

we grow brains!

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While providing training for child care and preschool teachers and directors, we have noticed that many child care providers do not appear to be proud of their profession. Some preschool or child care teachers actually appear to be



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ashamed that they *only* work with young children. This is evident when we ask, "What do you do for a living?" Many respond, with head lowered and in a quiet voice, "I'm *only* a preschool teacher" or "I *just* work in a day care center." Unfortunately, it seems they understand that society does not really appreciate what they do and have been negatively affected by that perception.

We, as early childhood educators, find this attitude to be very distressing. Furthermore, we think these answers are not appropriate to the question being asked and should be changed to more appropriately describe what all of us who work with young children actually do. We suggest that early childhood practitioners begin to respond by saying, "We grow brains!" because that is actually what we are doing — growing brains, *every* day and in *every* thing we do. Additionally, this correct answer, "We grow brains!" should be shouted out with pride because it is the most important job in the world. For these reasons, this article suggests how early childhood professionals need to look at their work in a different light — not just providing care, but significantly affecting children's brain development. We also include suggestions regarding how to

'grow' better brains in relation to preparing environments and planning appropriate experiences.

We often give sessions/workshops on brain development and early care. When we stress the importance of what they do — growing brains — we immediately see a difference in the demeanor of the teachers. Members of the audience look at us with more interest, listen carefully, make comments, take notes, and sit up a little straighter. They begin to take an active part in the workshop rather than portraying the attitude they are just there to get the continuing education hours they need. Once participants have said "We grow brains!" a few times and have digested that concept, one can almost see their self-image changing. It is a powerful phenomenon to observe.

Let's think about the importance of this change in attitude for a second. When we believe our work is important, we become more determined to do the very best we can. We try to learn more about children and about their development. We begin to think more about what we do and why we do it. We begin to believe our jobs can bring about a change and help children to be successful in the future. We are

motivated to work harder and smarter. We go to work with a more positive attitude every day. We begin to feel good about ourselves and expect to be successful in our chosen work. In short, as our self-concept changes, so do our behaviors.

Watching brains grow

We know we 'grow brains' because, when we know what to look for, we see the growth taking place every day. Let's examine the facts. When young children arrive at our centers and preschools, they are in *the most important* process of development, that of forming and extending neural pathways. Recent brain and educational research (Begley, 1997; Families and Work Institute, 1996; Gonzalez-Mena & Eyer, 2007; Jensen, 2005; Shore, 2003; Wittmer & Petersen, 2006) clearly shows these neural pathways can be made richer and stronger through appropriate early care and challenging experiences that take place in carefully designed, nourishing environments. Therefore, it is our task to prepare the environment and plan the experiences which will nurture and enhance what the brain is attempting to do.

In this way, we begin to 'grow brains.'

For those of us in early childhood education, the concept of growing brains is not new information — all of us know and have known for quite some time the importance of early experiences. It appears that life shapes the brain. Following this line of reasoning, one concludes the richness of a child's life (i.e., experiences) directly affects the development of her brain. As we carefully and systematically observe an infant or toddler explore the environment or interact with peers and adults, the growth that is taking place becomes quite clear. Just as the farmer sees the tiny corn plants grow almost overnight, the early childhood teacher

can easily see the rapid growth that is taking place within young children.

The thoughtful observer of infants or toddlers can easily see their constant search for experiences or nourishment for their growing brains. We see them pick up an object, look at it or play with it for a while and then, throw it down to move to another object. When this happens, the knowledgeable observer begins to realize the child is interested in the object only until his brain has taken all it is ready to understand from that object at that particular point in time. Once the brain has absorbed all the information it can from this object, the child quickly moves on to something else — constantly searching for more nourishment for her growing brain.

We have heard parents and other adults exclaim, "That child is **into** everything!" And, that is absolutely true. The child is '**into**' finding out how the world operates, what people mean when they make certain comments, how things run, etc. She is '**into**' learning how things look, smell, feel, taste, and sound. In short, she wants to know about everything; therefore, she is exploring or '**into**' everything.

The degree to which children are driven to explore the environment depends on a number of factors. Some of these factors, such as personality, gender, personal preferences, dispositions, temperaments, strengths and interests, are inherent in the individual child. Most of these inherent factors will remain constant throughout the child's life. Other factors, for example, the child's age, stage of development, and past experiences, are more fluid, dynamic, and change as the child matures.

Some of these differences are especially easy to note when observing grandchildren of the same family during a

holiday celebration. One infant, Faith, 9 months old, becomes focused on book exploration while seated in her mother's lap. She points to pictures and coos in response to her mother's reading. On the other hand, Joseph, a one-year-old, challenges everyone by pulling out tissue paper from gift bags, running through the room, squealing with delight, climbing into different family members' laps, gazing into their faces, and quickly moving on to another enchanting experience. Faith seriously observes what is taking place; on the other hand, Joseph is making things happen.

Both children have received generous amounts of adult attention and interaction to his or her interests. They are encouraged to verbalize and have had appropriate patterns of conversation modeled. Both children have had many of the same experiences because of attending the same child care home as well as frequenting the same family events. Yet, the differences in attention and development are marked. Faith has been raised by a single mother in a very gentle, quiet, and serene environment. She is barely mobile, likes to observe people and the environment, and attends and responds more to outside stimuli. Joseph, on the other hand, has an older sister and animals in an active two-parent household. He is very mobile. That mobility opens a whole new world of experiences for him. Now his growing brain realizes he does not have to respond to what is in front of him, but may create and find his own stimuli. His mobility and physical activity appear to dominate his thoughts and actions. Running becomes a vehicle to feed his 'hungry' brain — to nourish his growing brain.

As we mentioned previously, to the casual observer who is unaware of what is happening in Joseph's brain, he appears to be '**into**' everything. And, he is. However, what he is '**into**' on this

Christmas day is hearing the sound tissue paper makes when he rips it out of the bag, feeling the wrinkles as he crushes it between his fingers, and watching it float through the air when he tosses it high. He is 'into' everyone's lap, looking into their eyes, babbling, and nodding in response to questions. This is Joseph's first 'real' Christmas, and it is filled with a wealth of new, exciting experiences for his brain to devour. If we look carefully, we can almost see those neural pathways humming with growth. He is taking in every possible experience and learning from it. After today, Joseph's brain will have a definition and expectations for the term 'Christmas' that will change to accommodate new information as more holiday seasons are experienced. His brain is indeed growing.

How to grow better brains

Just as the farmer knows the success or failure of his crop depends on a number of factors, so do those of us who grow brains. We must ask ourselves, "What do hungry brains seek in their search for nourishment?" To answer this question, we need to look carefully at children's physical environments and at those things that should happen in that environment.

■ The Physical Environment

The physical environment should be one that is visually appealing to the children. It should be stimulating, but not overwhelming. Research by Gonzalez-Mena & Eyer (2006), indicates that when we provide infants and toddlers with too many toys, props, and equipment, and have too many interruptions, their attention span can decrease. Toys and equipment should be at eye level, varied to match many individual developmental levels, and easily accessible by children.

Ten Steps to Grow Better Brains

Realize the significant and primary role **we** play in children's development and become an expert at what **we** do. Learn everything **we** can about what developing young children need — socially, emotionally, physically, mentally, emotionally, and in any other way.

Become an exceptional 'kid watcher.' Learn to effectively observe children so that **we** know what their developmental needs/levels are. Understand that young children change on a daily basis. Carefully plan to match their changing needs with the environment and activities **we** are providing.

Create visually appealing environments with toys and equipment that are easily accessible by children and then let them freely and safely explore all aspects of that environment. Actively promote their experiential learning.

Understand that every aspect of a child's environment from toys and materials to schedules and routines must be designed to meet a range of developing abilities, while encouraging experimentation and discovery.

Support children's discoveries by providing new challenges and opportunities to build on their prior knowledge base in a logical, meaningful, developmentally appropriate manner.

Respect children as individuals by allowing for flexibility while aligning their schedule and activities for the day taking into consideration each child's unique temperament, initiative, interest, and previous experiences. Early childhood professionals must remember that children are contributors to their own development, and we facilitate such development (Wittmer & Petersen, 2006).

Talk with children constantly, listen to them, and demonstrate appropriate facial expressions and active body language to extend their knowledge of all types of communication.

Read to children as often as possible and incorporate the stories and rhythm of nursery rhymes to help infants and toddlers develop an interest in and appreciation of the beauty of language. Choose sturdy cardboard books, washable cloth books, or plastic books since babies like to chew on them (Honig, 1998). This is the beginning step in literacy development.

Share knowledge of brain research with families by suggesting practical and applicable experiences. Talk with them about growing brains so they understand the power they have to shape their child's future.

Consider each day **we** work with an infant or toddler as one that can never be repeated — it should be filled with fun, playful learning opportunities, and rewards for everyone. Nothing should be more important than positively affecting future generations.

Developmental appropriateness and safety are of the utmost importance when providing infants and toddlers with toys and equipment. From this perspective, the environment, while easy to sanitize, needs to have soft features such as pillows, adult laps, and carpeting. There should be open space where children can easily and safely crawl or walk. Of course, there should be quiet areas for napping or resting. Sound and temperature should be controlled and comfortable. Music should be shared, played at a comfortable volume, and be varied — something in addition to children's songs or what the caregivers prefer. There are a number of other factors that influence the environment, but of primary importance is the safety and interests of the children.

The National Association for the Education of Young Children (NAEYC, 2006) concurs with the above in the latest Accreditation Performance Standards and describes enriched learning environments in a number of ways. Examples of appropriate practices to grow brains for all age groups include the teachers' abilities to create an environment designed to protect children's health and safety while supporting their needs for physical movement, sensory stimulation, fresh air, rest, and nourishment. NAEYC stresses the importance of: 1) varying supervision to match the needs of individuals as well as groups; and, 2) arranging space and selecting materials that stimulate explorations, experimentation, discovery, and conceptual learning in all content and developmental domains. In short, every effort should be made to scaffold and support children's learning through a carefully planned physical environment. Similarly, when early childhood teachers pay close attention to each child's developmental needs and safety, they can help, rather than hinder, brain growth.

■ What Happens in Those Environments

The activities, interactions, and learning opportunities that take place in carefully planned environments are closely entwined and of paramount importance in stimulating brain growth. This fact becomes clear when one considers recent research on brain development. According to Begley (1997), newborn infants have approximately 100 billion neurons which form more than 50 trillion synapses. As children interact with the environment, those neurons that are being used will be maintained; those rarely used, will be pruned (Bergen & Coscia, 2001). Logically, our goal as early childhood professionals should be to provide interactions, experiences, and developmentally appropriate environments which foster the development and strengthen the neural pathways associated with all aspects of children's development and to minimize the number of neurons which are pruned due to lack of use. We know the brain is designed to work; we should promote that work as we help children maintain and further develop as many neurons and synapses as possible.

Interactions and activities for the very young should be rich in variety and planned to promote the overall development of infants and toddlers. Social experiences should allow for the practice of helping children develop appropriate ways to manage their own behavior as well as feelings and provide opportunities for them to moderate their level of arousal. Equally important is that children's self-regulation develops by interacting with warm and caring adults who support such development in children (Shore, 2003). To support such development in infants and toddlers, schedules, planned activities, and adult expectations need to match children's individual temperaments, interests, likes, dislikes, and home experiences.

Language interactions with infants are critical because "infants' brains are designed to learn a language" (Wittmer & Petersen, 2006, p. 168). Through interactions with adults and siblings, children learn to model the patterns of conversation, as their babbling and cooing are encouraged and reinforced. Care providers should help children develop language by learning each child's individual means of expressing her needs through non-verbal/verbal communication and by orally speaking in the family's preferred language. Allowing and encouraging infants/toddlers to actively explore specifically designed print rich environments enhance early literacy development by building on their interests in reading, singing, talking, and listening to stories. These types of experiences strengthen and expand the neural pathways designed to promote all types of communication skills (Cowley, 1997; Gonzalez-Mena & Eyer, 2006; Jensen, 2005) and help to grow a better brain. As exemplified by Joseph, the male infant discussed earlier, young children are very curious about the world and are attempting to develop concepts about why, how, and what happens. They do this by using their senses to explore their environment. During this exploration they soon discover that they can make things happen and solve simple problems. Concurrently, freely moving through their environment allows children to develop gross motor skills as they practice coordination, movement, and balance. Children at this stage of development are also attempting to hone their fine motor skills; therefore, teachers should plan opportunities and provide materials that allow children to use their hands and fingers in a number of age-appropriate ways.

Young children's routines provide vast opportunities for learning and growth in all developmental domains. Along with finding trust and security in the

consistency of routines, infants and toddlers also develop in areas such as expressive and receptive language, social skills, physical motor skills, and self-esteem. Routines offer families and caregivers opportunities to share opinions, beliefs, and information. Caregivers show respect for families and their cultural beliefs by collaborating with parents regarding what is best for the children. For this reason, early childhood professionals must work closely with family members of their charges by understanding and supporting their cultural backgrounds, their families' beliefs, and their child-rearing practices.

It is obvious from the above, that growing brains need to be nourished physically, socially, cognitively, emotionally, and in all other ways. Growing brains seek and find stimuli in every environment — the richness of the environment and what takes place there determines the quality of the growth that is taking place. When all of us who 'grow brains' work together to enhance children's development by providing challenging experiences in carefully planned environments, we can assure a brighter future for our youngest children and help them make a successful transition into being eager preschoolers and productive, life-long learners. All of these factors combine to, indeed, allow us to shout, "We grow brains!"

All of us who work with young children need to understand the challenges involved with growing brains — to raise the very highest quality crops possible. We know that growing better brains is possible by understanding how they develop and how we can support such development. It is our daily challenge and requires people who are experts. It is a job to be proud of and one that we take very seriously. After all, growing brains is the most important job in the world!

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