

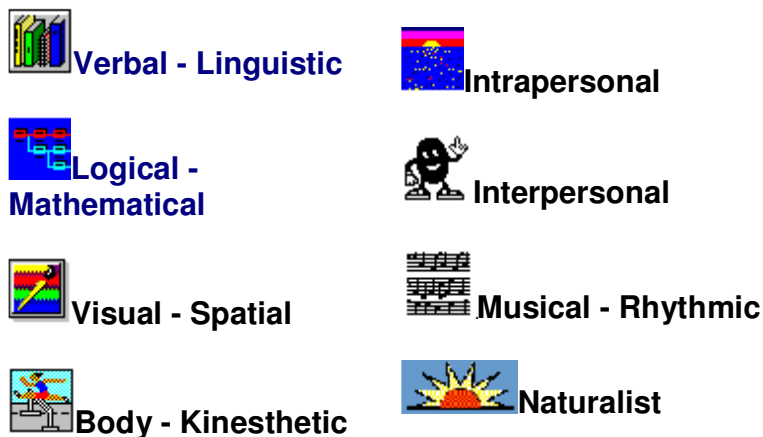
Howard Gardner's MULTIPLE INTELLIGENCES:

A Minority View: Musical Intelligence

by Johnny Reinhard

Education has been shaken by the insights presented by Harvard professor Howard Gardner. No longer can educators see intelligence as exclusively divided between the verbal and the mathematical domains. With a range of different semantic realms, human evolutions moved into ever finer gradations. “Intelligence refers to the human ability to solve problems or to make something that is valued in one or more cultures,” proclaimed Gardner regarding his theory (Educational Leadership/September 1997, p. 12). Whether and in what respects an individual may be deemed intelligent is a product in the first instance of his genetic heritage and his psychological properties, ranging from his cognitive powers to his personality dispositions (Multiple Intelligences, Gardner, 1993, p. 51). Gardner believes, “Intelligence is a biopsychological potential.”

Howard Gardner found himself living in an America employing a paradigm of two recognized intelligences in its education philosophy, both of which have been exhaustively described in the literature. Gardner described seven distinct intelligences in his book Frames of Mind as a response. Gardner would add an eighth intelligence. In a speculative final analysis, Gardner imagined many yet to be discovered, perhaps as many as 7,000, to be defined and to be explored, and to be useful in the education of youth. Linguistic intelligence (1) and logical-mathematical intelligence (2) are the new streamlined categories to survive the old dichotomy. Spatial intelligence (3) generalizes the sculptor’s sense, as well as anatomy and topography expertise. Bodily kinesthetic intelligence (4) brings in the dancers and actors. Musical intelligence (5) is included in all its apparent inscrutability. Interpersonal intelligence (6) gains information from other people, while intrapersonal intelligence (7) is a kind of metacognition, a deep knowledge of self, of limitations, and of abilities. Naturalist intelligence (8) takes stock of the constant variations of nature with clear interpretation and sharp analysis and memory skills.



Gardner’s first book, Frames of Mind, listed musical intelligence second, after verbal intelligence, admittedly to distinguish them from each other. In other words, they are paired.

Indeed, recent studies converge on the right anterior portions of the brain with such predictability as to suggest that this region may assume for music the same centrality as the left temporal lobe occupies in the linguistic sphere (Gardner, *Frames of Mind*, p. 120)

In his second book, *Multiple Intelligences*, Gardner starts with a focus on musical intelligence. Gardner nevertheless writes, “Musical intelligence is the fourth category of ability we have identified” (*Multiple Intelligences*, p. 9), presumably reflecting the chronological order in which Gardner, himself recognized each of the distinguishable intelligences. The order of these eight different demarcations of intelligence should not be placed in any order for they do not signify hierarchy. In fact, any one of the intelligences could be dominant for an individual. Music intelligence is recognized by Gardner as often appearing earliest in young children.

It is important to emphasize that everything Howard Gardner says or writes about music exclusively uses verbal intelligence. Gardner immortalized the “highly articulate” composer Roger Sessions’ comments in a perhaps inadvertent emphasis of verbal intelligence: “Sessions goes to great pains to indicate that language plays no role in the act of composition” (*Frames of Mind*, p. 102-103). And references serialist composer Arnold Schoenberg, a pedagogue who provided the method for music composition taught at American Universities, largely because it was among the only published writings on the subject (e.g., Princeton University, Columbia University).

Music intelligence understanding is widely considered ineffable by musicians. Good ensemble playing, whether in a string quartet or a rock band, is largely non-verbal. Musical cues are initiated by head bobs and instrument movements in the air. There is a popular saying - talking about music is like dancing about architecture. Music intelligence provides the necessary immersion for interpersonal skills development in that deeply communicating nonverbally with others improves social interaction, strengthens communication, and encourages empathy. Intrapersonal skills are developed significantly through regular practice, for the mind is set free during practice sessions. (It has been said that Stalin went after the instrumentalists because their minds were unavoidably freed up to contemplate true freedom for the Russian people, and thus deemed too dangerous to continue, leading to arrests.)

A stark preference exists in American society represented by the saying, “you have to see it to believe it.” Although sound is both music producing and word producing, we have the admonition, “you must be hearing things!” The American school system (except in very few cases) favors verbal over music seemingly for obvious reasons. However, after studying the experiences and outcomes of children with disabilities, music (as well as dance) led the way in making a quantum leap for such children. Ironically, music is being eroded at this time, or dropped in schools all over the nation. Contrary to the practice of teaching the elements of music, one element after another, is incorrect. Musical intelligence asserts that the elements of music proper must not be taught independently, to the exclusion of the others. The study music linearly, one element after another, actually delays the music sense. Experience teaches all music educators that one must strive to be “musical” in working with the elements (e.g., rhythm,

notation, theory, fingerings, pitch accuracy, etc.) from the beginning of the instructions in order to progress further afield at a faster rate.

The explanation for the ability of children with disabilities to enlist music making as a catalyst to greater success is considerable. Firstly, only in instrument playing does a person use both hemispheres so equally, as both hands must be independent of the other (e.g., piano, violin, clarinet, drums). It is difficult to think of another profession that uses both hands with such intricacy, and simultaneously. Secondly, music provides a conduit for emotional expression. Even when there is clear brain damage, a part of both hemispheres works together in real time during instrumental playing. Thirdly, due to the increasing blends between intelligences, music achievement converts to other intelligences. In my case, music taught me how to hear number relationships (originally training with a Korg 212 tuning machine). Working as a microtonalist (founder and director of the American Festival of Microtonal Music since 1981), I regularly compose and perform in 1200 notes per octave temperament. As it happens, my life's work is on temperament, albeit musical temperament (Reinhard, Bach and Tuning). Ratios represent specific musical intervals to me that I have learned to produce. My math intelligence has significantly improved as a result of my music accomplishment, so that I am now a successful teacher of math in public schools and in colleges. (In Autumn 2009, I taught *The Mathematics of Music* at Bard College to cover the sabbatical of a professor.)

It should be underscored that the philosophy espoused by Gardner is pedagogically based, and it is equally important to point out is that there are always blends with different proportions of the other designated intelligences. Gardner is crystal clear,

...we do not wish to imply that in adulthood intelligences operate in isolation. Indeed, except for abnormal individuals, intelligences always work in concert, and any sophisticated adult role will involve a melding of several of them (*Multiple Intelligences*, p. 17).

At the same time, Gardner determined that these multiple human faculties, the intelligences, are to a significant extent *independent* (*Multiple Intelligences*, p. 27) based on his criteria, and based on a neurological basis in the brain.

In fact, however, nearly every cultural role of any degree of sophistication requires a combination of intelligences (*Multiple Intelligences*, p. 26).

It is a misunderstanding to think here of skills in the abstract. Nor are we speaking of visual learners, or audio learners, per se. The perspective is from Gardner's definition of the concept of intelligence is of cultural problem solvers of evident value, who draw their sense of reality from their greatest strengths. In *Frames of Mind*, Gardner announced that he has nailed a spot in the pantheon of intelligences for musical intelligences based essentially on skills.

A brief consideration of the evidence suggests that musical skill passes the other tests for an "intelligence." For example, certain parts of the brain play important roles in

perception and production of music. These areas are characteristically located in the right hemisphere, although musical skill is not as clearly 'localized,' or located in a specific area, as language (Multiple Intelligences, p. 17-18).

Gardner gives further evidence for musical intelligence, besides skills and physiognomy, as core to the MI theory. "Even though musical skill is not typically considered an intellectual skill like mathematics, it qualifies under our criteria. By definition it deserves consideration, and in view of the data, its inclusion is empirically justified" (Musical Intelligences, p. 18). The right hemisphere of the brain is responsible for the holistic relationship of tones into chords, or harmony. The left hemisphere generates melodies and direction. This is stated as music intelligence, not necessarily as published science.

If I was to grade myself in terms of the prodigiousness of my eight intelligences (using general descriptors), they would appear in the following order, with music clearly dominant:

Music
Verbal
Intrapersonal
Interpersonal
Spatial
Natural
Math
Kinesthetic

As a result, from a music intelligence point of view, all the other intelligences can be enhanced through consistent development. For example, learning to hear numbers as representative of a myriad of microtonal intervals in music helped improve my math understanding. Music transposition, the moving from one key to another, is an example of spatial intelligence, in that the music ability to circumnavigate musical keys brings knowledge of form and geometry, a sense of having "hands on" experience. A ratio is experienced as a musical interval, and each ratio has a single unique sound, a character onto itself, much as 98.6 degrees of temperature in the human body is distinct from 99.6 degrees in terms of a person's health.

Creativity, the attacking of problems from many different directions simultaneously, when applied deeply in any single intelligence, is applicable to other intelligences. Maybe this will be described neurologically someday soon. This is analogous to the idea that a PhD in one field joins a club with all other PhD's as a result of the level of study they endured successfully. My fingers on a bassoon, as a virtuoso improviser, are dancing at the highest levels of precision and grace. In music

performance, I do not think of “where” to put my fingers, they appear to know for themselves. I cannot merely press and blow to elicit a proper musical sound; I must first imagine the sound I want to produce in my mind - for seconds - before it can be initiated to audibility. As an educator reading stories to grade school children, I look ahead to the punctuation mark at the end of the sentence so I know how best to express the intent of the writer. This necessary aspect to sight reading a book for children may seem obvious, but it is much more advanced in music making. A player learns to hear the music in their heads for some seconds before actually starting to play. Imagination development is tangible to the music maker because the performer must hear music “in the head” before sound is emitted for another person to hear. The longer the line that is auditioned in the mind before it is played, the greater the canvas for improvisatory play.

The aural imagination is simply the working of the composer’s ear, fully reliable and sure of its direction as it must be, in the service of a clearly envisaged conception (Frames of Mind, p. 101).

Of course, this could be transposed to an “architect’s mind” or a “choreographer’s composition.” Try to answer this question to a student: How do you play a dissonance - the playing of two adjacent notes on the piano simultaneously? (harder or softer?)

The answer is harder. Attempting an explanation to a student, I would say that the risk of the dissonance being heard as a mistake is too great not to play it louder in order to distinguish its intent. Admittedly, this explanation is torturous. But the musically intelligent accept this definition as necessary for a phenomenon they feel assuredly, but find largely ineffable. The only other alternative for the teacher is to simply demand the student play it louder, bring their attention to the result, and pretend ask, “Sounds better, yes?”

According to Gardner, musical intelligence is “another autonomous intellectual competence” (Frames of Mind, p. 98). However, verbal ability is somewhat rare among professional musicians. John Lennon may be considered exceptional in this regard, although he never learned to read music notation. This conditions results in few defenders for music education in the schools, since an argument fought in the public arena requires exceptional verbal intelligence to make any difference.

Howard Gardner’s explanations are excellent in large part because he recognized that children often exhibit music intelligence before all the others. Music intelligence dictates that is the musical intervals that signals meaning in music expression, but Gardner speaks of musical tones, as particular points of reference to press, quite different from the focus on the space between said tones, and this represents a completely different focus on the facts (Frames of Mind, p.102). Throughout his oeuvre, Gardner refers only to a series of tones, fooled by the theory of equal temperament wherein each major scale is identical with every other, lowered or raised by preset equally distant semitone intervals (measured at $1/120^{\text{th}}$ of an octave (the doubling of a pitch frequency)). No musician of variable intonation would play 12-tone equal tempered semitone interval that exactly. But it is not because it is so difficult, but because it is unmusical. Its inherent

difficulty can be navigated. Once again, because it is unmusical. The piano suffers a compromise when it is tuned thus. Special education is all about setting up relationships, and this is the very metaphor of a musical interval.

The education world's understanding of a child's temperament with its nine distinctions is represented in music by the compromises that are made between what is produced independently in nature as with the harmonic series, for greater ease in modulation. The harmonic series is a mode in the mathematical sense in that the fundamental generates all other frequencies, well beyond human hearing range. Modulation shifts the mode to begin a new pitch frequency, but the explicit relationships remain the same. 12-tone equal temperament offers the redundancy of 12 different pitch heights that are useable in a piece of music, reproducible throughout seven octaves, but it is the most restricted environment. Therefore, it is not the theory to use to measure musical intelligence.

It was once thought that the Flathead Indians did not have a music theory (because the music theorists in the tribe had decided not to share the information with the ethnomusicologist).

It was once thought that the Maori of New Zealand were incapable of singing in unison and in homophony (which was the basic style of their indigenous music). Thanks to Steven Feld, we know that the Kaluli tribe in New Guinea use metaphors of nature to describe all of their musical terms. We can learn from different peoples to better understand our own musical intelligences for some of the same reasons that anthropologists use, to better understand ourselves.

Here in the United States there is a huge disconnect between music practitioners and the real world. Berger Rond implies in Facebook on March 24, 2011, as I was writing this paper, music is not corporate in that it does not make money. As education continues in the corporate direction it will be diminished further. Rond warns against listing the word "composer" on one's curriculum vitae when looking for employment.

ONE word to avoid in C.V. Word "Composer". It has secret energy that says to people who hire not to do it and go pre-existing music. Give me THE words :
C for Creative ; O for Orgasm ; M for music ; P for precious ; O for Out ; S for Secret ; E for Esthetical ; R for Radical. All things people who hire are afraid of and will never understand in their lives.

Bibliography

- Checkley, Kathy. The First Seven and the Eighth: A Conversation with Howard Gardner, Educational Leadership/September 1997, p. 12.
- Gardner, Howard. Frames Of Mind: The Theory of Multiple Intelligences, BasicBooks, 1984.
- Gardner, Howard. Multiple Intelligences: The Theory in Practice, BasicBooks, 1993.
- Reinhard, Johnny. Bach and Tuning, American Festival of Microtonal Music, New York 2010.