

How the Multiple Intelligences Can Bring Out the Best in Learners:

Guided by Big Ideas from Neuroscience

Executive Summary

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Every classroom is its own culture. Students walk in with their brains murmuring unspoken questions: *Will I belong here? Will I be successful? Will the teacher value me?* As their leader you are charged with creating the class culture so that it is welcoming to all and conducive to high performance. Culture can be defined as shared ideas, values, beliefs, and practices [1]. A sense of belonging is fundamental for individuals to perform at their best. Consider the discomfort of the art student in the calculus class or the engineering student in drama class. Or the star quarterback in speech class who turns bright red when it's his time to speak. The challenge is to create the culture where all students can find a way in and make progress towards the learning objectives. Of course, there are standards of achievement for the class but there are also each individual's particular learning objectives. The key question is, *How will each student strive towards those goals in the best way possible?*

Researchers in neuroscience labs around the world are daily generating a wealth of data with varying degrees of applicability to the educator's job. This paper highlights how the multiple intelligences* (see Table X for details; to be added) can be deployed in classrooms guided by neuroscience to bring out the best in all students. We will review five Big Ideas and practices.

The first principle is that **Culture Matters**. This means that the school / classroom culture (material, social and psychological) influences the quality of the student's thinking and performance. The main take-away is that the teacher cannot take for granted that students are completely autonomous learners. They depend upon you to create the highest quality culture to enhance thinking, motivation, and effective performance.

The second Big Idea is that **Every Brain is Unique—Activate Strengths!** in the service of learning and maximum performance. As teachers we often fall into the narcissistic fallacy believing that everyone thinks like we do and this is the best (only) way to work. As we look out onto the sea of faces we need to remember that each brain is as different as their faces. There are general similarities (two eyes, a nose, a mouth, ears, etc.) but no two are the same. Even identical twins have brains that operate in their own unique ways. We can be

overwhelmed by these vast differences or we can keep in mind the simple dictum, Look for the Strengths. Ask yourself, *How can strengths be activated to maximize success?*

The third key idea is that all learning begins with the self. The ancient Greeks knew the fundamental value of self-knowledge and carved the words **Know Thyself** over the entrance to the temple of Delphi where kings and generals came seeking wisdom. Today we know Intrapersonal intelligence to be the royal road to learning, life satisfaction, and success. Neuroscience evidence is piling up that confirms the pivotal role that culture plays in the healthy construction of a self-in-relationship-to-others.

Embodied Cognition and Your Emotional Rudder sums up the findings that it is a mistake to undervalue the role of the body and feelings to enhance learning. We have come a long way from the day where we believed that feelings were separate from thinking. Or that the mind is somehow detached from the body. We will review several strategies for activating the body and engaging emotions in the service of learning.

Make it Mean Something! No learning that will last takes place without meaning. A simple example is that you will remember many more words when they are presented in a meaningful way rather than at random. When you are presenting a new or difficult concept to students you often hear the question, *Will this be on the test?* Rather than being exasperated by this question (for the millionth time) keep in mind that just beneath this query may lurk a number of deeper concerns: *Does this make sense to me? How does this relate to what I already know? What does it have to do with my life? How might I use this information in the future? Is this of value to adults in my world?*

Neuroscience principles can guide the use of the multiple intelligences at all levels of the school experience for students. This paper describes how the whole school culture can communicate MI as well as each individual teacher in his or her classroom. Guidance counselors use MI to focus students' attention on their strengths that are matched with career paths. School psychologists look at learning disabilities in a new light. And tutors can help students activate their strengths to memorize, understand, and use new ideas and skills. Examples for these various levels will be used to illustrate specific instances but these examples may well apply to other levels.

Table 1. **Five Ideas from Neuroscience: Guiding a Multiple Intelligences-Inspired Education**

<p>Five Ideas from Neuroscience: Guiding a Multiple Intelligences-Inspired Education</p> <p>Big Idea 1. Culture Matters Cultural Neuroscience and Meaning-making Self-Processing Stereotype Threat Mindset / Beliefs</p> <p>Big Idea 2. Every Brain is Unique—Activate Strengths! Attention Memory Motivation Decision-making</p> <p>Big Idea 3. Know Thyself Self-Awareness Self-Regulation Executive Functions</p> <p>Big Idea 4. Embodied Cognition, Your Emotional Rudder Kinesthetic Awareness Kinesthetic Memory Motor Logic and Organization Dance and Aesthetic Movement Your Emotional Rudder</p> <p>Big Idea 5. Make it Mean Something! Engaging Interpersonal Intelligence Building Intrapersonal Intelligences</p> <p>Cultivate a Big Brain: Education for Wisdom</p>	
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Multiple Intelligences – H. Gardner, Frames of Mind (1983 / 1993)		
Intelligence	Brief Description	Sample Careers
Musical	To think in sounds, rhythms, melodies and rhymes. To be sensitive to pitch, rhythm, timbre and tone.	Choir director Instrumentalist Music teacher Song writer
Kinesthetic	To think in movements and to use the body in skilled and complicated ways for expressive and goal directed activities	Athlete Choreographer Dancer Fitness trainer
Logical-Mathematical	To think of cause and effect connections and to understand relationships among actions, objects or ideas. To calculate, quantify or consider propositions and perform mathematical or logical operations.	Accountant Bookkeeper Electrical engineer s Systems analyst Programmer
Spatial	To think in pictures and to perceive the visual world accurately. To think in three-dimensions and to transform one's perceptions and re-create aspects of one's visual experience via imagination.	Architect Craftsperson Interior designer Landscape architect
Linguistic	To think in words and to use language to express and understand complex meanings. Sensitivity to the meaning of words and the order among words, sounds, rhythms, inflections.	Attorney Journalist Writer Public relations director
Interpersonal	To think about and understand another person. To have empathy and recognize distinctions among people and to appreciate their perspectives with sensitivity to their motives, moods and intentions. Involves interacting effectively with one or more people in familiar	Counselor Nurse Salesperson Teacher
Intrapersonal	To think about and understand one's self. To be aware of one's strengths and weaknesses and to plan effectively to achieve personal goals. Reflecting on and monitoring one's thoughts and feelings.	Clergy Monk Police officer Psychologist Pilot
Naturalist	To understand the natural world including plants, animals and scientific studies. To recognize, name and classify individuals, species and ecological relationships. To interact effectively with living creatures and discern patterns of life and natural forces.	Biologist Farmer Meteorologist Veterinarian

