# 1

# Active Learning and Key Developmental Indicators

*We must recommit ourselves to a collective vision of a society with the knowledge and the will to support all infants and toddlers in reaching their full potential.…This is not about pushing policies and programs that work for older children down to the crib but designing a developmentally appropriate system that supports very young children in ways that science tells us are effective.*

— Melmed (2009, p. 60)

In a HighScope child care setting, it is important to have teachers and caregivers who lovingly, consistently, and creatively support children's natural desire to be active learners. Creating an active learning environment for infants and toddlers means consciously considering all their needs — their social and emotional needs for security and companionship; their physical needs for nourishment, bodily care, rest, movement, and safety; their cognitive needs for opportunities to make choices, explore interesting materials, and try out a range of challenging experiences; and their sociolinguistic needs to communicate their desires and discoveries to responsive caregivers and peers. What caregivers and teachers offer to infants and toddlers in their program settings speaks eloquently of the interactions and experiences they understand to be essential for supporting children as they develop into healthy, secure, creative people.

*This sensory-motor learner bends intently over her bucket. At close range, she can smell the sand, see it shift as she stirs, and feel and hear the scraping sound of the spoon.*

An understanding of HighScope's active learning approach guides the decisions infant-toddler caregivers make about every major aspect of their work — observing and planning for children, interacting with children and families, arranging and equipping the learning environment, establishing schedules and routines, and assessing early development and program quality. To establish the framework for the HighScope Infant-Toddler Curriculum, this chapter describes the key developmental indicators — the social and cognitive knowledge and skills — that young children acquire through meaningful experiences with people and materials.

## Active Learning: How Infants and Toddlers Learn

Babies, like all young children, learn by actively exploring their environment — what HighScope calls *active learning*. According to French and Murphy (2005), active learning in infants and toddlers is "the process by which they explore the world either through: observing (gazing at their hand), listening, touching (stroking

an arm or bottle), reaching, grasping, mouthing, letting go, moving their bodies (kicking, turning, crawling, pulling themselves up on furniture, walking), smelling, tasting, or making things happen with objects around them (putting things in and out of boxes, stacking blocks, rolling a ball)" (p. 29).

An active learning environment builds trust, autonomy, and initiative in young children. To ensure that infants and toddlers enjoy these benefits and flourish in their program settings, HighScope has five ingredients of active learning that serve as practical guidelines for caregivers:

1. **Materials**: There are abundant, age-appropriate materials the child can use in a variety of ways. Learning grows directly out of the child's direct actions on the materials.
2. **Manipulation**: The child has opportunities to explore (with all the senses), manipulate, combine, and transform the chosen materials.
3. **Choice**: The child chooses what to do. Since learning results from the child's attempts to pursue personal interests and goals, the opportunity to choose activities and materials is essential.
4. **Child communication, language, and thought**: The child communicates his or her needs, feelings, discoveries, and ideas through motions, gestures, facial expressions, sounds, sign language, and words. Adults value, attend to, and encourage the child's communications and language in a give-and-take manner.
5. **Adult scaffolding**: Adults establish and maintain trusting relationships with each child in their care. Adults recognize and encourage each child's intentions, actions, interactions, communications, explorations, problem solving, and creativity.

Based on child development theory and experience with infants and toddlers, HighScope developed the following propositions[1] that guide our work with very young children and, in broad strokes, describe the elements of active learning:

- Infants and toddlers *learn with their whole body and with all their senses.*
- Infants and toddlers *learn because they* want *to.*
- Infants and toddlers *communicate what they know.*
- Infants and toddlers *learn within the context of trusting relationships.*

## Infants and toddlers learn with their whole body and with all their senses

Infants and toddlers gather information with their every action — by gazing at the face of a parent or teacher, playing with their hands, stroking a bottle, tipping a cup, fingering a caregiver's clothing, chewing on a book or toy, crumbling crackers,

[1]These propositions, presented here in a slightly altered form, originally appeared in *Home Teaching With Mothers and Infants* (Lambie, Bond, & Weikart, 1974).

splashing water, kicking off a blanket, crying when another child cries, or carrying around a baby doll. By coordinating taste, touch, smell, sight, sound, feelings, and action, they are able to build knowledge. Developmental psychologist Jean Piaget (1952, 1966) used the term *sensory-motor* to characterize this direct, physical approach to learning: *Sensory* refers to the way that infants and toddlers gather information about the world through all their senses; *motor* refers to the way they learn through physical action.

*This infant is learning by doing — figuring out how to move her whole body up the stairs so she can reach her caregiver.*

Ongoing brain research confirms the appropriateness of Piaget's term. An infant's brain develops in "waves, with different parts of the brain becoming active 'construction sites' at different times and with different degrees of intensity" (Shore, 2003, p. 39). The part of the brain that controls sensory-motor functions is very active in an infant's first few months of life, which makes an infant's exposure to visual and auditory stimuli so important at this time. Later, in the latter part of an infant's first year, the part of the brain that is associated with emotion and the ability to think and plan becomes the active construction site. This is the time (typically at about eight months old) when a child begins to self-regulate and form stronger attachments to his or her primary caregivers.

Infants and toddlers, then, learn by doing because their young brains are particularly primed to link action with perception (Meltzoff, Kuhl, Movellan, & Sejnowski, 2009). In the beginning of their lives, children's discoveries about themselves and their immediate environment come through action — through waving their arms, watching their hands, kicking, turning over, reaching out, grasping, poking, smelling, listening, touching, mouthing, tasting, crawling, and pulling themselves up. Before they can talk, it is also through action that they express what

they discover and feel to attentive adults — by crying, wiggling, stiffening, turning away, making faces, clinging, cuddling, cooing, sucking, and looking. Their active engagement with attentive and responsive adults and with interesting and challenging materials provides them with a base of experience for interpreting their world.

Not only do infants' actions affect what and how the brain learns, they also affect how the brain itself is built. As neuroscientists Adrienne Tierney and Charles Nelson (2009) write, "the effects of experience go beyond the simple modulation of plasticity. In fact, experience shapes the structure of the brain" (p. 12).

The National Scientific Council on the Developing Child (2007) also emphasizes how early experiences affect the architecture of the brain:

> *Just as a master carpenter modifies the blueprint for a house to adapt to the needs of its setting and the people who will live in it, experience adjusts the genetic plan for the brain and shapes the architecture of its neural circuits according to the needs and distinctive environment of the individual. (p. 2)*

Young children's healthy and stimulating experiences help wire their brains to operate at maximum capacity. Conversely, early adverse conditions create a stressful electrochemical environment that can lead to brain structures of impaired capability with negative lifelong effects. Thus, "the exceptionally strong influence of early experience on brain architecture makes the early years of life a period of both great opportunity and great vulnerability for brain development" (p. 1). Author and curriculum developer Pam Schiller (2008) emphasizes that to take advantage of these critical "windows of opportunity," programs for infants and toddlers need to build on the lessons from brain research and provide experiences that explicitly support language, motor, social, emotional, and cognitive growth and development. (See "The Role of Experience in Early Brain Development" on p. 20.)

It is equally important to emphasize that "experience" is not something passive that children merely receive from the environment and the adults in it. Tierney and Nelson (2009) emphasize that "by experience, we do not mean events and circumstances that simply happen in an individual's life; rather, we define experience as the interaction between the individual and her environment" (p. 13). Young children, according to Tierney and Nelson, are active agents in shaping their experience. As an example, they note that a child who responds happily when sung to by a parent or teacher may elicit more singing. This results in more experiences with songs, which can affect the child's language development and the brain processes underlying it. For optimal development, then, infants and toddlers need to draw out the resources in their environment as much as parents and teachers need to create an environment that reaches out to them.

## The Role of Experience in Early Brain Development

Brain development results from a dynamic interaction of genetics, environment, and experience (Meltzoff et al., 2009; Tierney & Nelson, 2009).

***Genetics*** provide the basic plan by determining how nerve cells are formed and how they interconnect within and across neural circuits. Infants are born with different temperaments, which appear to have a biological, and perhaps a genetic, foundation.

The ***environment*** in which the brain develops, beginning with the prenatal period, can have a significant effect on the brain's structure. A healthy environment — adequate nutrition, the absence of toxins, and the physical and mental health of the expectant mother — allows the child's genetic plan to be fully expressed. Conversely, an unhealthy environment can impede the growth of, and interconnections among, brain cells.

***Experience*** refers to the interactions between the child and the environment, beginning prenatally as the fetus responds to conditions in the womb and growing in importance after birth. Early experience affects the structure of the low-level brain circuits that mature at this stage, such as those responsible for sight and hearing. Once the child is born, experience plays a critical role in shaping the structure of higher-level neural circuits, such as those responsible for language development and establishing and maintaining social relationships. In sum, healthy and stimulating experiences in the early years allow a child's genetic makeup to reach its full potential, while adverse conditions can impair brain structure.

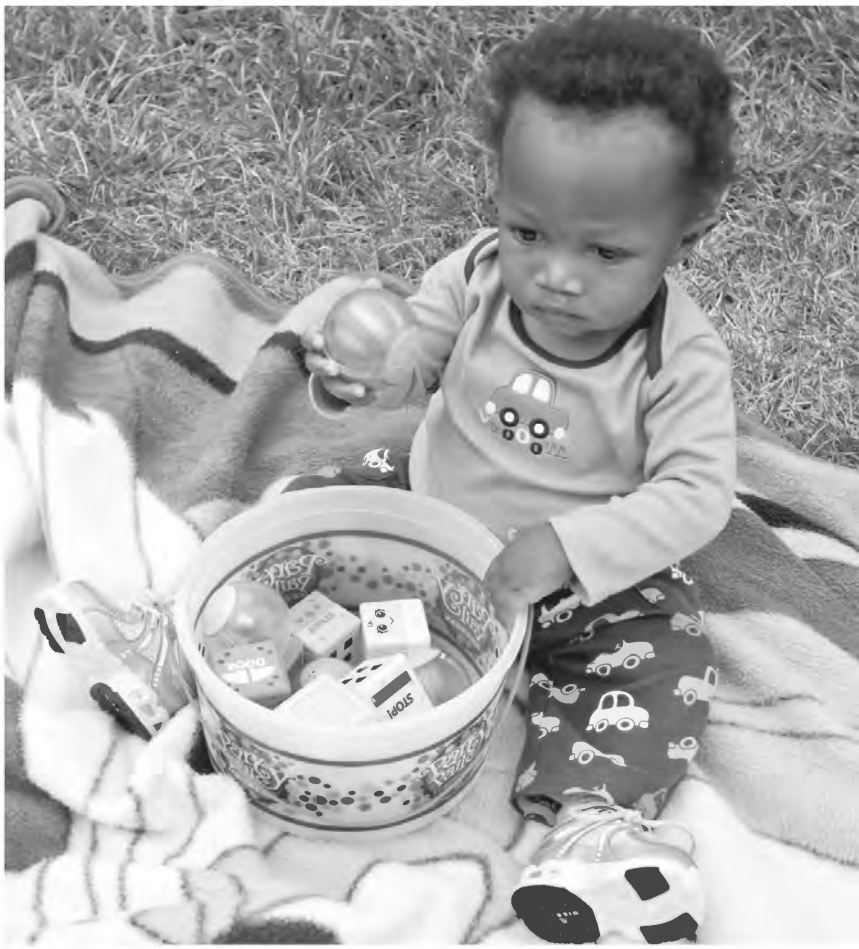
For most neural circuits, environment and experience have their greatest influence just as the circuit is beginning to mature. This period of maximum influence is called the "sensitive period" for that circuit. Experience can still continue to modify most brain structures — claims that the "window of opportunity" closes by age three are unfounded — but the effects are more limited the older we get. Because of this time sensitivity, early experiences and their influence on forming neural networks have a profound effect on later learning.

This influence does *not* mean that specific types of stimulation have a matching and measurable impact on brain development. For example, listening to Mozart, while pleasurable, will not make an infant a musical or mathematical genius (the now-disproved "Mozart Effect"). Nor will using flash cards produce an early reader. However, the significance of timing does mean that young children need a variety of developmentally appropriate experiences that their brains *are* wired to process in these critical early years.

Active involvement with people and materials, in interactions and activities that engage all their senses, create an optimal environment in which a young child's genetic capacity can flourish.

Very young children's pressing need to act and learn from experiences in their immediate environment takes the form of direct contact using the tools at their disposal — eyes, nose, ears, mouth, hands, and feet. They watch people or pets or objects move, closely examine patterns of light and shade, feel the textures and temperatures of things with their hands and feet, still themselves to listen to a voice or song, and put nearly everything they can grasp into their mouths. Young children, in fact, cannot resist touching and exploring anything or anyone with sensory-motor appeal. They are fascinated with everyday household objects — pots, lids, keys, boxes, spoons — and natural materials — stones, sticks, leaves, dirt. They especially like to explore soft and cuddly items, easy-to-grasp objects, squishy or messy materials, things they can set in motion, objects they can pull themselves up onto and climb, materials that make noise, and other people!

In their care setting, infants also treat adults as something to explore. Pediatrician and child psychiatrist Daniel Siegel (1999) notes that an invested and caring adult who provides attention and interacts with words, songs, touches, and smiles is a child's best toy. To infants and toddlers, she is every bit as interesting as many other items and playthings and generally more responsive! That is why infants study their caregiver's face, listen for and respond to the sound of her voice, know how she smells, and settle into the comfort of her arms and body.[2] Toddlers use adults to lean and relax against or to steady themselves as they maneuver into a sitting or standing position. A teacher's shoelaces, hair, jewelry, glasses, and clothes provide




*A small container filled with easy-to-grasp objects that make noises encourages this infant to explore, learn, and make his own discoveries.*

[2] Because women predominate as infant-toddler teachers and caregivers in both center- and home-based programs, throughout this book we use "she" and "her" to refer to teachers and caregivers unless a specific example requires otherwise. However, we acknowledge the dedicated and growing number of men in the field.

a variety of textures and colors they stroke and clutch.

Increased mobility brings new learning experiences. When babies learn to sit unaided, they find they have greater freedom to see, reach, and handle objects. Mobile infants, whenever they can manage to do so, crawl, pull themselves up, and climb onto any inviting surface. Toddlers enjoy the balance, uprightness, pace, and freedom of walking, running, and climbing to new heights. They also use their new powers of locomotion to move materials from place to place. They pull and push wagons and wheeled toys and drag chairs or large containers to a more desirable spot. They might try to push and tug a large tub of blocks, find it does not move, empty all the blocks out, and try again. Mobile infants and toddlers mean mobile materials and playthings!

As infants and toddlers interact with people and act on materials, they construct a basic store of knowledge about what people and things are like, what they do, and how they respond to certain actions. What may begin as random movement — waving a wooden spoon and accidently hitting it against a cardboard box — leads to a fascinating discovery and is repeated deliberately again and again. Through these repetitions, children gain a sense of purpose and mastery; they enjoy feeling with their whole body the stiffness of the wooden spoon, for example, and the sturdy resistance of the box. Later on, gaining this experiential knowledge will lead them to try even more complex action sequences, like stirring with a spoon and stacking boxes. For infants and toddlers, learning through action involves encountering and solving infant-and-toddler-sized problems (*What made that noise? How can I make it again?*) and, in the process, forming their ideas about what things and people do and how they respond to one's actions.

Caregivers who base their programs on the principles of active learning understand and support infants' and toddlers' sensory, whole-body approach to learning. They respect and accommodate children's ongoing need for space, materials, and exploration time. Because infants and toddlers can be expected to grasp and hold things and put toys and other objects in their mouths, caregivers provide playthings that are safe and too large to swallow and design play areas that ensure both comfort and safety. Anticipating drool and stickiness, caregivers routinely sanitize the materials children come in contact with. They encourage children's curiosity and mobility; respect their need to crawl, walk, run, and carry or move articles from place to place; and establish safe and spacious environments where these things can happen.

## Infants and toddlers learn because they *want* to

*Juan, a young infant, grasps his pacifier and puts it in his mouth, then takes it out to look at it and turn it around a bit, and finally puts it back in his mouth.*

~

*Marian, a toddler, sorts through the basket of pictures until she finds the one with two puppies and, looking at it, says "Dog, dog."*

~

*Deidre, an older infant, pushes her caregiver's hand away, takes off her own bib, and hands it to the caregiver.*

~

*Charlie, a toddler, uses the wooden mallet from the play dough shelf to pound the floor.*

As young as they are, infants and toddlers are powerfully self-motivated to explore and learn — at their own pace, through their own means. Learning develops from their intrinsically motivated activity. No one has to tell them to learn or prod them into action. Their own choices and desire for autonomy and initiative take care of that! In fact, in extensive home observations of children 12–15 months old and 24–27 months old, researchers found that more than 80 percent of the children's experience was self-initiated (White, Kaban, Marmor, & Shapiro, 1972). Early childhood researcher J. Ronald Lally (2009) puts it this way:

> *What is now known is that babies come into care with their own learning agenda — their own curriculum. Armed with an inborn motivation to learn and explore, they are on a constant quest for knowledge, learning from what they see, hear, feel, taste, and touch. And they do this without the need for prompting. They have a holistic stance toward learning, with social, emotional, intellectual, language, and physical lessons often coming from the same experience. (p. 47)*

Even the youngest infants make simple choices and decisions all day long — choices about what to look at; whether to reach for the shell, the rattle, or ribbon; whether to stick with the wooden spoon or go for the ball; when to drink from the bottle or just stop and gaze; whether to watch the shadows on the wall beside the crib, call out for someone's attention, or coo at the stuffed bear; and when to stop playing and go to sleep.

As the infant grows into toddlerhood, the choices and decisions become increasingly complex — whether to climb into a lap or settle into the big pillow with a book, what child to play beside, how to flatten the play dough, how to fit all the toy animals into a purse, how to eat a cracker, what comfort item (stuffed animal, blanket, book) to take to naptime, what to use to wipe up a spill, and how to reach out-of-the-way objects. Infants and toddlers indicate the people or materials or experiences they prefer, decide what they will explore, and figure out how to solve problems and accomplish meaningful tasks. By making infant-and-toddler-sized choices and decisions, they gain a sense of self-control and efficacy — *I am somebody who can do things!* (as opposed to somebody to whom things are done).

In a supportive environment with appropriate opportunities and interactions,

very young children act with increasing autonomy and independence. They become curious about peers and other adults. In the spirit of adventure and exploration, they roll, crawl, and eventually walk on their own to discover the unknown in the social and physical world beyond parent and caregiver. They open and close doors; play simple hiding games; hunt for hidden toys, people, or pets; seek out playmates; climb up and down stairs; look at books with peers; and fill and empty shelves, boxes, bags, and baskets. Sometimes their daring evokes feelings of delight and mastery — an infant crawls behind the couch and finds a ball, or two toddlers stand at the window watching older children play outside in the yard. Other times their adventures scare them — the ball behind the couch tastes odd, a dog barks at the children outside — and they hurry back to the parent or caregiver for comfort and reassurance. For that reason, at the same time that infants and toddlers are independent and curious, they also depend on strong social ties with the primary adults in their lives to affirm their autonomy.

*During choice time, this toddler chooses to explore his favorite board book from the book area.*

Psychologist and human development specialist Erik Erikson (1950/1963) observed that in the course of his or her adventures, a toddler needs adult support rather than criticism, restraint, or shaming: "As his environment encourages him to 'stand on his own feet,' it must protect him against meaningless and arbitrary experiences of shame and of early doubt" (p. 252). Autonomous young learners rely on dependable social relationships. In fact, "it is now understood that…relationships and experiences with trusted caregivers are the base for all learning" (Lally, 2009, p. 48). (See the discussion on trusting relationships on p. 28.)

Over time, very young children in active learning environments develop the desire and capacity to act with persistence and to have an impact on people and things. A toddler, for example, decides

to carry a favorite truck around all day through mealtimes, naps, and outside time. Three toddlers decide to bang on the mounds of sand that are formed as their caregiver tips out the sand she has packed in some pails. Whatever the caregiver had in mind, she respects the children's initiative as they smash what she might have thought of as sand cakes. "All gone!" she says as the children smash the sand mounds. "More!" they cry, and the mound-making-and-smashing game is on.

When children's initiatives are arbitrarily and frequently thwarted — "Don't touch that!" "Take your hands out of your mouth!" "Stop banging!" "Sit still!" "Come away from there!" — children begin to doubt their own capacity to shape and order their day-to-day existence. By contrast, "when children feel they can count on important, loved people to provide comfort, they have a strong foundation of confidence that allows them to explore their surroundings" (Hyson, 1994, p. 98). With adult support for their initiatives, infants and toddlers — and children of all ages — enjoy the risks and satisfactions of creative learning and social discourse.

In practical terms, this means that a child care setting supports young children's development if it is stocked with a variety of safe, appropriate, challenging, and accessible materials for children's exploration. In such a setting, caregivers support children's preferences and attend to their language of action and gesture. For example, when infant Halley crawls away from her caregiver to the tub of balls, her caregiver interprets Halley's actions to mean *I really want to play with the balls right now.* Rather than attempt to direct children to learn specified things at certain times, caregivers support and build on children's *self-motivated* choices and learning initiatives.

## Infants and toddlers communicate what they know

Human beings are social creatures from birth. Early childhood specialists Betty and M. Kori Bardige (2008) write that "babies come into the world primed to communicate with adults, who are primed to communicate with them. Their survival and well-being depend on their ability to connect with their caregivers" (p. 4). Even before the onset of spoken language, babies communicate and represent their needs and experiences (Vallotton, 2008). Infants begin intentional communication as early as 6 months of age, and, by 10 months, typically developing infants have a repertoire of communicative behaviors that include vocalizations and gestures such as pointing and showing. By 12 months they are even intentional about using gestures to influence others' mental states, for example, to change the mood of a caregiver from one of disapproval or distress into a smile (Tomasello, Carpenter, & Liszkowski, 2007).

Infants and toddlers eagerly seek direct contact with parents, other family members, and caregivers and use a variety of strategies to convey their desires. In the beginning, babies cry — for nourishment,

*Through sounds, expressions, gestures, and actions, these infants learn communication skills while establishing relationships with each other and their caregivers.*

comfort, security, and sleep. As people respond to them, they communicate — for the pleasure of engaging in and prolonging face-to-face exchanges. They gaze and smile at their parents and caregivers. They frown and make funny faces when the water or juice in their bottle tastes different or when they hear a new noise. They move their hands, arms, and legs in excitement, happiness, or contentment. They coo at favorite people, pets, and playthings. They begin to babble and repeat the vowel and consonant sounds they hear in conversation. Gradually, their babbling takes on the inflections and cadences of human speech as they attempt to join the give and take of social conversations. Interestingly, hearing impaired infants or the children of deaf parents who are exposed to sign language from birth also begin to "babble" with their fingers before their gestures take on the shapes of conventional signs (Buckley, Bird, & Sacks, 2006).

When an infant or toddler does begin to talk, early language is streamlined and economical: "Ba" for *I see my bottle,* "Me do" for *I'll do it myself,* "Out" for *Let's go outside,* "Dog-dog" for *This is a picture of a dog.* Young children hear and understand language long before they can produce it themselves in its standard grammatical form. In the meantime, they string together sounds, gestures, and words in a fashion that makes sense to them.

When normally hearing young children learn baby sign language at the same time they hear spoken language, they combine simple gestures and words. Access to this dual communication system in turn further facilitates the development of their oral language skills (Goodwyn, Acredolo, & Brown, 2000). See "Using Sign Language to Communicate With Infants and Toddlers" on pages 152–153 in Chapter 3.

By communicating what they feel and discover to receptive and responsive adults, infants and toddlers enter into the sustaining social life of the community, where they connect with other people, test their ideas, and gain feedback about their actions or feelings or perceptions.

*By carefully listening and giving the child time to talk, this caregiver is then able to engage the child in a meaningful two-way conversation.*

Therefore, caregivers in active learning settings pay particular attention to children's actions, sounds, expressions, gestures, and words. They watch and listen carefully to children and give them sufficient room in a conversation to express themselves in their own particular fashion. They enable children both to hear language (and "see" sign language) and to participate as active partners in communication.

Infants and toddlers *want* to communicate, connect, and convey meaning. The more they are respectfully supported in these desires, the better communicators they become. Children's later facility with speaking, listening, reading, and writing has its roots in the very early partnerships they form with supportive parents and caregivers who take time to talk and listen to them with care. Such adults understand that infants and toddlers "talk" in their own way and *need* to talk, even before they ever use proper words.

## Infants and toddlers learn within the context of trusting relationships

To learn and grow, children need the kind of emotionally rich environment that Erikson (1950/1963) described as supporting *trust* rather than mistrust. The bedrock of healthy human development is "trust born of care," as Erikson puts it (p. 250). "The infant's first social achievement, then, is his willingness to let the mother out of sight without undue anxiety or rage, because she has become an inner certainty as well as an outer predictability" (p. 247).

*Children involved in trusting relationships seem to know at some deep level that caregivers will support them through new challenges and accomplishments.*

Children who form mutual, affirmative relationships with parents and caregivers draw upon these relationships for the courage they need to explore the world beyond these nurturing adults.

While infants and toddlers are powerfully self-motivated to learn with their whole body and all their senses and to communicate what they know, they depend on the affirmation and warmth of trusting relationships to be able to do so. Parents and caregivers must "be able to represent to the child a deep, almost somatic [bodily] conviction that there is a meaning to what they are doing" (p. 249).

When parents and caregivers, through their actions, convey a deep-seated belief in children's intrinsic worth, children develop an empowering sense of trust, human connection, and eagerness to explore the world. Caregivers, therefore, play a very important role in influencing how the children they care for see their world and how they feel about themselves and others (Lally, 2009).

As self-motivated social creatures, infants play an active role in shaping the trusting relationships they depend on. Observing mothers and infants in Uganda, developmental psychologist Mary Ainsworth (1963) was struck by "the extent to which the infant himself takes the initiative in seeking an interaction. From at least two months of age onwards, and increasingly through the first year of life, these infants were not so much passive and recipient as active in seeking interaction" (p. 203). Psychiatrist Daniel Stern (1985) called this interactive process *attunement*.

Through deeply felt, finely tuned reciprocal interactions, the parent or caregiver matches the child's emotions and level of interest to convey her sense of what the child is feeling. For example, the baby coos and smiles at the caring adult, and the caring adult smiles and coos back to the baby and strokes the baby's cheek. This sensitive response to the child's bid for attention gives the child the feeling of being known, understood, attended to, and cared for. The child learns to trust that the caring adult will respond. At the same time, the child trusts her- or himself to elicit a satisfactory response from the adult. In this manner, a child gains confidence: *When I cry, someone hears and comforts me. When I feel hungry, I can get someone to feed me, and I feel better.*

Children involved in trusting relationships seem to know at some deep level that parents and teachers will support them through new challenges and accomplishments — *Look! I can sit up all by myself!* — and provide comfort and contact when the going gets rough — *Help! I hear a scary noise!* They learn, writes developmental psychologist Jillian Rodd (1996), "that the world in which they live is a safe and friendly place and that the people who care for them can be trusted to meet their needs promptly, responsively and consistently. If infants learn that they are valued, cared for and respected as significant members of the group, they will have a strong foundation from which to confidently explore and learn about the world" (p. 21).

*This mother's warm embrace lets her son know that he is understood and loved.*

Without trusting relationships, children can lose the will to live. Psychoanalyst Rene Spitz (1945) and animal-learning theorist Harry Harlow (1958) found that human infants and monkeys raised without close physical contact and loving attention fail to develop normally and may even die, although their needs for food, shelter, and bodily care are adequately supplied.

More recently, brain research has documented similar effects on babies of

depressed mothers (Shore, 2003) and on infants and toddlers raised in large groups in understaffed eastern European orphanages (Talbot, 1998). Maps of the electrical activity of the brain reveal that emotional stress can impede healthy brain activity, and under extreme conditions of prolonged physical or emotional distress, the brain shuts down altogether. Without the fuel of trusting relationships, children may be overwhelmed with fear, sadness, or grief and become increasingly passive and unable to signal for help. Having "learned" that others are unresponsive to their attempts to communicate and connect, they withdraw from the world and "fail to thrive."

By contrast, trusting relationships promote physical development and emotional health. Further, one trusting relationship leads to another:

> *An infant who has at least one secure attachment will be more likely to develop secure relationships with other people in the world, such as grandparents, other familiar adults and children, and care and educational professionals. An infant's relationships with other people, such as early childhood professionals, are not considered to threaten the mother-child bond but rather [thought] to contribute to the infant's developing sense of trust in the world and the people in it. (Rodd, 1996, p. 30)*

Active learning, then, takes place within an intensely social context in which trusting relationships are essential. In fact, collaborative research between brain scientists and cognitive psychologists reveals that social cues help to highlight what and when babies learn (Meltzoff et al., 2009). Studies show that early learning occurs more readily when it is introduced by a person rather than an inanimate object. Moreover, social interactions — most notably imitation, shared attention, and empathy — facilitate a young child's cognitive understanding. Based on the cumulative research of the past few decades, developmental psychologists and mental health professionals now know that effective early care settings blend teaching and caring, with emotional support and facilitation of learning happening simultaneously (Hauser-Cram, Warfield, Shonkoff, & Krauss, 2001). Put another way, "learning and loving are not so far apart as we once thought they were" (Lally, 2009, p. 48).

Given the absolute necessity of trusting relationships for learning and development, how do caregivers build and sustain such relationships with the children in their care? In a national study of early child care and attachment, psychologist Margaret T. Owen (1996) described the kinds of behaviors shown by caring adults involved in trusting relationships with very young children:

- *Sensitivity to the child's nondistress:* The caregiver takes interest in the child's play.
- *Positive regard:* The caregiver enjoys the child's actions and explorations.
- *Lack of negativity:* The caregiver communicates warmth and respect.

*Because these children feel safe with their caregiver, they are able to focus on and learn about the world around them.*

- *Shared emotions:* The caregiver acknowledges the child's feelings, from delight to frustration.
- *Positive physical contact:* The caregiver has warm, physical interactions with the child, including cuddling, hugging, holding, stroking, lap-holding.
- *Attentive responsiveness:* The caregiver responds readily to the child's signals and approaches, communication and talk; gives the child her full attention.
- *Stimulation:* The caregiver talks with the child, tells the child what will happen next, encourages the child's problem solving, reads to the child.

These trust-building behaviors and lively social exchanges, discussed further in Chapter 3, shape the way caregivers interact with infants and toddlers throughout the day.

The need to form and maintain trusting relationships with the infants and toddlers

in her care shapes every aspect of the teacher's role and guides the decisions a program makes about staffing. Because trusting relationships are so vital, programs make every effort to ensure that caregivers work in teams, with each team member responsible for a small group of children who remain in her care from one year to the next as long as they are enrolled in the program setting. The continuity of care that arises from this arrangement supports the growth of trusting relationships between child and caregiver, between caregiver and families, and between caregivers themselves. For specific continuity-of-care strategies and how they support infant and toddler development, see Chapters 2 and 3.

[3]Although there is not an exact correspondence, the infant-toddler KDIs described here are comparable to many of the COR Advantage assessment items.