding the experiences to incorporate different learning styles; and (d) modifying the materials, experiences, or environment to encourage new skills.

In addition, through the relationships with children, caregivers are able to individualize learning goals and use the informal "teachable moments" that provide rich, responsive, and relevant learning experiences in unplanned and, often, unexpected ways. These are the learning experiences that usually have the greatest effect.

Skilled caregivers spontaneously use teachable moments to address developmental skills in all areas of development. For example, a caregiver is reinforcing cognitive skills (e.g., color identification, discrimination skills) when the child with whom she is finger painting notices that his red shirt matches the red paint and she makes a game out of naming all the other red things in the room that the child can find. Similarly, the caregiver reinforces social and emotional skills (e.g., conflict negotiation, emotional regulation) when he or she helps negotiate a fight between two toddlers over who had the

Learning Through Play

What do we mean when we say that play is children's work? What are infants and toddlers really learning in their play that forms the foundational skills for later work in school? The table below provides some examples of typical infant and toddler play experiences, their relationship to academic skill areas, and the unique role of social and emotional development as a bridge between play and learning.

Table 1: Learning Through Play

Play experiences	Skill areas	What children may be learning	
		Cognitive	Social–emotional
Playing pat-a-cake	Language	Imitation	I feel understood when you respond to my gestures. We have fun together. I like to imitate you.
Manipulating and mouthing books; being read to	Literacy	Vocabulary, memory	I like being close when we read together. It feels good to snuggle with you and hear my favorite story.
Group play at the water table with different-sized containers	Science	Concepts of weight and volume	I learn how to take turns and share.
Building with blocks	Math	Counting, sorting, and classification skills	I feel so proud when you clap for me as I build my block tower.

fire truck first, explains how the children will play with it together or take turns, and identifies and validates the feelings—frustration, anger, fear—that may accompany this typical altercation.

Implications for Practice

Children's thinking and learning is guided by responsive caregiving. Understanding child development is an important tool for responding effectively to the children with whom you work and for supporting families who are learning these skills.

- Learn about the cognitive milestones that take place in the early years—the importance of concepts such as imitation, object permanence, and pretend play—and the progression of learning from simple to more sophisticated skills that children demonstrate in their play.
- Use this knowledge to individualize the curriculum. Knowing the stages of development will allow you to anticipate what developmental task comes next and to provide appropriate experiences. Your goal is to challenge each child in ways that elicit emerging skills by accurately reading his or her cues and responding with the appropriate support; for example, helping a child learning to crawl by putting a favorite toy just a little out of reach right next to you and giving him a hug or a verbal "yes" when he gets it.
- Think about how everyday experiences at home or in group care involve cognitive concepts and social and emotional skills. Recognize how both cognitive, social, and emotional skills guide the curriculum. For example, the rituals for arrival and departure incorporate the cognitive skill of object permanence and help build social and emotional skills like resiliency, emotional regulation, and communication. Infants and toddlers at different developmental levels will require different strategies to cope with their parent leaving them with the caregiver. You can help parents prepare for the social and emotional changes—such as crying, clinging, and separation anxiety—that often occur when infants develop this new cognitive understanding later in the first year of life.
- As you think about curriculum development, remember that goals for learning involve all the developmental domains—cognitive, motor, sensory, language, social, and emotional. When these domains are integrated and work together, they promote healthy developmental functioning.

Staff Members Can Best Support Children by Supporting Their Parents

Ultimately, the relationships that children have with their parents are the most important relationships in the children's lives and the ones that have the greatest influence on children's development. Children from low-income families are at an increased risk for disturbances in their early relationships because of the stress factors associated with poverty. Low-income families experience higher rates of health problems, family and community violence, homelessness, and depression. Parents living in poverty are often consumed by their immediate needs for food, safe housing, health care, and other concerns that must be met before they can focus on other areas of their lives. An early childhood program can be instrumental in providing the supports and services that families need to improve their life circumstances and in developing environments where parents are empowered to be their children's first and most important teachers.

Parents are role models for their children in many areas, including social and emotional skills. Their own ability to cope, express emotions, communicate, persist in tasks, cooperate, compromise, negotiate conflict, and so forth can promote or impede the development of healthy social and emotional functioning in their children.

Parents who have safe, supportive relationships with staff members can use those relationships as models for how to create a nurturing environment for their children. Just as children need support to cope, express emotions, communicate, persist in tasks, and negotiate conflict, so do adults. A parent who is stressed in the morning when he is dropping off a toddler feels better when the teacher notices and asks how he is feeling. The experience of being seen and cared for helps one care for others.

Implications for Practice

Building partnerships with families is integral to fostering the skills that promote school readiness. Involving parents as early and as fully as possible in their child's education will empower them to remain their child's best advocates throughout his or her years in school. Both home visits and center-based classrooms provide opportunities to observe and reflect on the relationship between parent and child.

- Look for the strengths in the infant–parent relationship and point them out to parents. Parents often do not recognize how important and special they are to their child. For example, when Mom or Dad is reunited with their child, notice out loud, "Look how Mary smiles when you enter the room . . . and she's watching every move you make. She sure is happy to see you."
- Notice and appreciate how parents take care of their children. Simple statements affirm the effort the parent is making to care for his or her child. For example, "What a pretty dress Mommy put on you today" or "Your Daddy brought your nice warm coat today. You'll be comfy when we go outside later."
- Help parents read their child's cues by wondering aloud what the child's gestures and vocalizations might mean. For example, "I noticed that Daniel always covers his eyes with his hand when he enters the child care room. What do you think that is about?" This kind of conversation opens the door to talk about how Daniel is managing his transition from home to child care, how to best work with his particular temperament, and what strategies the caregivers and parents can develop together to meet Daniel's needs.
- Use both informal moments and structured parent gatherings to teach parents about the connection between social and emotional development and the mastery of cognitive skills in infancy and toddlerhood. Help parents recognize that the process of learning is equally important as mastering a particular milestone such as identifying letters, shapes, or numbers. Children will naturally learn about these and other literacy and numeracy concepts as their caregivers encourage and support the exploration of their environment. For example, infants and toddlers do not need structured teaching lessons to learn the alphabet. Rather, they will learn preliteracy skills in a setting where they have access to books; where adults read to them regularly; where they see the adults in their lives enjoy reading; and where they experience a language-rich environment that includes talking, singing, and storytelling. Help parents understand that, although promoting literacy to a 6-month-old may look like the child is simply mouthing or banging a book, in fact, the infant is learning that manipulating books is a fun, rewarding, positive experience. These experiences are especially powerful when they occur in the context of the child's relationship with the parent—being snuggled in the parent's lap, enjoying each other's company, and sharing joyful or tender moments together. Through these experiences, infants will naturally begin to appreciate the importance of words

and letters and will enter preschool, and eventually kindergarten, as eager learners who are ready for more sophisticated academic concepts.

Summing Up

The foundations for school readiness are clearly set in the earliest years of life, and through significant relationships, babies and young children acquire the skills that are necessary for competence in all areas of development and later success in school. When they receive the nurturing, responsive, loving care that inspires their initiative, curiosity, and hunger to learn—along with the trust, security, and self-confidence required to buffer the struggle of new challenges—children develop the skills to be fully equipped for success in school and in life.

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How Child Care Providers Can Support Early Learning

These strategies are designed especially for family, friends, and neighbors who provide child care and want to support the early learning of the babies and toddlers in their lives.

Babies are born ready to learn. They are naturally curious beings who are motivated to make sense of the world around them. The brain is the only part of the body not fully formed at birth. From birth to 3 years of age, trillions of connections between brain cells are being made. *A child's relationships and experiences during the early years greatly influence how her brain grows.* Adults often wonder how they can get their baby or toddler off to a good start so that he is ready for kindergarten. Remember, young children learn best through *everyday experiences with the people they love and trust and when the learning is fun*. Children develop at their own pace and in their own way. You can help babies and toddlers learn and grow by getting to know each child in your care and engaging in activities that match their individual skills, needs, and interests.

Four Key Skill Areas

Language & Literacy Skills

Learning to communicate, first through gestures and babbles and then through words, helps children connect to the people and world around them. The development of language skills is the foundation for becoming literate. Reading to children and letting them play with books helps to build their interest in books. Talking, reading aloud, and singing all nurture children's language skills and help them experience stories through listening.

Thinking Skills

Children are born with a drive to understand how the world works. They start by figuring out connections such as, "I cry, Daddy comes to get me." As they grow, these connections become more complex; for example, "If the ball disappears under the couch, I can use this stick to get it back." Children learn how the world works when they are given the chance to explore—to shake, toss, touch, listen, stack, knock down, bounce, and so forth. When children are exploring and having fun, they are learning.

Self-Control

The ability to express and manage emotions in appropriate ways is called self-control. Self-control is also the ability to stop oneself from doing something that is not allowed. Very young children have little self-control, but you can help babies and toddlers work on skills like cooperating, coping with frustration, sharing, and resolving conflicts, which all lead to the development of self-control.

Self-Confidence

When children feel good about themselves and their abilities, they are more willing to take on new challenges—a key ingredient for school success. Self-confidence is important for getting along with others and developing relationships with peers, which are key factors in enjoying and succeeding in school.

The following table provides suggestions for supporting these four key skill areas.

What You Can Do

BIRTH TO 12 MONTHS	12 TO 24 MONTHS	24 TO 36 MONTHS
Language and Literacy Skills • **Talk together.** Copy babies' sounds, and encourage babies to imitate you. Between 6 and 12 months, babies may begin putting sounds together, like "dada" and "baba." Make these sounds meaningful by repeating and expanding them: "You want more milk!" • **Share books.** It's never too early to start sharing books with babies. Let them explore books in whatever way they like. Offer chunky board, cloth, or soft bath books for chewing and gumming. Babies really enjoy lift-and-flap books as well. Follow the baby's lead when it comes to reading. This may sometimes mean staying on the same page the whole time or "reading" the book upside down!	**Language and Literacy Skills** • **Talk together.** Point out and name the things you see. Ask what each item is, then wait a few seconds before you offer the answer. This gives children a chance to respond and show you what they know. Research shows that the more adults talk with children, the bigger the children's vocabularies. • **Share books together.** Let the child hold the book. Point to the pictures as you read together. Ask him to point to the baby, house, or dog. You can start to read stories that introduce ideas such as *up/down, big/little, colors*, and *numbers*. Most children are also just beginning to learn to sing—try the book version of "Wheels on the Bus."	**Language and Literacy Skills** • **Talk together.** Talk about everything! The more you talk, the more words children will learn. Tell each other stories. Singing with children also teaches new words and ideas. Remember, at this age, toddlers can understand more than they can say. • **Share books together.** Point to pictures in books and ask toddlers what they think is happening. Make connections between books and "real life": "Look, there's a school bus just like the one in our story today." Let toddlers choose their own books—they enjoy picking their favorites.
Thinking Skills • **Encourage children to explore objects and toys in different ways.** Touching, banging, shaking, and rolling help babies learn about how things work. Talk with babies about what they are doing: "You got the truck to move by pulling the string!" • **Make everyday activities "teachable moments."** For example, diapering can be a time for talking about body parts; this helps babies develop body awareness and learn new words. You can also sing to babies, which promotes bonding and builds language skills.	**Thinking Skills** • **Follow the children's lead.** Toddlers learn many new concepts through everyday activities. If a child loves to be active, she will learn about *fast* and *slow*, *up* and *down*, and *over* and *under* as she plays on the playground. If she prefers to explore with her hands, she will learn the same ideas by playing with toys such as blocks. • **One more time!** Toddlers like to repeat actions over and over again. This strengthens the connections in the brain that help children learn new skills. Provide interesting and challenging activities (e.g., blocks, puzzles, water, and sand) that encourage children to problem solve.	**Thinking Skills** • **Encourage imaginative play.** Let toddlers take the lead in play time. This helps them develop their own ideas. You can ask, "Who should I pretend to be? What happens next?" Help children learn to be logical thinkers by building on the stories they're creating: "You said the baby doll is crying. Why is she sad?" • **Make math part of your everyday routines.** Count as you climb the stairs. Notice patterns around you, like the stripes on a child's shirt. See if children would like to sort toys such as little cars and big cars into piles.
Self-Control • **Help babies learn to soothe themselves.** The calmer babies feel, the more in control they will be. Babies have different ways of calming down. Some need lots of rocking or hugging; others prefer to be swaddled or put down for a minute. *You teach the babies in your care to calm themselves by staying calm yourself when they lose control.* This helps them feel safe. • **Teach acceptable behaviors.** Tell and show babies what they can do, as well as what they can't. If a baby is banging a toy on another child, stop her and immediately show her how she can bang the toy on the floor instead.	**Self-Control** • **Begin to teach children limits.** Setting consistent limits makes children feel safe because the limits help them know what to expect. A child who has her crayons taken away when she writes on the wall learns that she either writes on paper or she can't use crayons. • **Label and validate children's feelings.** Letting children know that their feelings are understood helps them calm down and regain control. This doesn't mean giving in to their demand: "I know you are mad that we had to come inside, but hitting me is not okay. You can hit this pillow instead." Giving children choices also helps them feel in control—and helps them calm down.	**Self-Control** • **Give choices.** Present a toddler with two acceptable options and let him choose: "Would you like to have a snack first or clean up first?" If they really don't have a choice, don't offer one. Instead of, "Are you ready for a nap?" say, "It's nap time. Which book do you want to read before lights out?" • **Play turn-taking games.** Activities like taking turns hitting a ball off a tee, making music as a group, or passing a toy around a circle all help children "practice" taking turns. This is a crucial skill for building strong friendships.
Self-Confidence • **Establish routines with children.** Most children feel safe, confident, and in control of their world when events are predictable—when they happen in approximately the same way at the same time each day. Routines are a way to help children make sense of the world. • **Do it again and again and again.** Children need lots of practice doing things over and over again to succeed at a new skill. Think of the pride a baby feels when he can finally grasp the rattle and put it in his mouth by himself.	**Self-Confidence** • **Let children be problem solvers.** See yourself as a coach. Give toddlers the support they need to solve a problem, but don't solve it for them every time. For instance, line up their jackets so it is easy to slip them on, rather than you putting them on each time. Mastering these challenges makes toddlers feel confident in their ability to solve new problems and learn new things. • **Provide challenges.** Watch to see what skills each child has learned and then help him take the next step. If a child can easily build towers with blocks, suggest that the blocks can also be a house for stuffed animals. This helps toddlers learn about pretend play.	**Self-Confidence** • **Give children responsibilities.** Children feel proud when they can show you how they lay out napkins for a snack or water plants. Be specific about what you want them to do: "Please pick up your blocks," instead of "Please clean up." • **Encourage children to ask for help.** Let children know that you see when they are struggling, and ask what help they want: "Getting shoes on can be so hard! Sometimes opening up the laces can make it easier. Can I help you loosen them?" Let children see that you need help sometimes too.

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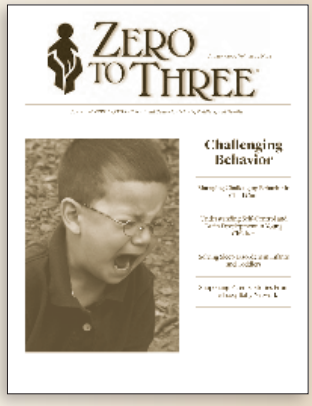

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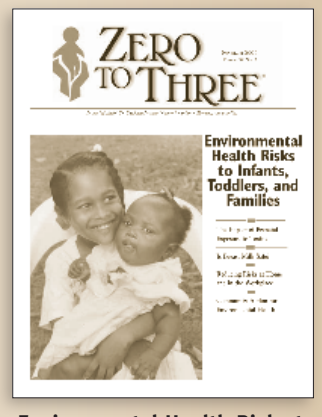

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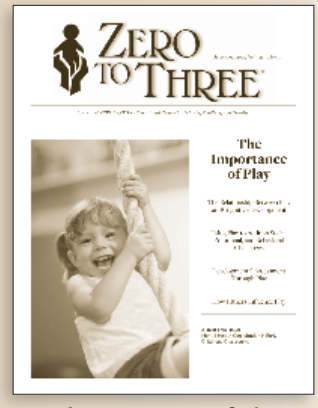

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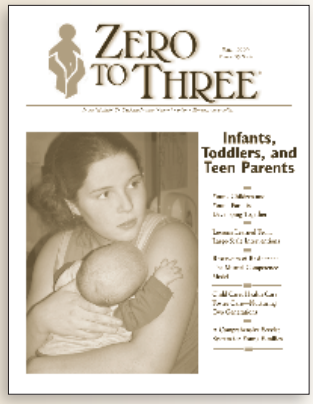

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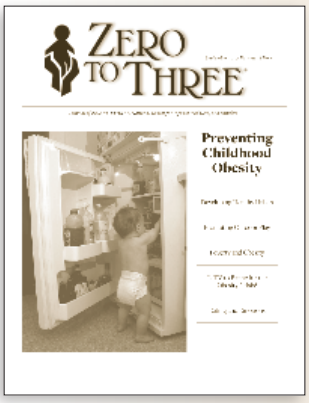

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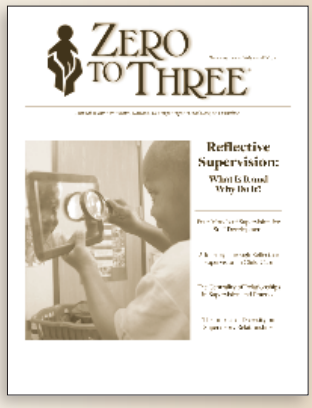

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ITEM NO.: 318-OLB

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Jargon Buster

Given the multidisciplinary nature of our work with infants, toddlers, and families, we often come across words or acronyms that are new or unfamiliar to us. To enhance your reading experience of this issue of *Zero to Three,* we offer a glossary of selected technical words or terms used by the contributing authors in this issue. Please note that these definitions specifically address how these terms are used by the authors in their articles and are not intended to be formal or authoritative definitions.

Phrase	*What it means*
Developmental Competence	Developmental competence refers to optimal functioning in all areas of development and is expressed as curiosity and the motivation to learn; the resilience to cope with stress; and the ability to solve problems, communicate effectively, and develop close, satisfying relationships with peers and adults. This developmental competence is the result of positive, nurturing early experiences with sensitive, responsive caregivers and is equally important to the acquisition of specific academic skills. (Find it in Powers, page 39)
Executive Functioning	Executive functioning is an umbrella term that describes the ability to control and manage cognitive processes, including attending to tasks, inhibiting behavior, solving problems, and monitoring actions. (Find it in Gray et al., page 5)
Foundations of Learning Framework	The Foundations of Learning Framework is a tool to help parents and educators understand what it means for a child to be ready for formal schooling. The framework begins with three basic assumptions: All children are born ready to learn; not all children enter formal schooling ready to achieve educational success; and educational success is primarily a function of nurture, not the memorization of a discrete set of facts. (Find it in Sorrels, page 10)
National Education Goals Panel	The National Education Goals Panel was created in 1990 as a bipartisan effort of federal and state agencies to assess and report state and national progress toward achieving the National Education Goals. The Panel was discontinued when the No Child Left Behind Act became law in January 2002 (Find it in Sorrels, page 10; and Abo-Zena & New, page 29)
Parental Ethnotheories	Parental ethnotheories are the ideas and cultural models that parents have regarding child rearing, including their beliefs about the goals of child development and the strategies for reaching those goals. (Find it in Abo-Zena & New, page 31)
"Ready Schools" Initiatives	The "ready schools" movement shifted the focus from preparing children for school to preparing schools for children. Made popular in the 1990s by the National Education Goals Panel, the school readiness and ready schools concepts were the results of a task force of early childhood/K-12 educators, children's rights activists, and politicians who set national educational policy in terms of readiness goals and indicators for children and schools. (Find it in Abo-Zena & New, page 29)

UPCOMING ISSUES

November: Emerging Issues in Infant Mental Health
January: New Research on Home Visiting
March: Infants, Toddlers, and Technology

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To provide a forum for thoughtful discussion of important research, practice, professional development, and policy issues in the multidisciplinary infant, toddler, and family field.

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