Instructional Leadership and *Your* Brain:

Using Your Multiple Intelligences to Bring Out the Best in All Students

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Every brain is unique. Each child is special. Leave no student behind. It takes a village . . . We've heard these clichés so many times that today they ring hollow in the midst of active shooter drills and when achievement test scores are front page news. How to remain student focused and hold to one's ideals when your job (or even life) is threatened by the chaotic forces in Washington DC, in the hallway outside your classroom and in students' homes- not to mention inside their own heads?

When Howard Gardner introduced the idea of multiple intelligences in his landmark book, *Frames of Mind* (1983) educators around the globe responded with enthusiasm. The idealistic goal of personalizing instruction and curriculum to engage each student via his or her strengths appeared to be finally within reach. Teachers' imaginations were breaking out of the IQ box that marginalizes many students by failing to recognize the value of their unique brains. Creative lesson plans were devised. Curriculum was re-imagined by teams of teachers. Entire schools were redesigned inspired by the idea that there is more to being smart than an IQ score. There was even an entire issue of this magazine (*Educational Leadership,* Sept., 1997) devoted to the various ways teachers and schools were putting MI into action.

The eight intelligences are linguistic and logical-mathematical (corresponding with IQ and academic skills), intrapersonal and interpersonal (also linked to success in school) and four non-academic intelligences – musical, kinesthetic, visual-spatial and naturalist. Each intelligence is comprised of a complex set of specific skills and performances associated with cultural roles and accomplishment (see Table 1).

More than 30 years of neuroscience evidence into human cognition has built a guiding framework for teachers that provides "power tools" for effective leadership. These are not simple-minded solutions to complex problems. Sadly, there are no silver bullets or magic incantations that will transform struggling students into academic stars. Too often the latest fad proves to be a quick-fix promise that fails to live up to its hype. Even 25 years of high-stakes testing implemented nation-wide has failed to result in meaningful progress despite the investment of hundreds of millions of dollars.

Of course, everyone wants all students to read at grade level and possess math competence, but does this mean drill-and-kill and narrow the curriculum "at all costs"? No. Neuroscience evidence backs up the vision of the multiple intelligences as an educational framework that interfaces between how the brain works and what we do in our classrooms (Shearer, 2018). The question is no longer a hard either / or choice, *Do I engage MI or stick to the standard curriculum?* Because MI includes IQ-academic skills (as noted by neuroscience evidence) the question becomes, *How do I use MI to engage all students for both academic skills building and developing each student's unique intellectual potential?* Mission impossible? Not when each teacher leads and the school culture strives to integrate MI with academics guided by insights from neuroscience.

First, we must dispel two false arguments that strangle innovations inspired by MI and neuroscience and then we can sketch five principles to guide our classrooms of the future. The first myth is that there is no evidence supporting MI theory. In fact, there is a wealth of neuroscience research that provides a coherent scientific model for how the brain processes each of the intelligences and that we each have our own unique neuro-configurations (Shearer & Karanian, 2017). The second myth is that educators blindly follow "neuro-myths" that are

ineffective and a waste of time. It is true that teachers need solutions that are "doable" and not convoluted and unrealistic given the limitations of the hectic school day. The challenge is to merge common sense solutions with a sophisticated understanding of insights from the neuroscience lab.

Multiple intelligences theory provides the ideal framework to help teachers harness the intellectual power of *themselves* as well as each of their students' innate brain power. A teacher is the ultimate culture leader in the classroom and as such needs a rich array of "tools" to cultivate the high performance and equitable learning environment. This is the first principle emanating from neuroscience to enhance brain functioning -- Culture Matters.

Key Idea 1. Creating a Multiple Intelligences-Inspired Culture

Culture is a big idea that is hard to define, but the work of Han, et al. provides insight into the relationship between brain functions and cultural factors. They describe it thus: "The brain is a relational organ… a hybrid of both biological and social influences…culture emphasizes shared ideas, values, beliefs, and practices…" (2013, p. 339 and 352). This description covers a lot of territory, but I put the emphasis on the word *shared*. An MI-inspired culture affirms that each student has a unique MI profile (an idea); each of these intelligences are important (values); strives to develop one's unique potential as an important educational goal (belief); and works to activate strengths in the service of developing limitations and academic skills (practices).

Asking the question, *How am I communicating to students that my classroom values all the multiple intelligences?* is a good first step. Creating an MI-inspired culture is an ongoing process that is only limited by the school leader's imagination. In fact, all eight intelligences can be used to communicate the value of MI, its uses and community benefits—videos, debates,

posters, role playing, MI learning centers, guest lecturers, classroom pets and surveys, school gardens, arts festivals, games and athletic contests (Hoerr, Boggeman & Wallach, 2010).

The MI perspective can bring many benefits to the classroom culture, but Howard Gardner cites the primary importance of personalizing instruction so that students' strengths are activated to promote engagement (1999). This suggestion has proved to be prescient, as a wealth of neuroscience evidence has substantiated the observation that no two brains work in exactly the same way (Mayer, 2017).

Key Idea 2. Every Brain is Unique – Activate Strengths!

It might feel like mission impossible to cater to so many student differences, but MI theory has made this job easier with a convenient and common-sense description of how students think. The MI framework organizes important cognitive abilities logically and with everyday language. Assessing students' MI profiles can be challenging to do correctly. There are numerous MI checklists in books and on the web that lack evidence of validity and credibility. This is a problem because it demeans MI as a scientific theory and encourages short-term thinking by parents, teachers and school administrators. Other forms of MI assessment are available and need to be selected for suitability for your purpose and situation. These include observation scales, MI performances and structured activities, questionnaires and in-depth interviews (Shearer, 2009).

Neuroscience investigators have described how differences in brain structure and function influence fundamental cognitive processes essential to classroom learning such as attention, memory, motivation, decision-making and judgment. Because each student's brain is uniquely wired, it is important that students know self-management strategies attuned to their own profile.

This is of particular importance when they find themselves in environments (or doing tasks) that are not congruent with their strengths or preferences. In such circumstances, intrapersonal intelligence plays a key role in facilitating success.

Key Idea 3. Know Thyself

> Intrapersonal intelligence involves the capacity to understand oneself, to have an effective working model of oneself—including one's own desires, fears, and capacities—and to use such information effectively in regulating one's own life (Gardner, 1983, p. 43).

The self-processing cited earlier as part of one's cultural identity is also a multi-level capacity associated with academic and life success. The study of the "self" has a long history in philosophy, psychology, and, more recently, neuroscience, where an extensive literature has been amassed. This is a complicated set of capacities with profound implications for life success. A student may have great ability in some sphere but if she or he is unable to properly manage his or herself then achievement will be limited and "at risk". Teachers can take an active role in building students' accurate self-understanding through direct intervention and by also incorporating metacognitive activities throughout the curriculum.

Three aspects of intrapersonal intelligence have been investigated by neuroscientists, including self-awareness, self-regulation, and executive functions (Han, et al., 2013) Scientists have focused much of their attention on the cognitive aspects of intrapersonal intelligence but there is a growing body of research that illuminates the importance of emotional awareness and regulation on academic achievement.

Key Idea 4. Embodied Cognition and the Emotional Rudder

It is a mistake to ignore the role of the body and feelings in enhancing learning and thinking. We have come a long way from the day where we believed that feelings merely muddled our logical thinking, or that the brain is somehow detached from the body. Immordino-Yang (2017) and Damasio (2007) have gone even further detailing "a framework that situates the emotional brain and its physiological regulatory functions ecologically, spiraling from bodily behavior to embodied neural functioning to social functioning to cultural functioning. . ." (2017, p. 360].

Jay Seitz (2000) delineates three central cognitive abilities that are associated with the bodily basis of thought: kinesthetic awareness, kinesthetic memory, and motor logic and organization. Each of these levels have implications for instruction and curriculum. Mary Helen Immordino-Yang's (2017) research belies the view that facts and rational thought can be separated from feelings. She describes emotions and feelings as essential rudders that regulate and guide our thinking. They communicate to our brain and bodies how we are to process new information: *Is this information of only temporary and limited importance? Or is it profoundly important and should I make the effort to rearrange my thinking to accommodate it?* These are the kinds of emotional questions that affect how well students learn in a given situation and directly impact motivation. Instructional leaders will add to their power to engage students when they remember to address these unspoken questions in a meaningful way.

Key Idea 5. Make it Mean Something!

Textbooks distill a wealth of knowledge down to a portable and palatable form. Like fast-food in styrofoam containers, they may deliver nutrients that sustain life but tend to be lukewarm, seasoned with preservatives, and uninspiring. What is made by a machine is quickly consumed and just as quickly forgotten. It has momentary but not lasting value until converted

into digestible packets of meaning. Deep learning results from an integration of mind and body and emotions, "Feelings are influenced by powerful, subjective, cognitive elaborations and cultural interpretations of bodily and mental states *in context.* Unlike emotions, feelings are conscious and can sometimes become reportable. *Feelings contribute to self-narratives and meaning-making* (Immordino-Yang & Gotlieb, 2017, p. 349) (emphasis added).

Textbooks may cleverly communicate a wealth of facts, but their meaning must be constructed by the student and this is where the teacher functions like a guide through the wilderness. The construction of meaning is both an intrapersonal process as well as an interpersonal activity. The question, *What does this mean to me?* is not answered in isolation but instead meaning is derived from within layers of relationships with many people. The teacher guides the student's understanding through this relational network that includes peers, family, popular culture, and community role models. From within this matrix emerges the student's authentic voice that leads toward a meaningful role in the adult world.

Cultivate a Big Brain: Education for Wisdom

> An interaction between precuneus and prefrontal cortex has been postulated in states of consciousness characterized by a high level of *reflective self-awareness* (Kjaer & Lou, 2000). (emphasis added)

Self-leadership for life-long learning is the ultimate goal for a person's education—cultivating the knowledge that one has valuable intellectual abilities that can be developed to carve out an adult life. The multiple intelligences perspective greatly enriches this endeavor. Understanding how education can develop intrapersonal intelligence brings us back to the essential integration of the self within a context and a culture. The power of the teacher's voice in this process of identity formation should not be under-estimated. A word from a teacher can change the course of a life. As a personal aside, I still recall the words my sixth-grade teacher

penned on the back of my final report card, *Branton shows leadership potential.* This was big news for a country kid who quietly sat in the back of the room while sixth grade social dramas swirled through the class.

Students depend upon adult guides to facilitate the growth of the best that their brains have to offer. Multiple intelligences provides a map that illuminates the tangle of neurons, lesson plans and cultural values so a path to the future may be followed with confidence—one unique brain at a time – beginning with our own.

Table 1. Multiple Intelligences Core Cognitive Units and Dominant Neural Regions

Intelligences	**Core Cognitive Units**	**Primary Regions**	**Sub-regions**
Interpersonal	-Social Perception -Interpersonal Understanding -Social Effectiveness -Leadership	Frontal Temporal Cingulate Parietal	Medial-Temporal Amygdala Dorsolateral PFC Anterior Cingulate Superior Temporal Sulcus
Intrapersonal	-Self-Awareness -Self-Regulation -Executive Functions -Self-Other Management	Frontal Cingulate Temporal Parietal Subcortical	Prefrontal-Cortex Anterior Cingulate Dorsomedial PFC Lateral Prefrontal Ventromedial
Logical-Mathematical	-Mathematical Reasoning -Logical Reasoning	Frontal Parietal Temporal	Prefrontal Intraparietal Sulcus Inferior Parietal Lobule
Linguistic	-Speech -Reading -Writing -Multimodal Communication of Meaning	Temporal Frontal Parietal	Superior Temporal Gyrus Inferior Frontal Gyrus Broca's Area Posterior Inferior Frontal Gyrus
Spatial	-Spatial Cognition -Working with Objects -Visual Arts -Spatial Navigation	Frontal Parietal Temporal Occipital	Premotor Cortex Motor Cortex Medial Temporal Prefrontal
Musical	-Music Perception -Music and Emotions -Music Production	Frontal Temporal Subcortical Cerebellum	Superior Temporal Gyrus Primary Auditory Cortex Premotor Cortex Basal Ganglia

			Supplementary Motor
Kinesthetic	-Body Awareness/Control -Whole Body Movement -Dexterity -Symbolic Movement	Frontal Parietal Subcortical Cerebellum	Motor Cortex Primary Motor Cortex Premotor Cortex Basal Ganglia
Naturalist	-Pattern Cognition -Understanding Living Entities -Understanding Animals -Understanding Plant Life -Science	Temporal Subcortical	Superior Temporal Sulcus Amygdala Brainstem Thalamus Midbrain Basal Ganglia

Note. Eight forms of intelligences are described by Gardner with several core cognitive components per intelligence. Each intelligence (as well as constituent components) are aligned with specific patterns of neural activation in regions both large and small. Displayed above are the most frequently cited neural regions. Source- Shearer & Karanian, 2017.

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