

ON MULTIPLE INTELLIGENCES

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► INTRODUCTION

MANY KINDS OF INTELLIGENCES

In what ways are students "smart"?

Do you have some who can create beautiful pieces of visual art? Are others gifted in sports, making complex series of physical movements which appear graceful and effortless? Some may play a musical instrument so well that listening touches the chords within. A few may thrill to the challenge of mathematical precision. Others may love writing and have already learned the excitement of seeing their own stories or poems in print. Several may be natural leaders offering positive role models and trusted guidance to their classmates. And a few may possess penetrating personal insights about who they are and what they stand for, while pursuing important life goals. Among the students mentioned, who would be the most intelligent? The question is impossible to answer because each of the examples represents students who have developed different intelligences. Each student is unique and all in individual ways offer valuable contribution to human culture.

As teachers how we educate our students in the 21st century? Do we create "smart environment" for our students to live and to learn? The new field of research on "distributed cognition" suggests that intelligence extends beyond individuals and is enhanced through interactions with other people, through resource materials in books and data-bases, and through the tools we use to think, learn, and problem-solve such as pencils and paper, notebooks and journals, calculators, and computers.

Take a moment to reflect upon our classroom environment. How is it "smart?" Are there sufficient opportunities for students to interact with each other in pairs, small groups, or as a whole class? Are resources available in the form of books, magazines, other publications, bulletin boards, artwork, posters, computers, databases and networks? Are there plenty of tools to use in learning and problem solving? Do students have their own journals? Do we find ways to create environments that foster the development of all the intelligences? Do we give our students opportunities for the creative exploration of their individual interests and talents while also learning valued skills and concepts through multimodal means? Not all students exhibit the same intelligence profile,

nor do they share the same interest. In an age of exploding information, none of us can learn everything, choices ultimately must be made about what and how we will learn. In making such choices, the student's individual inclinations and interests should guide some of their curricular options. (Campbell, 1996).

The basic knowledge that all students must master, such as mathematics, history, language arts and science does not need to be taught in the same manner for everyone. Frustrations and academic failure might be greatly reduced if teachers present information in numerous ways offering students multiple options for success. Teachers should acquire "intelligence fair" methods of perceiving students and their talents, of designing curriculum and assessment approaches and of nurturing individual capacities so that each child may experience the pleasure of gaining skill in an area of intrinsic interest. (Dunn, 1992).

Let us reinforce the fine work that many teachers are already doing to serve as a resource of ideas that may be new to some. Let us work toward the same goal: to free the learning potential and creative expression of each student.

Definition of Human Intelligence

Dr. Howard Gardner, Co-Director of Project Zero and Professor of Education at Harvard University, has for many years conducted research on the development of human cognitive capacities. He has broken from the common tradition of intelligence theory, which adheres to two fundamental assumptions: that human cognition is unitary and those individuals can be adequately described as having a single, quantifiable intelligence. (Campbell, 1996).

In his study of human capacities, Gardner established criteria by which to measure whether a talent was actually intelligence. Each intelligence must have a developmental feature, be observable in special populations such as prodigies, provide some evidence of localization in the brain, and support a symbolic or notational system.

While most people possess the full spectrum of intelligences, each individual reveals distinctive cognitive features. We possess varying amounts of the seven intelligences and combine and use them in highly personal ways. Restricting educational programs to focusing on a preponderance of linguistic

and mathematical intelligence's minimizes the importance of other forms of knowing. Thus many students who fail to demonstrate the traditional academic intelligences are held in low esteem and their strengths may remain unrealized and lost to both the school and society at large.

Not only did Gardner's research reveal a wider family of human intelligences than previously believed, but he also generated a refreshingly pragmatic definition of the concept of intelligence. Instead of viewing human "smartness" in terms of a score on a standardized test, Gardner defines intelligence as:

- The ability to solve problems that one encounters in real life.
- The ability to generate new problems to solve.
- The ability to make something or offer a service that is valued within one's culture.

In his 1983 book, "Frames of Mind", Gardner presented his Theory of Multiple Intelligence that reinforces his cross-cultural perspective of human cognition. The intelligence is languages that all people speak and are influenced, in part, by the culture into which one is born. They are tools for learning, problem solving, and creating that all human beings can use.

A Description of the Seven Intelligences:

- Verbal – Linguistic intelligence consists of the ability to think in words and to use language to express and appreciate complex meanings. Authors, poets, journalists, speakers, and newscasters exhibit high degrees of linguistic intelligence.
- Logical – Mathematical intelligence makes it possible to calculate, qualify, consider proportions and hypotheses, and carry out complex mathematical operations. Scientists, mathematicians, accountants, engineers, and computer programmers all demonstrate strong logical-mathematical intelligence.
- Visual-Spatial Intelligence instills the capacity to think in three-dimensional ways as do sailors, pilots sculptors, and architects. It enables one to perceive external and internal imaginary to recreate, transform, or modify images, to navigate one self and objects through space, and to produce or decode graphic information.
- Bodily-Kinesthetic intelligence enables one to manipulate objects and fine-tune physical skills. It is evident in athletics, dancers, surgeons, and craftspeople. In Western societies, physical skills

are not highly valued as cognitive ones, and yet elsewhere the ability to use one's body is a necessity for survival as well as an important feature of many prestigious roles.

- Musical Intelligence is evident in individuals who possess sensitivity to pitch, melody, rhythm, and tone. Those demonstrating this intelligence include composers, conductors, musicians, critics, instrument makers, as well as sensitive listeners.
- Interpersonal Intelligence is capacity to understand and interact effectively with others. It is evident in successful teachers, social workers, actors or politicians. Just as Western culture has recently begun to recognize the connection between mind and body, so too has it to come to value the importance of proficiency in interpersonal behavior.
- Intrapersonal Intelligence refers to the ability to construct an accurate perception of oneself and to use such knowledge in planning and directing one's life. Some individuals with strong intrapersonal intelligence specialize as theologians, psychologists, and philosophers.

Intelligence should not be limited to the ones already identified. However, these seven intelligence provide a far accurate picture of human capacities than do previous unitary theories. Contrary to the small range of abilities that many standard IQ tests measure; Gardner's theory offers an expanded image of what it means to be human. He also notes that each intelligence contains several sub-intelligences. For example, there are sub-intelligences within the domain of music that include playing music, singing, writing musical scores, conducting critiquing and appreciating music. Each of the six other intelligence has also encompass numerous components.

Another aspect of the Multiple Intelligences is that they may be conceptualized in three broad categories. Three of the seven-spatial, logical-mathematical, and bodily kinesthetic, may be viewed as "object-related" forms of intelligence. These capacities are controlled and shaped by the objects which individuals encounter in their environments. On the other hand the "object-free" intelligences, consisting of verbal-linguistic and musical, are not shaped by the physical world but are dependent upon language and musical systems. The third category consists of the "person-related" intelligences with intrapersonal intelligences reflecting powerful a set of counter balances. (Boggeman, 1996)

Each intelligence appears to have its own devel-

opmental sequence, emerging and blossoming at different times in life. Musical intelligence is the earliest form of human giftedness to emerge. Gardner suggests that excelling at music as a child may be conditioned by the fact that this intelligence is not contingent upon accruing life experience. On the other hand, the personal intelligences require extensive interaction with and feedback from others before becoming well developed (Gardner, 1995)

Gardner believes that since each intelligence can be used for good or ill purposes all seven are inherently value-free. Gandhi both had strong interpersonal intelligence but applied it in dramatically different ways. How an individual goes about using his intelligence within society is a moral question of crucial importance.

It is evident that creatively can be expressed through all the intelligences. However, most people are creative within a specific domain. For example, although Einstein was gifted mathematically and scientifically he did not exhibit equal genius linguistically, kinesthetically, or interpersonally. Most people appear to excel within one or two intelligences. (Gardner, 1993)

As teachers, let us create open systems of education to make it possible for the human mind – which can be the most open of systems – to flourish. Not all human beings will become great artist, or musicians, writers, but every human life will be enriched through developing many kinds of intelligence to the greatest extent possible, when individuals have opportunities to learn through their strengths, unexpected and positive cognitive, emotional, social, and even physical changes will appear.

With the global emerging village, ours now is a world for global citizens, a world of multiple intelligences both individually unique and mutually reinforcing. We must then prepare our students to become masters, not to other persons, but of themselves and their own destinies. We must keep and help them appreciate the creative dynamics between personal fulfillment and social responsibility.

We must make our students national citizens – intelligent, competent, confident, creative, responsible, appreciate of their native culture and history. And yet, we must make our students global citizens: competitive and productive, forward looking and pio-

neering. (Tenedero, 1998). This is a huge task and it begins with education, at home, in school, and is in the community.

Towards this end, everyone concerned-parents, guardians, teachers, school officials, researchers, psychologists, law makers and policy-makers, government and public educational institutions – must pour concerted, conscious and continuing efforts into a review and reformulation of the educational system. We must breakdown the walls of ignorance, myth and complacency and in their place build bridges of new knowledge and new methodologies, new ways of thinking, doing and being.

Quality education is the bridge we must build for our students. Making use of their multiple intelligences, they will be able to cross over this bridge successfully into the new century, into the empires of the future. Let this be our task today, our project, our dream, and our lasting heritage to our students.

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