

A Dynamic Systems Approach: A Revolutionary Perspective on Childhood Development Theory

By Ann Harman, GCFP

For at least half a century, the prevailing idea of childhood development has been that the basic sequence of infant and child development, which includes learning to roll, reach, sit, creep, crawl, stand, and walk is genetically predetermined. The “normal” sequence, with only minor variations, is relatively consistent from one child to another. However, the dynamic systems approach developed by Esther Thelen brings an alternative viewpoint that challenges this established theory.

Part of the established theory is that developmental sequences are controlled by the maturation process of the brain. In this concept, there is a central controller in the brain (which has never been identified) that leads the infant through a process beginning with primitive reflexes. With maturation, the primitive reflexes are suppressed, and more mature movements develop.

One of these primitive reflexes is the stepping reflex. A young infant, when supported upright, makes stepping movements that appear to be a precursor to walking. This reflex disappears after about two months, supposedly due to the maturation of the brain.



Dr. Thelen (pictured left), a professor of psychology and cognitive science at Indiana University, noticed that babies older than two months make kicking movements, while lying on their backs, that resemble the stepping reflex. She became curious and did an experiment of supporting the infant in a tub of water, so that gravity was less of a factor. The stepping reflex returned! Then she took infants who still had a stepping reflex, put weights on their legs, and saw that the stepping reflex was inhibited! She theorized that the stepping reflex was not inhibited by the maturation of the brain, but by the weight of the infant’s legs. (Babies double their weight within six months of birth, and a two-month old normally has a great deal of fat on the legs.) This was only one in a series of experiments done by Thelen and her colleagues that brought doubts to established theories of development.

Dr. Thelen also observed that the developmental sequences of children are more variable than was previously believed. Yet, almost all children arrive at certain milestones such as crawling, standing, and walking, although by way of different routes. She theorized that certain movements are “attractors”, but the paths to these attractors are variable. Children are drawn to these attractors, but each finds his or her own pathway through trial and error. In other words, the process depends more upon experimentation, curiosity, and learning than was previously thought.

Eventually, Dr. Thelen summarized the system by which children learn by the acronym EVASO:

E: Explore

V: Variations: Experiment with variations in moving.

A: Attend to how new systems self-organize.

S: Select patterns that are better

O: Optimize for functional effectiveness and movement quality.

When Dr. Thelen was exposed to the *Feldenkrais Method*® of movement education, she was astounded to find that this system not only used these principles of infant learning, but also applied them in a practical manner to adult education and rehabilitation, and was already well-established and developed! She undertook the four-year training to become a *Guild Certified Feldenkrais Practitioner*(cm). If it had not been for her untimely death from cancer, she would have retired from research to apply these principles in the context of a *Feldenkrais*® Practice.

When we think of early childhood learning, this is the period of life in which learning is faster than at any other time. A newborn has a very limited movement capacity, does not know language, and cannot even recognize what s/he sees or hears. Within a few years, the child learns to identify sights and sounds, walk, run, climb, and speak the native language. This is a truly amazing amount of learning that happens within a few years, and this rate of learning slows in later life. (In fact, past concepts of maturation have included the idea that maturity means having learned all that we need to know!)

Does this evoke your interest about how to learn better and faster? To learn by using curiosity, and to explore and choose elegant solutions? If so, consider studying the *Feldenkrais Method*.

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