

2011

Foundations of Learning



Middle River Baptist Church Child Development Center



Foundations of Learning

Why We Do What We Do

If you ask an early childhood educator or child care teacher why they teach, the response may be something like, “I love children.” If you ask them why they do a specific activity in their classroom, the response may be something like, “The children love it.” While teachers may love children, and children may be actively engaged, the answers to the questions of why we do what we do require careful thought. As educators of young children, we prepare weekly lesson plans in conjunction with a weekly theme; we select materials and supplies that we know are developmentally appropriate for our children; and, we attend workshops to gain new knowledge. We know what we are supposed to do, but do we know why? Are we basing our curriculum and teaching strategies on research about how children learn, or by what we “feel” is best?

Each educator ought to be professional enough to say, "Here's *why* I do what I do." It is professional to know why one strategy is used instead of another. Keep in mind that if you don't know why you do what you do, it's less purposeful and less professional. It is professional to know how children learn and grow and what to do to promote growth. Knowing the reasons for certain practices will also improve our practices. When we understand why, we are better prepared to do what is developmentally appropriate.

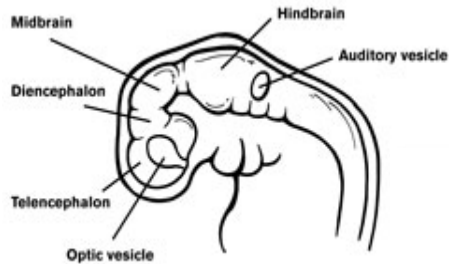
So, this introduction to our curriculum strives to answer the question: “Why do we do what we do?” We will look at the basics of brain development and then briefly note the correlation between brain development and experience in shaping the overall development of the child.

The Developing Brain

The growth and development of mankind is a mystery. Exactly how we become who we are is a matter of heredity, innate temperament, experience, and an element of the unknown. Research strives to find formulas and explanations for life; but, there is no explanation in science that has ever fully explained how we become who we are. Only God has the complete explanation. God has designed each of us in His own image, to be in fellowship with Him, and to be in fellowship with each other. We know this because of the Bible. In the creation account we see that God created each animal “according to its kind,” but human beings are in the “image” and “likeness” of God (Genesis 1:24-28). Creativity, positive emotions, logic, love, abstract thought, communication skills—these are aspects of the mind of the Creator. These are ways in which He has created us in His likeness, to be in relationship with Him. When asked by the religious leaders what was the greatest commandment, Jesus responded, “‘Love the Lord your God with all your heart, with all your soul, with all your mind,’ This is the first and greatest commandment. And the second is like it: ‘Love your neighbor as yourself’” (Matthew 22:37-40, NIV). God’s desire is to be in relationship with us. He invites us into this relationship through His Word, the Bible, and through His Son Jesus. We make the decision whether or not we accept His invitation – a decision that has its beginning in our thoughts.

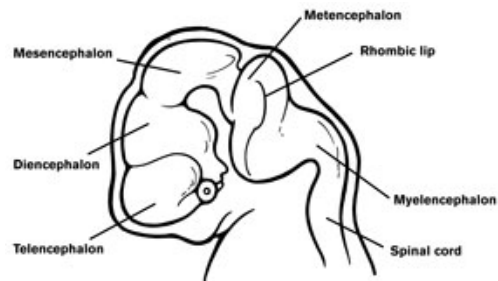
All thought, knowledge, feeling, perception, movement, and aesthetics have its beginning in the creation of the human brain. God’s mystery of human brain development begins even before conception. At the moment of conception, ½ of the male’s DNA and ½ of the female’s DNA merge to become one. From this moment the genetic “map” and hereditary make-up of a new

human being is determined. Genes determine when specific brain circuits are formed and individual experiences then shape how that formation unfolds.

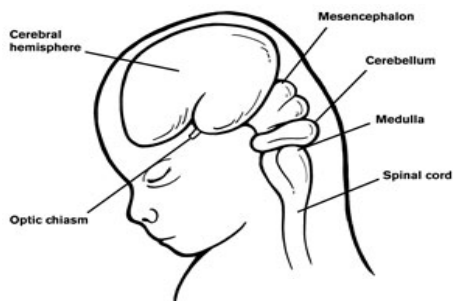


Four weeks after conception, the human brain is not much bigger than a grain of salt. Its cells begin to form at the alarming rate of 250,000 per minute.

At eight weeks, the major structures of the brain are formed. The embryo's head begins to appear more human. The fetus begins to feel pain.



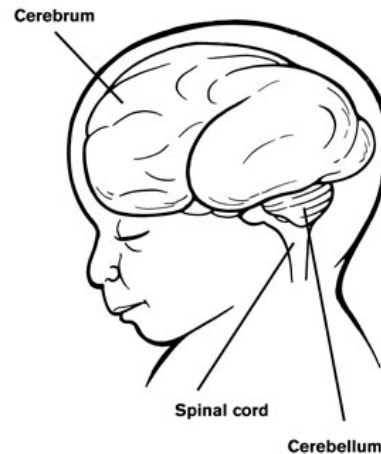
Four months after conception, the fetus receives signals from its developing ears and eyes. He can see bright lights and hear his mother's voice, but does not know how to interpret them. He may squint or frown at bright light. Five months into the gestational period, he can recognize his mother's voice, move himself within the uterus, and he can detect sounds from outside of his mother's womb like music.



At twelve weeks, the brain continues to grow new cells and make connections between those already in place. The fetus develops physical reflexes. The fetus is beginning to "learn" as the brain's neurons start making connections.

At six months, the cerebral cortex is now the largest part of the brain and has started to separate into lobes. As this part of the brain develops, a primitive type of memory and conscious behavior emerge. The fetus may react more to some noises and music than others. Some experts believe the fetus will remember music and voices "heard" at this stage and unconsciously react with comfort to them after birth.

At seven months, the once-smooth fetal brain has begun to form the grooves and indentations typical of a more mature brain. An electroencephalogram (EEG) can detect fetal brain waves. Myelin begins to form a protective sheath around nerves from the brain, like insulation keeping wires from crossing; this sheath enhances communication among nerve cells.



At eight months, the auditory cortex, the visual cortex, and language areas of the brain have begun to function. The fetus is thus developing a primitive ability to interpret sights and sounds and distinguish language. He begins to focus and is now so large that he cannot easily move around.

At birth, the infant's brain is about 1/4 of the size and weight of an adult brain, and contains about 100 billion neurons, roughly as many nerve cells as there are stars in the Milky Way. By age two, the brain is 1/2 of its adult size. These nerve cells will develop trillions of pathways and connections by the time a child reaches five years of age. Every cell is precisely in its place, every link between neurons carefully organized. Nothing is random, nothing arbitrary. God's design for each individual is perfect and complete.



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The infant is born ready to learn. Even before he is born, he is learning about his environment. He hears sounds outside of the womb; he hears his mother's voice; he begins to focus. At birth, he begins to experience and develop a relationship with the world outside of his mother's womb. He feels the cold air; he sees light; he folds his fingers around his mother's forefinger. He is learning!! The child's learning is influenced by the quality of his experiences. Early stimulation



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sets the stage for how children will learn and interact with others throughout life. As a child experiences and interacts with his environment, neurons develop connections, or synapses, making pathways between them. Every time a child's brain is stimulated by new interactions within his/her environment, especially loving interactions with caring adults, neural pathways, or learning pathways, are formed. Connections that have been used repeatedly in the early years become stronger and tend to remain; they become permanent. If a child receives little stimulation early on, the synapses will not develop, and the brain will make fewer connections.

A child's experiences, good or bad, influence the wiring of his brain. The connections in his nervous system strongly stimulate a child's brain, causing synapses to grow and existing connections to grow stronger. Rich experiences, in other words, produce rich brains.

A Child's Experiences Affect How He Learns

In the late 1990's, television reports revealed that Russian orphanages were overcrowded and understaffed. The infants that were observed exhibited no interpersonal skills – no eye contact, no cries, no smiles. Outrage at the unfortunate experiences of these children spilled from almost every developed nation. Child Development experts were spurred to action.

A group of child development specialists from the U.S. and Russia observed children in three different Russian orphanages. The children who resided in these orphanages were typically between birth and 48 months of age; approximately 50% were diagnosed with disabilities, and approximately 60% left the orphanages through foreign adoption. During their initial observations, the caregivers showed a high level of current anxiety and depression and were detached from and communicated little with the children. The children demonstrated poor attachment behaviors such as indiscriminant friendliness, lack of eye contact with adults, aggression, and impulsive behavior. The child development specialists intervened with two strategies to improve child outcomes: (a) training of caregivers to promote warm, responsive caregiving and (b) staffing and structural alterations to support relationship building, especially increasing the consistency of caregivers. Children showed improvements in physical growth, cognition, language, motor, personal-social, and emotional expression. Children with severe disabilities improved the most (Groark, Muhamedrahimov, Palmov, Nikiforova, and McCall, 2005).

The early experiences of the Russian orphans effected their overall development – and more specifically, their brain development. The children received very little personal attention; therefore, they developed very few interpersonal skills. They were shown little emotion; therefore, they did not learn to exhibit - or even feel - emotions. They lacked knowledge in self-regulating their own behavior. However, through appropriate and responsive caregiving, they began to show improvement in every area of development. This study showed that warm and responsive caregiving greatly influences how a child develops. Many other studies have been conducted that attempt to prove or disprove the “nature” versus “nurture” debate. In fact, it is the interaction between nature (genetics) and early experience (nurture) that creates either a sturdy or weak foundation for all that follows - learning, behavior, and health.

The discovery that experiences and environments alter our brains is profound. This research goes back decades. The National Scientific Council on the Developing Child, housed at the Center for



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the Developing Child at Harvard University, is a multi-disciplinary collaboration designed to bring the science of early childhood and early brain development known in the public policy and decision-making arenas. The Council states that quality early experiences for children are necessary to build a good foundation for learning:

“Appropriate sensory input (e.g., through hearing and vision) and stable, responsive relationships build healthy brain architecture that provides a strong foundation for lifelong learning, behavior, and health. The most important relationships begin in the family but often also involve other adults who play important roles in the lives of young children, including providers of early care and education. Young children naturally reach out for interaction through babbling, facial expressions, words, gestures, and cries, and adults respond by getting in sync and doing the same kind of vocalizing and gesturing back at them, and the process continues back and forth.

Emotional well-being, social competence, and cognitive abilities together are the bricks and mortar that comprise the foundation of human development. The emotional health, social skills, and cognitive-linguistic capacities that emerge in the early years are all important prerequisites for success in school and later in the workplace and community. Brain architecture and the immune system also interact as they mature, which influences all domains of development and health” (National Scientific Council on the Developing Child, p. 8).

Building more advanced skills on a weak initial foundation of brain architecture is far more difficult and less effective than getting things right from the beginning. Critical aspects of brain architecture begin to be shaped by experience before and soon after birth, and many fundamental aspects of that architecture are established well before a child enters school. “It begins with children who are born healthy, who are raised in safe and nurturing families, and who have enriching and positive experiences from birth through age five. Children who have had these experiences enter kindergarten curious and enthusiastic, eager to learn, willing to get along with others, and in good physical and mental health. In other words, these children ‘enter school ready to learn’” (The Maryland Early Care and Education Committee, 2006)

References

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