

Brain Research, Infant Learning, and Child Care Curriculum

by J. Ronald Lally



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During the last ten years, brain research has taught us many valuable lessons about how infants learn and why early experience is so critical to their development. We now know that the brain is not fully formed at birth and that genes and experience interact to influence the brain's form and function. We know that engaging in rich language experiences with significant others influences vocabulary and quality of speech, and is correlated with later academic functioning. We have learned that participation in an environment filled with interesting sights, sounds, and people enriches a child's schemes of thought and action.

We have also learned that it is not only the intellectual and language functions of the brain that are significantly influenced by early experience. Early experience also significantly influences social and emotional brain functions. It has been shown that lack of early nurturance and prolonged stress can set emotional thermostats affecting brain functioning, and sometimes even increasing the secretion of cortisol, lowering levels of serotonin and elevating levels of noradrenaline. It has been hypothesized that lack of nurturance in infancy can lead to depression, loss of impulse control, and heightened aggression in later life.

In the wake of widespread distribution of these findings, facilitating the development of the brains of

infants and toddlers has caught the nation's fancy. The popular press has rightly so convinced the general public that experiences in infancy are critical to the shaping of brain functioning in later life.

For the first time in my memory, people outside of the early childhood education community are giving serious attention to issues of infant learning. Techniques for how to stimulate early language development, how to maximize early intellectual development, and how to keep children from developing into aggressive, anti-social adults are being considered by the President of the United States, captains of industry, Hollywood personalities, and media pundits.

The broad dissemination of the research findings that show that the brain is not fully developed at birth has led people to become quite open and excited about discovering ways to help make children smarter and more emotionally sound. It is not surprising, then, that recommendations about how to optimize development during this fertile period come from a wide range of people, some of whom know little about how infants best learn.

Of prime importance to the welfare of our next generation of infants and toddlers will be the soundness of new curricula recommendations that will be generated in the coming few years. In a rush to make sure that windows of opportunity don't close before children under three are given what people judge as the necessary experiences for appropriate brain growth, there have already been calls for various types of early stimulation. Many of these suggestions are quite sound, but others are amazingly shortsighted; and some are even detrimental to development.

Here are some predictions of what we have in store. Parents are going to be besieged by all sorts of educational products as the *guilt market* swings into gear interpreting the brain development findings to suit their marketing desires.

Because of worry by program managers, school administrators, and politicians that critical periods will be missed, caregivers will be expected to integrate into their daily practice any of a number of untested new curricula or educational materials emphasizing adult-directed lessons and activities that will be touted as fostering brain growth. Because they are easy to create, compartmentalized curricula will be developed. Infant learning will be separated into distinct development domains and specific lessons developed in each domain with the hope of ensuring various forms of infant mastery. Rote learning sessions, exposure to audio and

video tapes in many languages and devoid of contextual or human framing, and hologram mobiles are only a few of the stimulants for our next generation of infants that have already been recommended.

The early childhood community needs to make sure that activities that are being endorsed as appropriate experiences for infants and toddlers are in fact appropriate. All new initiatives should be tested against what both brain research *and* child development research have told us about how infants best learn.

When picking and choosing how you will respond to the new information on brain growth, it would be wise to keep in mind the following ten factors of infant development:

1 Relationships are primary to development. The infant is dependent on close, caring, ongoing relationships as the source of positive, physical, social, emotional, and intellectual growth. Infants develop best when they are assured of having a trusted caregiver or caregivers who can read their cues and respond to their needs. Infant/toddler care policies must be organized to ensure that these relationships exist and prosper. Policies that encourage and nurture secure relationships are the backbone of quality care and learning.

2 Infants learn holistically. Infants and toddlers experience life more holistically than children at any other age period. Social, emotional, intellectual, language, and physical learning are not separated by the infant. Adults are most helpful to the young child when they interact in ways that reflect an understanding that the child is learning from the whole experience, not just the part of the experience to which the adult gives attention.

3 Infants are active, self-motivated learners. Each infant is born curious and motivated to learn, and actively participates in learning each day. Caregivers need specific training in infant learning to understand how to read and respond to infant behavior and to delight in the types of learning in which infants are engaged. They also need training in how to construct environments and activities that keep motivation, experimentation, and curiosity alive as well as in how to facilitate the infant's natural learning process.

4 Language skills and habits develop early. The development of language is particularly crucial during the infant/toddler period. Good care provides many opportunities for infants to engage in meaningful, experience-based communication with their caregivers, and to have their communications acknowledged and encouraged.

5 Environments are powerful. Infants and toddlers are strongly influenced by the environments and routines they experience each day. This is particularly true for very young infants who cannot physically move themselves from a noxious to a more pleasant environment. The physical environment, group size, daily schedules, lesson plans, and caregiving routines must foster the establishment of small intimate groups in which relationships with trusted caregivers can develop and become the base for social, emotional, and intellectual learning in a safe and interesting environment.

6 Infants are individuals with differing temperaments. All children come into the world temperamentally different from one another. Because of these differences, caregivers need to individualize and adapt care to each child.

7 Infancy has three stages. Throughout all of infancy, infants are searching for a sense of security, are drawn to exploration of surroundings, and are carving out their own special identity. How they express these interests varies as they move through three distinct developmental stages. The **young infant** prospers from and seeks out secure contacts with trusted adults. The **mobile infant** who is starting to crawl uses this store of security as a base for this stage's overpowering interest in exploration. As children mature in late toddlerhood to **older infants**, they become fascinated with how they might control their exploration, with the *mine* of things, the *me* and *not me*, and with many forms of identity distinctions. Therefore, the type of care given should change when the child's stage changes. Treating the 18 month old infant the same as a six month old just doesn't work.

8 Infants are developing their first sense of self through contact with others. Much of the child's first two years of life are spent creating a first *sense of self* or building a first identity. An infant or toddler learns most of how he or she thinks and feels by imitating and incorporating the behaviors of those who care for her or him — how children first see themselves, how they think they should function, how they expect others to function in relation to them. Program managers must — in addition to carefully selecting and training caregivers so that they will be good models and value transmitters — ensure that links with family, home culture, and home language are a central part of program policy. If infant/toddler care does not reflect family values and culture, children will often incorporate a less than positive sense of who they are and where they come from.

9 The learning context is as important as the learning content. The brain thrives in the right learning context. Often adults become so focused on the lesson they

are teaching that they forget the lesson that is being learned. One might think he or she is helping a child learn about the difference between a circle and a square when in fact what the child might be learning is that "I have no power because I can only play with these shapes the way this person wants me to." Learning theory and research show that infant learning is enabled by adults who provide a learning setting of nurturance, support, security, predictability, focus, encouragement, and expansion. It is this process, rather than specific lessons, that best helps infants learn.

10 Adults exhibit strong emotions when charged with the care of infants. Parents and caregivers of infants and toddlers often experience a heightened sense of emotionality when they care for infants and toddlers. They want to protect them and they want to do what is right for them. We don't provide care or stimulate learning in a vacuum. Developing strategies for dealing with conflicts that can emerge between parents and caregivers about the appropriate ways care should be provided, or the child's brain stimulated, must be part of any plans made to act on recent brain research findings.

As we take on this exciting challenge of developing appropriate ways of helping infants and toddlers develop their brains, let's make sure we don't throw the baby's genetically based interest, curiosity, and holistic approach to learning out in our rush to *bathe* the child in stimulating brain-enriching experiences. We must not let what we know about how infants and toddlers learn be lost in this new enthusiasm to fill infants up with knowledge. Our already developed rich research base on infant and toddler learning needs to remain the bedrock for any new approach to stimulate learning. It would be tragic to let current excitement for the early years be channeled into well-meaning but inappropriate interventions.