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THE MOTIVATION LADDER: AN INTEGRATED DEVELOPMENTAL MODEL FOR FACILITATING SCHOOL INTEGRATION

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ABSTRACT: Learning, emotional, attention, relationship, and social problems are normally defined by disparate symptoms and treated by various professionals in different ways. As research clarifies the integrated way the brain develops and functions, however, it is becoming clear that at the point of origin these problems may have more in common than current educational and therapeutic practice would suggest. The Motivation Ladder builds from this research to identify and describe two early and critically important developmental steps which form the foundation for both emotional control and academic learning. Youth who cannot develop beyond this level can have a very hard time in school and frequently drop out by grade 9. Understanding these first two steps will enable parents, teachers, and youth care workers to design effective interventions for integrating those youth most often left behind.

KEY WORDS: drop out prevention and intervention; mainstreaming; school integration; redefining learning disabilities; physical movement and learning; nonverbal interventions.

PUTTING PRACTICE INTO THEORY

Almost every school has a sizeable group of youth who, though they are in the building, feel seriously disconnected from what is happening around them. After 15 years working with some of the most troubled of these students in special education programs and supervising efforts to reintegrate them into mainstream educational settings, I began consolidating my experiences and research into a theory about what these young people have in common and how to help them. The result was a developmental model which I now use to help youth trying to stay in school and to propose strategies to parents and youth care workers wanting to support them in this effort.

In the beginning stages of reflection on my experiences in four social affairs educational settings and several community programs two observations stood out above the rest. The first is the scattered nature of efforts to assist struggling students. Though professionals from several disciplines are often involved, they frequently operate independently. The result is what I call "Humpty Dumpty" problem solving in which youth are carved into learning, psychological, and behavioural pieces which no one can put together to explain what is happening or what to do about it.

This outcome was very clear in planning meetings in both special education and community settings. Youth workers and parents would focus on learning problems, hoping that the teachers had an answer. Teachers reported emotional and behavioural difficulties which were having a negative influence on learning. If attention became the primary target, students were sent off to a medical clinic for further evaluation. At no time did anyone ask what learning, emotional, and attention problems have in common. A mind-body link was never part of the discussion about how these problems get started, are normally expressed in academic settings, or might be solved. What these different points of view had in common was that no one was very sure about how to get started. Everyone was hoping someone else had a workable solution. If these meetings were a clear indication of the problem, the second observation provided the basis for a possible solution.

APPROACH AND WITHDRAWAL RESPONSES

In one special education setting where I worked for several years, morning classes focused on academic subjects; in the afternoon, students spent most of their time in the gym, wood shop, kitchen, and art room. Their reactions could not have been more different. Every morning featured a discordant clamour of psychosomatic complaints about headaches, eye strain, lack of energy, and physical aches and pains. Physical and emotional outbursts were always close at hand, and there were never enough workers available to keep youth on task and in school. When youth began focusing on three dimensional, visual-spatial tasks and physical movement, however, their mood and performance changed dramatically. Headaches and outbursts gave way to fluid and coordinated body movement, accompanied by what looked like smiles and sounded like normal conversation. As Heilman (2002) proposes, emotional experiences involve three factors: valence (positive or negative), arousal (high or low), and action (approach or withdrawl). The action dichotomy, either towards or away from, became the first piece of the puzzle in my original understanding of what I was observing in the school program. This perspective was only possible when my staff and I stopped trying to solve problems long enough to notice what was working and think about how to use these positive experiences to encourage future changes.

Another vital clue came from Kinsbourne's (1988) "Activity Cycle" model of depression, which associates the left brain hemisphere with approach behaviour and the right hemisphere with withdrawl. In this schema, the two halves of the cortex, the thinking centers of the brain, perform different but equally important functions. The left hemisphere plans how to reach goals and monitors progress. Movement towards the goal continues unabated until something unexpected happens which puts the outcome in question. At this juncture, the right hemisphere jams on the brakes. This defensive action comes with a wave of negative emotion,

preparing a person to stop and possibly move away. Controlling these emotional reactions is what provides the space and time people need to review the situation and figure out what to do next.

THE SOMATIC GROUP HYPOTHESIS

Triggering this right hemisphere orienting response are what Damasio (1994) calls "somatic markers," physical sensations associated in long-term memory with both positive and negative life experiences which signal the brain to approach or back off. Critical for physical survival, somatic markers may not provide the best feedback for handling social situations or learning tasks. In either case, it was clear that what youth were displaying were not random psychosomatic complaints but specific somatic markers capable of generating strong defensive reactions. Following Damasio's lead, my original hypothesis focused on the effects of environmental stress, namely that young students receiving too much negative feedback in school get stuck in right brain "survival mode" (Hannaford, 1995) as negative emotions run wildly through their minds and bodies and overwhelm their left brain thinking abilities.

As Ornstein (1993) proposes, however, there is also a genetic influence with regard to where young people fall on the approach-withdrawal continuum. Even at age 1 and 2, some children are more prone to be externally focused, sensitive to events around them, and more cautious and fearful. These young people are quicker to react and withdraw, having greater access via the right hemisphere to the large muscles in the shoulders, arms, and legs which make fight-or-flight responses happen. Add to this the difficulties that students with a strong somatic orientation can have with close up, fine motor activities like reading and writing (Hannaford, 1997) and you have a target group of youth very vulnerable to both social and academic stress and most in need of early detection and intervention.

BODY OVER MIND

Then there is the question of why failing students often respond so poorly to rational arguments about the need to stay in school, frequently taking their bodies out of school and refusing to bring them back even when they agree that maybe they should reconsider based on arguments they hear from adults at home and school. More often than not, as parents, teachers, or counselors lecture, "somatic group" youth start to withdraw without even thinking about how they are responding. There are serious limits to talk and "talk therapies" which need to be considered, at least for some youth.

One reason for what appear to be conflicting responses is that the human brain is organized in what Gazzaniga (1985) calls parallel, modular processing systems, of which the left hemisphere language system is just one. While some emotional networks generate "explicit" memories over

which we have some control, others produce "implicit" responses which operate outside of conscious awareness but exert a powerful influence on motivation (LeDoux, 1996). Because emotion and cognition are controlled by separate systems which are not well connected, controlling emotional reactions can be a real challenge (LeDoux, 2002). Runaway emotional reactions can occur because fight-or-flight responses flow through neural circuits connected to but not necessarily controlled by the frontal lobes of the cerebral cortex (Goleman, 1995). For some youth, non-verbal, somatic interventions will be needed to help them learn to identify and control emotional reactions. Physical movement can sometimes resolve obstacles to positive motivation that words alone cannot fix.

The final reason for emphasizing somatic emotional reactions processed by the right hemisphere is the relationship between emotion and learning. As LeDoux (2002) notes, because there are more brain systems active when emotional arousal is higher, a student's learning potential increases. Balance, however, is critical. If emotional arousal overwhelms the frontal lobes' capacity for self-regulation, an "emotional hijacking" occurs. In this state, "neural static" sabotages frontal lobe "working memory" functions which are necessary for thinking and learning (Goleman, 1995). Moderate levels of arousal create the internal conditions needed for confident exploration and focused attention. When arousal is low (near zero motivation) or too high (emotional overload), students experience a surge of negative emotion and distracted attention (Schore, 2003a). This is why Dennison (1981) suggests that when students try too hard, with little success to show for their efforts, their bodies fill with tension and their performance actually declines. They usually end up slouched down in their chairs, or tipped backwards on the rear legs of the chair, or lying on their desks with their head resting on an outstretched arm. For many youth who struggle to learn, this is what happens when somatic markers trip the withdrawl alarm bells, but they can't leave, at least not yet.

THE SIX STEPS

The six steps of the Motivation Ladder are presented below. It is possible to work top down with adults; with children and most adolescents, working bottom up produces better results. Steps 1 and 2 are the most important because they are the ones most often overlooked when adolescents begin to fall apart at home or school.

Step 6. Positive Action

- Somatic External (movement towards important goals)

Step 5. Problem Solving

- Combining auditory external (what others tell us) + auditory internal (what we say to ourselves to figure out what to do next).
- When outcome doesn't match intention.

Step 4. Reality Testing

- Finding ways to make our personal goals (visual internal) happen in the real world (visual external).

Step 3. Developing Goals

- Internal pictures of our future (visual internal)

Step 2. Orienting to the World Around Us

- Visual external
- Understanding other peoples' expectations (knowing what to do next means never feeling lost and stupid!)

Step 1. Developing a Sense of Belonging

- Somatic internal
- Who do I turn to for help when my stomach is in knots?

WHAT GETTING STUCK AT THE BOTTOM MEANS

The lowest rungs of the Motivation Ladder involve nonverbal processes mediated by the right hemisphere. I had two goals in mind when defining these steps. The first was to describe how parents, youth workers, and teachers, using verbal and cognitive support strategies more appropriate for stages near the top of the Ladder, often do not accurately understand youth stuck near the bottom and reach wrong conclusions about what is going wrong and how to help. This gap between development and helping strategies is what has produced an abundance of conclusions about one dys or another. If motivation is about movement, being "stuck", frozen, or emotionally unable to get started is very different than being "broken" and unable to move at all without special assistance. Not only is the idea of being "stuck" more hopeful, but considering that student performance often changes in different contexts, is probably more accurate.

The second objective was to define how being stuck means being at a stage where youth don't feel confident enough to begin setting goals on their own. Though some adults, looking from their vantage point near the top of the Motivation Ladder, see not having significant personal goals as a cause of motivation problems, their absence is more likely a consequence of feeling stuck near the bottom. The significant difference between these two points of view is the subsequent choice staff make about how to get started. Adults working from the top down usually put the responsibility for change on the student; the priority when working bottom up is the quality of support provided by staff and the program.

As laid out in the pages ahead, this is what being stuck at the bottom of the Ladder means in terms of academic performance and school integration: change is probably more possible than many people assume, but not without more support from concerned caregivers than most programs provide.

RESEARCH--THEN AND NOW

Steps 1 and 2 were originally conceived using these component parts: the idea of *representational systems* (auditory, visual, and kinesthetic--with both an internal and external focus) proposed by Grinder and Bandler (1976); Glasser's (1990) "Control Theory" and his description of *belonging* and *power* as the two basic needs that are the most difficult to satisfy; the visual orienting network, the first of three attention networks reported by Posner and Raichle (1994), and for which the right hemisphere is dominant (Heilman, 2002); the developmental path from external action to internal thought, mediated by the "planning function of language" as proposed by Vygotsky (1978, p.28); and the "visual-spatial sketch pad", the non-verbal part of working memory for which the right hemisphere takes the lead, while the "phonological loop" is governed by the left hemisphere (Carter, 1998).

Research in the area of child development has increased dramatically since I first began to define the Motivation Ladder and use it in supervision with members of my child care team. The science of brain development is definitely a work in progress. While many questions remain, there is much more information available now than there was when I first became interested in the field. And while only major trends have been included in this presentation, I have been encouraged by how old and new lines of research continue to converge around how important Steps 1 and 2 are to both academic learning and social development.

THE NONVERBAL BOTTOM STEPS

The right hemisphere monitors external events and body state. The first two steps of the Motivation Ladder reflect these two basic non-verbal processes.

Step I involves developing a sense of belonging, experienced internally as a calm body state or as physical tension and upset along the midline of the torso, in the chest or stomach area. It is not an accident that youth learn better in classes where they sense a positive and supportive connection with their teacher.

The basic task associated with Step 2 is orienting to the external world. While listening may play a larger role later on, for young children this is primarily a visual task involving watching and following in order to understand and meet adults' expectations. If you want to know who the young people who might be stuck on Step 2 are, watch the class when all the explanations are finished and individual work is supposed to begin. The students who are stuck are the ones looking around, watching their peers, trying to figure out what they are supposed to do.

Even adults can fall down the Ladder when stress levels get very high. When the unexpected happens, it is not unusual for people to reach out to someone they trust to talk to or to feel confused about what to do

next. Being stuck is different; the confusion never seems to end and no one who knows what is happening ever seems to show up to help. One of the reasons the drop-out rate remains fairly constant is that students who get stuck on Steps 1 and 2 often can't move up without adults first climbing down, connecting with them, and staying nearby to support their efforts. The result is often a stand off, because many adults hesitate to make this trip, knowing that they won't know what to say or do when they get there, and like the students they want to help, not liking the feeling of being lost.

HOW GETTING STUCK HAPPENS

From top to bottom, the asymmetrical human brain has many structures divided into right and left halves, with each side performing different functions. At the top, becoming skilled in any task requires bilateral activity, especially in the beginning stages. As our skill level increases, the amount of activity across the hemispheres decreases. Getting on a bicycle for the first time requires activity in many brain structures, fuelled by large amounts of mental energy. Over time the entire process becomes automatic, requiring much less conscious effort and mental energy and freeing us to ride and talk to a companion at the same time. Automatization (Levine, 2002) is critical to how students progress in school. As course material gets more complicated around grade 7, an abundant supply of automatic skills for reading and writing are necessary to keep up. If many of the component parts of these basic skills still require conscious control, the brain will have more to do than it can manage, leading to high levels of stress and failure, which the mind will struggle to understand and try to forget, and the body will remember and "mark" with a high degree of accuracy.

As Goldberg (2001) describes, the inner world of any learner involves the "transformation from novelty to routinization" (p.44). The asymmetrical cortex provides two systems to facilitate automatic learning; the right brain kicks in when tasks are new, while the left hemisphere stores the memories for thought processes and actions which have become routine. In the process of learning any task, there is a gradual right to left shift as material becomes more familiar; there is also a shift in this direction as youth progress in age and grade level (Goldberg, 2001). Balance is critical, however, as excessive stress produces a left to right shift (Schore, 2003a), disrupting the normal learning pattern. This can also happen when learning tasks don't become automatic over time. It is very frustrating to learn so slowly that each encounter with a task feels like starting over again. When efforts to learn produce more stress than success, these shifts back and forth become random and excessive; it is this pattern which leads to feelings of being stuck.

There are four processes that are critical to maintain the right to left shift over time so that learning becomes automatic and motivation remains high. The first is emotional regulation young people learn

through the personal connections they make on Step 1. The other three relate to the feelings of power and competence associated with Step 2. These include high levels of mental energy to maintain the attention needed to learn complex tasks, enough success experiences to avoid the negative consequences of excessive shame, and the verbal rehearsal abilities necessary to learn from practice.

STEP 1: THE IMPORTANCE OF SUPPORTIVE CONNECTIONS

According to Bowlby (1988), parents help their children integrate into the world by developing nurturing relationships which provide a "secure base" children can return to for support when they start to feel overwhelmed. This enables them to feel safe enough to explore the world in ever widening circles as they age. According to attachment theory, the positive psychological functioning of independent, integrated adults develops out of and because of emotionally supportive, dependent relationships in childhood. In fact, children growing up within secure relationships show higher levels of resilience and less vulnerability to environmental stress (Schore, 2003a). They accomplish this by regulating emotional reactions and preventing left to right shifts. This enables them to stay focused on what they want to accomplish, tolerate more uncertainty in the process, and not withdraw so quickly when they get confused. It is because of these outcomes that Siegel (1999) describes the role of emotional regulation as central in the "self-organization of the mind" (p.245).

While Bowlby (1998) thought of attachment behaviour as rooted in biology, the work of Schore (2003a, 2003b) provides a comprehensive neurological explanation of how external, social experiences facilitate the internal development of the brain networks necessary for the self-regulation of emotional states. In this work, the nature-nurture debate shifts from an either-or question of what comes first to an interactive process of mutual influence between social experience and cognitive and emotional development. Over time, a supportive family hierarchy promotes the development of an internal hierarchical network of brain structures in a child which increase the potential for self-regulation of emotional responses, effective decision-making, and positive social integration.

The right hemisphere develops first between birth and age three. What generates this right brain development is the *attunement* of somatic, emotional states between young children and their caregivers, with the adult taking the lead (Schore, 2003a). In the first year, bonding is primarily physical in nature, involving feeding, holding, playing, and comforting. When children start to walk, there is a change in orientation (like the move from Step 1 to 2 on the Motivation Ladder) where the connection between child and caregiver becomes more of a visual process involving such "joint attention" activities as mutual eye gazes and hand pointing and eye following, combined with facial expressions to indicate positive and negative feelings. Locomotion means children can get into more trouble,

so there is a transition in attachment relationships from positive stimulation to a mix of "Yes, go ahead and have fun" and "No. Stop. You will get hurt." Both types of messages are conveyed by mother's face which becomes a "beacon of orientation" for the child (Schore, 2003a, p.12).

The end result of calming, stimulating, and correcting interactions is the development over time of the orbitofrontal cortex which is larger in the right hemisphere and, when fully developed, provides executive control over the entire right brain system. In addition to adjusting emotional responses, this system directs attention resources towards goals, which keeps motivation levels high and ensures the coherent development of a sense of self (Schore, 2003a). In any integration program, whether the target is self, social, or academic integration, the need for nonverbal, emotionally supportive interpersonal connections will be necessary in stressful situations to support this right brain system. The more withdrawal behaviour youth exhibit, the greater the need, which is why staying connected is Step 1 on the Motivation Ladder. "Leave no child behind" can only happen when we slow down, even stop if necessary, to stay connected to students who are the most stuck where they are.

STEP 2: BUILDING ENERGY RESERVES

According to Siegel (1999), thinking and learning involve the flow of both information and energy throughout the brain. There are three major attention networks. Like the orienting network, the vigilance network, which helps youth stay energized and maintain an alert state, is mediated by the right hemisphere (Posner & Raichle, 1994). Unlike the mastery of various types of information which most schools measure regularly, students' energy levels are usually given little consideration unless there are serious "attention" lapses evident. Despite the "attention crisis" which seems to be escalating across North America, attention problems continue to be narrowly defined as biological issues for which medication is the obvious, and many times, only solution.

That there might be a social explanation for how youth develop attention resources can only come up when mind and body are viewed from an integrated perspective. Like the emotional control network, the right hemisphere energy system also develops in early childhood attachment relationships (Schore, 2003a). Calming young children when they are upset is critical for learning, because anxiety interferes with working memory and "infects it like a computer virus" (Levine, 2002, p.103). Equally important, however, are the playful exchanges between children and caregivers. Play triggers a positive motivation state which leads to exploratory behaviour, an increase in curiosity, and tolerance for higher levels of mental arousal (Schore, 2003a). As a child learns to handle increased levels of mental energy, working memory and attention span increase to the point where learning complex mental tasks like reading and writing becomes more possible. Humour can often lower anxiety and

increase energy levels for older youth, much as play does for young children. Sousa (2001) recommends it as a classroom strategy to get students' attention and help them focus.

Langer (1997) proposes that educators take a psycho-social approach to attention deficit hyperactivity disorder rather than relying solely on medical interventions. She proposes changing context and increasing novelty as alternative ways of positively influencing students' attention capacity. This is what happened in our school program in the shop, art room, and gym. Activities here were new, simpler, and more fun, which put less stress on student energy reserves and helped them feel more comfortable and competent. This is one reason why these activities may form an "entry" point (Gardner, 1991) for students on their way out but looking for a way to turn around and start over again.

STEP 2: BUILDING ON SUCCESS EXPERIENCES

Positive experiences in the shop and art room could be viewed from the perspective of Gardner's (1985) "Theory of Multiple Intelligences" as examples of "spatial" or "bodily-kinesthetic" intelligence. From a learning styles point of view, they could be seen as examples of how some youth, especially those who struggle with language-based skills, can excel in visual tasks, gross motor activities, or experiential learning (Williams, 1993). While these two options may play a role, these success experiences are also ways for struggling students to gain some sense of mastery and recover some feelings of positive self-esteem (Levine, 2002).

As Schore (2003a) notes, children who experience excessive corrections, communicated through frowns, scowls, and an angry voice, have strong emotional reactions mediated by the right hemisphere. These shame responses produce a sudden reduction in positive emotion and mental energy. Children who are traumatized during the 0 to 3 age right brain growth spurt, and before they are old enough to use the left brain "interpreter module" (Gazzaniga, 1985) to think about or understand what has happened to them, are highly vulnerable to any negative feedback when they enter school. Shame increases feelings of helplessness and of being disconnected, as children sneak off inside themselves and pay much less attention to what is happening around them. As their stress level rises, they look for places to hide so that no one can see how poorly they are able to perform. In the beginning, they may try to hide behind their own "class clown" behaviour. When this doesn't work any more, they may refuse to go to school, or even develop a phobia about it. These reactions are the seeds of the negative somatic markers which fuel the drop out process.

Schore (2003a) emphasizes the need for "repair," which means moving from a negative, energy draining to a positive, energy generating experience. In the long run, this means connecting to supportive adults and developing a sense of personal competence. In the interim, some small feeling of repair happens when adults help young people move away from the

negative state that shame generates and into some experience of success. In the shop, art room, and gym, students successfully climbed the Motivation Ladder to step 2, if only for a short time and in spite of the fact that there was no consensus among the adults observing their performance about how or why their mood changed so dramatically.

STEP 2: THE IMPORTANCE OF PRACTICE

Youth can get seriously, and sometimes hopelessly, stuck between the somatic origins of their learning and motivation problems and the verbal and cognitive strategies used to try to help them. Recent research regarding the role of the cerebellum in the learning process provides important clues about how this happens and what can be done about it. The link between the cerebellum and the motor cortex has been known for some time. What is now becoming clear is that there are important connections to the frontal lobe working memory and attention systems as well. As Sousa (2001) notes, "It seems that the more we study the cerebellum, the more we realize that movement is inescapably linked to learning" (p.230).

The cerebellum is located near the base of the brain, and like the cortex at the top and many structures in between, has a left and right side. Comprising 10 to 15% of the brain's total weight and 40% of its total surface, the cerebellum houses 50% of the brain's neurons (Nicholson & Fawcett, 2001). Normal functioning of the cerebellum is necessary for balance, posture, spatial awareness, and coordinated physical movement (Ratey, 2001). Beyond fine motor skills and rapid motor movements like playing the piano, what is now coming to light is the role of the cerebellum in the development of cognitive skills facilitated by language acquisition, like learning how to read (Nicholson & Fawcett, 2001).

The cerebellum plays a role in the development of both right and left hemisphere functions. Ratey (2001) describes it as the "coordinator of the social brain" (p.305), especially of the attention, arousal, and awareness networks of the right hemisphere, which develop in child and caregiver interactions. The cerebellum enables this socialization process to flow normally because it coordinates the physical movement and sensory processing which allow the child to shift his attention very rapidly between external behaviour, facial expressions, and verbal statements in order to make sense of what is happening around him.

In the area of left hemisphere development, the "verbal self coaching" Levine (2002) associates with learning gross motor skills also happens when learning cognitive skills like reading (Nicholson and Fawcett, 2001). The cerebellum, which plays a major role in all of the muscle coordination necessary for speech, is also active during the practice phase of learning, when students begin talking to themselves about the explanations and instructions they've just heard and are trying to internalize. When tasks are new, brain activity begins in the attention and arousal networks of the

right hemisphere and in the working memory networks of the frontal lobes. The cerebellum connects with both areas and is also active in the internal verbal rehearsal through which what was new becomes more familiar. Over time there is a right-to-left and front-to-back shift, as well as a reduction in the amount of mental energy required as tasks become more automatic and routine (Goldberg, 2001).

Shaywitz (2003) reports this exact shift in brain activity as youth become skilled readers. There are several brain areas active on both the right and left sides when students are first sounding out words, but only the "word form" area in the posterior section of the left hemisphere lights up in brain imaging studies when reading has become fluent and automatic. Dyslexic students present a far different picture. Practice time is much longer and requires so much more frontal lobe conscious effort that reading fluency remains a distant goal. Nicholson and Fawcett (2001) attribute this very slow learning speed to low levels of activity in the cerebellum which negates the practice effect that normally occurs. In between skilled and dyslexic readers, there is an even larger group of students who struggle to learn when sitting in a classroom. They do much better in learning situations where they are able to move in order to stimulate the cerebellum and increase their capacity for internal verbal rehearsal.

Connections between the cerebellum, right brain attention and arousal networks, and the frontal lobes, areas at the base, in the middle, and at the top of the brain, suggest just how integrated brain functioning is in a positive learning state. The fact that fluency in reading starts in an area of the brain responsible for coordinated body movement may mean that activities in the shop, art room, and gym have the potential to do more than just put a halt to the withdrawal process; opportunities for physical movement might be the single most important missing element for successful academic integration, especially for youth stuck on Steps 1 and 2.

USING MOVEMENT TO GET BACK ON TRACK

When childhood obesity comes up for discussion, physical exercise will be at or near the top of most lists of potential solutions. Movement is rarely on anyone's list about how to increase academic learning or make school integration work. One of the emerging principles in brain science is that feedback between the brain and body and between areas controlling movement, emotion, and thinking is "bidirectional" (Ratey, 2001, p.164), meaning that activating one system primes the others. In a crisis situation, when people have to make quick but important decisions, going for a brisk walk to calm down probably does increase their creative problem-solving potential.

Physical activities which require learning a complicated sequence of motor actions do have a positive impact on memory retrieval and creative thinking (Ratey, 2001), as well as on working memory and problem solving

abilities (Levine, 2002). Motor movement in young children, especially during the crawling stage, is crucial for development of the eye tracking and hand-eye coordination skills needed for reading and writing (Ratey, 2001; Hannaford, 1995). An underactive cerebellum affects posture, gait, leg and arm movements, and balance (Nicholson & Fawcett, 2001); movement programs which stimulate these somatic functions to increase learning potential have been developed for struggling students.

The program I've studied extensively and now use most often is Brain Gym. Created by the Dennisons (1994), the exercises in this program target underdeveloped abilities in information processing, as well as low energy levels caused by disruptions in early childhood movement patterns (Hannaford, 1995). Tom was one of the first students in the school program I worked with after taking several courses in the program; I used whole body movement and eye exercises to try to increase Tom's physical coordination and mental energy reserves. After three sessions, I went looking for feedback. His peers were talking to staff about how much better Tom was on the basketball floor; his teachers reported an increase in the effort Tom was putting into academic work; and his parents commented that he was talking more and reacting less to things that were frustrating him at home.

Levinson (2003), whose clinical work with dyslexics opened the door to research about the role of the cerebellum, calls this "transfer of improvement" (p.64). Dyslexic athletes, for example, do better in terms of concentration and memory when they are in training. Because the cerebellum guides the eyes, hands, and feet and connects with several structures in the middle and top of the brain, visual stimulation can create improvement in auditory processing, concentration, or motor coordination. I've seen this transfer of skill acquisition happen many times using the Brain Gym program.

A CHILD CARE PERSPECTIVE ON THE SOMATIC GROUP

Working in a child care setting provided me a unique opportunity to understand who the youth are who are most likely to get stuck and how to help. Focusing on emotional, social, and learning issues, as well as the intersections and transitions between home, school, and community, generated a wide perspective out of which the Motivation Ladder slowly emerged. Sitting in integration planning meetings listening to staff stories about students moving to community school, back home, or both, what became clearer over time was how emotion and learning merge to produce either a positive or negative outcome. The question I started asking was, "Where do emotion and learning processes connect?" Several years of research and reflection led to this answer: in the verbal rehearsal process we now know is crucial for learning, and in the "self talk" strategies, which we've known for some time are important to internal emotional control (Meichenbaum, 1977).

Vygotsky (1978) describes the development of the "planning function of speech" (p.28). For younger children, speech follows action; they talk about projects after they finish making them. Eventually speech moves to the starting line, guiding, planning, monitoring, and controlling action (and facilitating the development of reading and writing skills so crucial for academic success). At first, speech follows right hemisphere nonverbal, emotional expression and play activity. Over time, with the right to left shift, left hemisphere verbal rehearsal abilities assume a leadership role and exercise inhibitory control over right hemisphere processes (Heilman, 2002).

The students who are the most difficult to integrate are those young people whose verbal rehearsal abilities have not developed sufficiently to assume this leadership role. They do better in the shop, art room, and gym because they find it easier to move and then talk, to think backwards rather than forward. Because of the relatively slow rate at which they develop automatic learning skills (faster than dyslexic students but slower than the average student), this can become a vulnerable place to be as they progress in age and grade level but not in reading speed and comprehension. Supportive relationships are necessary to reduce the shame these students often experience and to encourage them not to withdraw. Action-oriented programs build feelings of competence and prevent motivation levels from falling so low that nothing can turn things around. And because physical movement is a more natural learning medium for many of these students, a program like Brain Gym may help them develop the sensory and mental integration they need to speed up and move on.

THE BRIDGE YOUTH CARE WORKERS CAN BUILD

When youth are still at the stage where speech follows action, positive or negative somatic markers which reflect past experiences are the dominant factors in determining their motivation level. The most important therapeutic objective is to help them get to Step 3. According to Goldberg (2001), goal formation is the most critical mental process in self-development. Youth announce their arrival at Step 3 by proposing or responding positively to questions about future goals. As discussions about future direction replace preoccupation with past performance, successful school integration is often right around the corner.

Unfortunately, youth who take too long to get to Step 3 can be very frustrating, leading to lectures and psychological pressure from adults around them about what they should be doing next. As Glasser (1998) comments, "The seeds of almost all our unhappiness are planted early in our lives when we begin to encounter people who have discovered not only what is right for them--but also, unfortunately, what is right for us" (p. 4). Most efforts to push youth up the Ladder end up with them falling back down, and each time they fall down to Steps 1 and 2, relationships and self-esteem take another beating. When whatever support system young people feel they have shrinks to next to nothing, they fall off. And

they will only fall off so many times before the motivation to try again goes to zero and the depressive feelings of being stuck where they are lead to permanent withdrawal. Many youth care workers are specialists at how to avoid this outcome.

Bridges to Step 3 usually involve action-oriented alternative programs led by supportive mentors who are able to help youth look at where they want to go in the future. Every successful integration plan begins with a goal a student has chosen. Because youth are new to the verbal world of Step 3, counselling which incorporates somatic strategies to help them direct tension out of their bodies and visual mediums to maximize clarity produce better results (Gray, 1993; 1996).

Whenever youth are stuck in a right-brain processing mode, there is a definite pause in verbal expression, coupled with a moderate to intense level of emotion rumbling through both mind and body. What makes these moments particularly challenging is that verbal problem-solving efforts usually push youth down rather than up the Ladder. Though they almost never say so, youth who are questioning their competence need the support of sensitive caregivers who will stop talking but stay close. Youth care workers can help with this critical transition by combining emotionally attuned somatic relationships (Step 1) with positive physical movement experiences (Step 2). These basic "repair" experiences will help youth who feel stuck to start thinking about the future.

Youth who know where they're headed are usually ready to learn about reality-testing and problem-solving, Steps 4 and 5. When youth get upset with these discussions, they are somewhere further down on the Ladder. Reviewing goals often triggers the emotional control they need to climb back up on their own. When this happens and a meaningful discussion follows, they have attained a level of internal integration which leads to tackling academic problems head on and successful school integration.

PAYING ATTENTION TO THE PAUSES

Though the focus in this presentation has been on school integration, the Motivation Ladder is also applicable in the process of helping youth move back home. Here is a sample of its relevance.

When emotion and thought are well integrated, people tell what Siegel (1999) calls "coherent life stories." When they speak, their voices are full of energy and the words flow with information about what has happened in the past, what is going on now, and what they hope the future will look like. Parents who tell their life stories in this way are very likely to build supportive attachment relationships with their children.

When there is conflict from the past which produces strong emotional reactions but very little meaningful interpretation of events, parents' stories begin to have pauses, during which they say very little and the emotions they are feeling are expressed nonverbally through posture, facial expression,

body movement, and tone of voice. When this situation continues for a long time, there is a left to right shift and negative somatic markers dominate their thought processes. In this state, their focus is on themselves and they are not attentive to what is happening to their children. In fact, they may appear to be angry at them when they direct the tension they are experiencing out of their bodies and onto anyone who happens to be near by. Rather than being calming and reassuring to their children, parental intervention leads to emotional upset and intensive shame reactions. When this mismatch occurs, kids tumble down the Ladder, with one or two parents close behind. There is very little chance for successful integration when everyone in the family is feeling disconnected and those in charge are threatening to make their current negative somatic state more permanent.

What parents need is what Schore (2003b) calls "attachment repair," someone to stay with them during the pauses who can help them cope with the nonverbal experience of intense emotional upset and finally begin to find the right words to express, understand, and take charge of where they have been and where they now want to go. Parents who get to Step 3 are about to change how their life story will unfold. Having experienced the climb up, they now know what it takes to climb back down, take a child's hand, stay with them through the pauses, and bring them along. Teaching parents about the Motivation Ladder so they can use it with their children provides needed skills. When these skills are taught in the context of a therapeutic relationship, learning combines with feelings of personal connection and self-competence which reinforces the goal of integration as well as the problem-solving efforts which will be needed along the way to make it happen.

References

Bowlby J. (1988). *A secure base: Parent-child attachment and healthy human development.* New York: Basic Books.

Carter, R. (1998). *Mapping the mind.* Berkeley, CA: University of California Press.

Damasio, A.R. (1994). *Descarte's error: Emotion, reason, and the human brain.* New York: G.P. Putnam's Sons.

Dennison, P.E. (1981). *Switching on: A guide to edu-kinesthetics.* Glendale, CA: Edu-Kinesthetics Inc.

Dennison, P.E., & Dennison, G.E. (1994). *Brain gym: Teacher's edition revised.* Ventura, CA: Edu-Kinesthetics Inc.

Gardner, H. (1985). *Frames of mind: The theory of multiple intelligences.* New York: Basic Books.

Gardner, H. (1991). *The unschooled mind: How children think and how schools should teach.* New York: Basic Books.

Gazzaniga, M.S. (1985). *The social brain: Discovering the networks of the mind.* New York: Basic Books.

Glasser, W. (1990). *The quality school: Managing students without coercion.* New York: Harper & Row.

Glasser, W. (1998). *Choice theory: A new psychology of personal freedom.* New York: Harper Collins.

Goldberg, E. (2001). *The executive brain: Frontal lobes and the civilized mind.* New York: Oxford University Press.

Goleman, D. (1995). *Emotional intelligence.* New York: Bantam Books.

Gray, B.A. (1993). Using analogues to slow the tempo and create positive rhythms: A commentary on relationships in child care. *Journal of Child and Youth Care. 8*(3), 59-62.

Gray, B.A. (1996). More analogues: Using visual strategies to create clarity in crisis moments. *Journal of Child and Youth Care. 11*(3), 63-71.

Grinder, J., & Bandler, R. (1976). *The structure of magic II.* Palo Alto, CA: Science and Behavior Books.

Hannaford, C. (1995). *Smart moves: Why learning is not all in your head.* Arlington, VA: Great Ocean Publishers.

Hannaford, C. (1997). *The dominance factor: How knowing your dominant eye, ear, brain, hand, and foot can improve your learning.* Arlington, VA: Great Ocean Publishers.

Heilman, K.M. (2002). *Matter of mind: A neurologist's view of brain-behavior relationships.* New York: Oxford University Press.

Kinsbourne, M. (1988). Hemisphere interactions in depression. In M. Kinsbourne (Ed.), *Cerebral hemisphere function in depression.* Washington, DC: American Psychiatric Press.

Langer, E.J. (1997). *The power of mindful learning.* New York: Addison-Wesley.

LeDoux, J. (1996). *The emotional brain: The mysterious underpinnings of emotional life.* New York: Simon & Schuster.

LeDoux, J. (2002). *Synaptic self: How our brains become who we are.* New York: Viking.

Levine, M. (2002). *A mind at a time.* New York: Simon & Schuster.

Levinson, H.N. (2003). *Smart but feeling dumb: The challenging new research on dyslexia—and how it may help you.* New York: Warner Books.

Meichenbaum, D. (1977). *Cognitive-behavior modification: An integrative approach.* New York: Plenum Press.

Nicholson, R.I., & Fawcett, A.J. (2001). Dyslexia, learning and the cerebellum. In M. Wolf (Ed.), *Dyslexia, fluency, and the brain.* Tinonium, MD: York Press.

Ornstein, R. (1993). *The roots of self: Unraveling the mystery of who we are.* New York: Harper Collins.

Posner, M.J., & Raichle, M.E. (1994). *Images of mind.* New York: Scientific American Library.

Ratey, J. (2001). *A user's guide to the brain: Perception, attention, and the four theaters of the brain.* New York: Pantheon Books.

Schore, A.N. (2003a). *Affect dysregulation and disorders of the self.* New York: W.W. Norton.

Schore, A.N. (2003b). *Affect regulation and the repair of the self.* New York: W.W. Norton.

Shaywitz, S. (2003). *Overcoming dyslexia: A new and complete science-based program for reading problems at any level.* New York: Alfred A. Knopf.

Siegel, D.J. (1999). *The developing mind: Toward a neurobiology of interpersonal experience.* New York: W.H. Freeman.

Sousa, D.A. (2001). *How the brain learns: A classroom teacher's guide.* Thousand Oaks, CA: Corwin Press.

Vygotsky, L.S. (1978). *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Williams, L.V. (1993). *Teaching for the two-sided mind: A guide to right brain/left brain education.* New York: Simon and Schuster.