



A Challenge to Reframe our Thinking About Behavior

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The AutCom National Conference, *Early Intervention and Beyond: The State of the Art*, was held in Decatur, Georgia, in early November 1998. Participants were privileged to hear about a wide variety of topics such as *Development as a Dynamic System* by Esther Thelen, and *Rethinking Development for Young Children with Autism/PDD* by Anne Donnellan and Martha Leary. Both days were packed with information and new ideas to ponder and integrate into daily practice. It was an excellent reminder that it is our responsibility as providers and support people to leave no stone unturned in the quest for seeking more and better alternatives for individuals with autism. It is up to us to listen to their voices and hear their needs. It is up to us to be bold and challenge ourselves with new information, thinking, and practice in order to move us all into the new century.

In reviewing my notes from Dr. Esther Thelen's presentation, *Development as a Dynamic System*, I quickly realized that her information is crucial, but also very difficult to condense into easy reading. Her experiences and studies of human development are vast and complex. How, then, can I share her vital contribution? What is meant by *dynamic system* and how does it relate to individuals with autism? This article can only be seen as a brief and incomplete introduction to gaining new insights into interpreting the actions/behaviors of individuals with autism and how we might change the manner in which we support them.

According to Thelen, the human body is a dynamic system that is comprised of many different and ever changing systems that regulate how the body operates. These systems, which include skeletal, muscular, and sensory (auditory, visual, tactile, kinesthetic, proprioceptive, olfactory, taste), to name a few, all work *interdependently*. In other words, all systems need each other to work efficiently and effectively. Therefore, each system is vital in order to achieve desired outcomes. Everything we do — standing up, speaking, eating, scratching an itch, etc. all rely on this interdependent dynamic system. The human body is ever changing and adjusting; dynamic. An interruption in one of the systems can create very different outcomes. Therefore it is crucial to see everyone and everything within a context which includes past history and present demands of a given situation. Dr. Thelen stated that in everything we do "perception, action, and memory are coupled." In other words, information from the past and how it has been interpreted impacts the actions that people bring to each new situation.

In order to begin to understand how the body works as a dynamic system for everything we do, perhaps it would be helpful to closely examine one action. When broken down into steps, the *simple* act of getting up from a chair and walking to a door and then through it can become quite complex. Even subtle changes within part of the dynamic system of the human body can create a different result. The following chart is by no means a complete analysis of this movement, but rather intended to point out the complexity of the interdependence of the systems in creating the desired outcome. This interdependence is usually thought of as simple, when, in fact, it is quite complex.

Action	Systems (Information in bold are major systems; italics are subsystems)
Receive input that it is time to walk to the door by verbal direction of "It's time to go now."	Nervous/sensory system. <ul style="list-style-type: none"> • <i>auditory system</i> to hear the direction and filter out other

	<p>"noises" in the environment</p> <ul style="list-style-type: none"> • <i>memory or processing</i> the information to know what it means • <i>visual system</i> to see the door • <i>proprioceptive system</i> to know which muscles need to receive input to initiate the movement
Get ready to stand up, let muscles know what to do	<p>Muscular system to move, to begin to initiate the movement, to begin to push up</p> <p>Nervous/sensory system</p> <ul style="list-style-type: none"> • <i>proprioceptive system</i> to know how fast to get up, when to get up, how erect to stand; to begin to push up
Push to stand	<p>Muscular system to move, to initiate the movement</p> <p>Nervous/sensory system to know how hard to push off, how fast to stand up, when to stop pushing to stand</p> <ul style="list-style-type: none"> • <i>vestibular system</i> to maintain balance • <i>perception</i> of being in a standing position • <i>memory</i> of how it feels to be standing
Locate the door	<p>Nervous/sensory system</p> <ul style="list-style-type: none"> • <i>memory</i> to recall what a door is • <i>perception</i> to locate door in relation to body • <i>visual system</i> to see the door and the path that will need to be taken to reach the door (around obstacles or a direct path)
Initiate movement to walk to the door	<p>Muscular system to move and maintain body as erect and upright, head up, eyes forward</p> <p>Nervous/sensory system to know how far out to put the initial step, how hard to step down, to know when the first step is completed, and when to begin the next, to continue moving, how fast to move, how far to move, when to stop, how to swing the arms</p> <ul style="list-style-type: none"> • <i>visual system</i> to see the path • <i>vestibular system</i> to maintain balance • <i>auditory system</i> to hear other directions • <i>perception</i> of completing the task by receiving all the input from the body • <i>memory</i> of doing this previously to help with knowing how to do it and if it is being done correctly
Get to the door	<p>Muscular system to initiate the movement, to move and maintain body as erect and upright, head up, eyes forward</p> <p>Nervous/sensory system to know how far out to put the initial step, how hard to step down, to know when the first step is</p>

	<p>completed and to begin the next, to continue moving, how fast to move, how far to move, when to stop, how to swing the arms</p> <ul style="list-style-type: none"> • <i>vestibular</i> system to maintain balance • <i>auditory</i> system to hear directions and to filter out unwanted "noise" • <i>perception</i> of completing the task of moving and arriving at the door by receiving all the input from the body memory of doing this action previously to help in knowing how to do it or if it is being done correctly • <i>visual</i> to see the path and the arrival at the door • <i>memory</i> of being at a doorway and what might be expected to happen next
Walking through the door	<p>Muscular system to move and maintain the body as erect and upright, head up, eyes forward</p> <p>Nervous/sensory system</p> <ul style="list-style-type: none"> • <i>proprioceptive</i> system to know how far out to put the initial step, how hard to step down, to know when the first step is completed and when to begin the next, to continue moving, how fast to move, how far to move, when to stop, how to swing the arms • <i>visual</i> system to see the path, the arrival at the door, and the other side of the doorway • <i>vestibular</i> system to maintain balance • <i>auditory</i> system to hear other directions and to filter out extra "noise" in the environment • <i>perception</i> of completing the task by receiving all the input from the body, memory of doing this previously and to help with knowing how to do it and if it is being done correctly, and of moving • <i>memory</i> of knowing how to move through the doorway, if it is being done correctly and if it is something to continue based on previous history of what has happened when going through the doorway before • <i>proprioception</i> to know movement has stopped • <i>perception</i> of not being in the same location <p>Nervous/sensory</p> <ul style="list-style-type: none"> • <i>perception</i> of stopping movement <p>Muscular system to stop moving</p>

This is a small movement within the context of the many movements we use throughout the day. Yet, it takes a great deal of system cooperation or *interdependence* to complete this one small action. And, if a movement includes changing locations, people that the individual is interacting with, or other activities, additional information for the dynamic system to interpret would be involved. When considering all of the information a person needs to instantaneously process to make decisions in order to perform an action *properly*, one might be able to understand

that one small glitch in the *dynamic* system can throw the entire response off. Some *glitches* in systems may be obvious. For people who are deaf or blind, their glitches involve not being able to take information into the system visually or auditorily. For individuals with autism, some glitches are often invisible to the rest of us. When differences are invisible, they are often overlooked. People with autism can become blamed for not responding in a timely manner or in the appropriate way. It may not be their *fault*. Rather their *systems* are not working together to give the smooth output most of us want to see. For example, when some individuals are asked to "write their name" and either take too long, press too hard on the pencil, begin or stop the movement incorrectly, repeat the same letter, or have difficulty regulating letter size, it may all be due to a faulty connection within the dynamic system rather than an unwillingness to do it *right*.

Frequently, people with autism and other disabilities are not seen as a *complete individual* but instead as a sum of many parts. In special education we have *domains* to consider. In general education we have *subject areas*. The individual is compartmentalized and never seen as a whole system because we are concerned with our particular area of interest. We often do not see people as individuals who bring with them their own history, which has assisted in creating patterns of behaviors. We often do not see individuals as having a dynamic system, which often does not function as smoothly as it might. Instead we see individuals with disruptive or challenging behaviors. We, as professionals, often try to *fix* the behaviors as opposed to understanding the reasons behind the behavior.

Anne Donnellan and Martha Leary have been studying the work of Dr. Thelen and others in an attempt to reorganize thinking with regard to individuals with autism and their behaviors. By looking at the dynamic system approach in which everything must work together to get the desired output, they ask what would happen if there were difficulties in certain areas. They conclude that difficulties may impede certain areas.

Difficulties in:	May Impede:
Starting	Postures
Stopping	Actions
Executing	Speech
Continuing	Thoughts
Combining	Perceptions
Switching	Emotions
	Memories

If one area of the dynamic system is faulty in some way, it can create a host of subsequent problems. If timing is off a split second, answers to questions may come a bit late, swinging a bat may be off, initiating a movement to get up and go to the door may take longer, taking part in a conversation may be awkward, getting to the bathroom on time may be difficult, and so on.

We can become stuck in circumstances making it difficult to change our patterns of behavior. For example, if we are used to doing one activity in a particular fashion, we may be unable to change our patterns of behavior to accommodate a new way of doing the activity. For example, if you are a person with a set morning routine (wake up, put the coffee on, get the paper, drink coffee, shower, etc.), would your routine be disrupted if the paper were not there one morning? We become stuck in our way of doing things. We create habits for ourselves. For individuals with autism, they may have many habits that are difficult for them to change or break.

Therefore it is important for those who support individuals with autism to realize that patterns are learned behaviors and cannot simply be changed without the entire system being given time to reorient itself. The unique history of each individual impacts his or her patterns/behaviors. Their dynamic systems may not be as stable as

others and therefore cannot adapt as readily to new input. However, the ultimate question we must ask ourselves when it comes to changing behavior is this: Are we doing this to disrupt an old habit or to provide new possibilities?

Clearly the work of Thelen, Donnellan, and Leary regarding the human body's dynamic system and the impact of movement differences offers many challenges that must be addressed if we are to respectfully support people with autism. Their work opens many doors for thoughtful discussion and potential reframing of the methods for supporting individuals with autism. Will we run from it because it causes us to chart unfamiliar courses or can we meet the challenge?

Davis, K. (1998). A challenge to reframe our thinking about behavior. *The Reporter*, 3(2), 1-4, 15.