



Realms of Intelligence, a NeuroDevelopmental Perspective

A brain-based education is the only real option for our children struggling with academic, social, emotional and physical challenges, because these challenges speak of a central cause of their sometimes, complex issues. In virtually all cases the best approach to a central problem is a central solution, addressing the brain itself.

The cortex, our powerful learning center, our source of coordination, art, communication and adult living skills, is the peak achievement of the human brain. It is a brain supported by underlying drivers, levels of the brain that are no more under our control than our ability to control the growth of our toenails! Yet that is the brain that often interferes with the full expression of our cortical brilliance. This is the brain that we are going to explore in this article.

In our discussion of realms of intelligence, we include motor sequencing, vision, speech, reading, social cueing, and the unique role of the corpus callosum in coordinating our two cortical hemispheres. However, rather than focusing solely on the cortex, our goal is to help readers understand how even the activity of the neonate brain, as well as every brain level below the cortex, is influencing the above listed skills. Viewed from the perspective of NeuroDevelopmental Movement, we can come to understand how to help our children become academically, physically, socially, and emotionally whole.

Each level of the central nervous system is dependent upon the levels beneath it to achieve maximum integration, and in this discussion we will explore the preconscious brain and how we can work with those levels of integration along with an explicitly cortical approach to help all of our students move more quickly to neurotypical skills and academic success.

Realms of Intelligence: Motor Sequencing and Coordination

Fluent and efficient motor skills are dependent upon the infant aligning their proximal joints and stabilizing the torso during the tummy crawling phase, aligning and stabilizing the medial joints, sequencing, and left right coordination during the creeping phase. At both of these phases primitive reflexes are integrated, foundational motor skills are put in place, and the higher brain is supported by preconscious levels of integration that can only be achieved by completing the developmental sequence. The child who has not mastered the developmental sequence may not seem to know where their body is in space, may have knees that align poorly, poor balance, inability to hop on one foot, or in general an 'awkward gait' when walking and running. They are frequently unable to skip.



Realms of Intelligence: Visual Motor Skills

The coordination of early visual motor skills comes about in the first year as the result of the developmental activities that the neurotypical infant is keen to do. Horizontal tracking and comfortable eye contact comes on board in the first 7 months, while vertical tracking, detail perception, and convergence come on board in the second half of the first year. The child who completes all stages of normal neurological development has eyes that are prepared to see and learn.

Realms of Intelligence: Speech

This realm of intelligence is deeply dependent upon pre-cortical areas of the brain. Babbling and cooing, tonality, and sequencing are also the product of the sensory, reflex, and motor activities completed in the first year of life. The child who has not mastered the earlier developmental levels may have a flat tonality, garbled speech, and poor pronunciation of words.

Realms of Intelligence: Social Skills

From the first activity of mirror neurons to our detailed perceptions of emotions, this realm has roots in early infant brain development. Children who have not mastered this level may have few friends, not able to understand how to work in a group or team, may seem to lack compassion, always seem on the “outside” of any social circle. When the mid cerebrum is stimulated by replicating the developmental sequence, the skills can be gained in children at any stage of development.

Realms of Intelligence: The Unique and Diverse Role of the Corpus Callosum

Reading comprehension, memory, and impulse control are further enhanced during the second half of the first year and are dependent upon the bridge that runs between the two hemispheres of the brain. The corpus callosum manages more of our brain function than can be explained in this short article, but is again, matured at the pre-cortical level. Thus, when the brain is healthy there is little effort in self-regulation, impulse control, seeing ‘pictures’ when reading, etc.

While we have left out areas such as math proficiency, attention, regulation, fine motor skills, auditory processing, sensory seeking or sensory avoidant behaviors, anxiety and phobias - **all** of these too have their roots in the organization of the brain in the first year of life.

NeuroDevelopmental Movement has a 75-year history of helping the disorganized brains of children with challenges to reclaim their birthright - the full developmental sequence - which is the master plan for the organization of a human brain. The addition of a pre-cortical plan for



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brain organization, in addition to the cognitive programs at Eaton-Arrowsmith Schools, can ease the pathway for maturing our children's brains and optimizing their academic success.

For more information about NeuroDevelopmental Movement, contact Bette at developmentalmovement@gmail.com Website: www.neurodevelopmentalmovement.org

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