

Multiple Intelligences: Theory, Up-Date and Applications in the Classroom

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“From my perspective, the essence of the theory is to respect the many differences among people, the multiple variations in the ways that they learn, the several modes by which they can be assessed, and the almost infinite number of ways in which they can leave a mark on the world.” Howard Gardner (1994)

Early 1900 Alfred Binet and a group of peers focused their attention on developing a method of identifying grade school students that might fail in their studies so as remedial efforts could be taken with these students. The efforts of the group resulted in the first examples of intelligence tests that eventually were adopted in the United States. This also established the ill-conceived notion that intelligence could be measured and reduced to a number referred to as a person’s IQ.

Intelligence testing still continues to this day, but fortunately there are individuals such as Howard Gardner who challenge the premise of single number IQ. In the book *Frames of Mind* (1983), Gardner challenged the narrow definition of intelligence by proposing the Multiple Intelligences (MI) Theory and initially proposed the existence of seven basic intelligences. The list of intelligences has expanded which will be later discussed.

Original Seven Intelligences

Before an “intelligence” is accepted or classified, it must meet eight criteria that Gardner has established. The explanation and dissection of the eight criteria must be reserved for another time due to the complexity of the criteria. Suffice it to say the criteria are rooted in the biological sciences, logical analysis, developmental psychology, and traditional psychological research. What follows are the original seven intelligences with a brief description of each.

- **Linguistic:** Capacity to use words orally or written. This includes effectively manipulating the structure, phonology, and semantics of language. Examples: politicians, lecturers, authors, poets, journalists.
- **Logical-Mathematical:** Enhanced capacity to use numbers and/or reasoning skills. This intelligence includes the ability to discern and interpret logical patterns and relationships, cause-effect, functions and other abstract functions. The individual uses skills such as categorization, classification, inference, and hypothesis testing. Examples: scientist, computer programmers.

- **Spatial:** Ability to understand the visual-spatial environment and produce changes upon that environment. This involves ability to perceive the relationship of colors, lines, shapes, and space and their interactions. Examples: wilderness guides, inventors, artists, architects.
- **Bodily-Kinesthetic Intelligence:** Ability to use the whole body to express one's ideas and feelings, and use of the hands to bring about change. This skill includes the use of physical skills such as coordination, balance, dexterity, speed, etc. as well as tactile skills. Examples: surgical technologists, actors, dancers, athletes, sculptors, mechanics.
- **Musical:** Capacity to express, perceive, and transform through the use of musical forms and styles. The intelligence involves sensitivity and recognition of pitch, rhythms, and timbre. Examples: composers, music critic, musical performer.
- **Interpersonal:** Ability to recognize and distinguish the types of moods, feelings, and motivations of people. This includes "picking up" facial expressions, body movements, and tone of voice to interpret the interpersonal cues. But more importantly, not just recognizing these cues, but using them to influence an individual or group of people to act in a certain way.
- **Intrapersonal:** Knowing oneself and be able to use this self-knowledge to act according to various situations. This includes knowing oneself strengths, weaknesses, limitations, motivations, temperament, desires, and moods. Intrapersonal also involves the ability for self-discipline.

Important Factors of MI Theory

- All people possess all seven intelligences. MI theory is a theory that describes cognitive functioning, therefore it does not limit itself in that only a certain type of person possesses all of the intelligences; it proposes that all people possess the intelligences, but in varying degrees. Additionally, the functions and mixing of the intelligences is unique to each individual. The majority of individuals display one or more highly developed intelligences, one or more that are moderately developed, and one or more that are underdeveloped.
- Everyone has the capacity to develop all intelligences to a high level. Gardner has stated that everyone has the capacity to develop each intelligence from a moderate to high level of development given the opportunity to develop the intelligence, encouragement, instruction, and means for development.

- Intelligences interact and work together. No intelligence stands alone; intelligences are always interacting with each other. For example an athlete: (1) Requires bodily-kinesthetic intelligence, i.e. run, jump, catch, hit; (2) Linguistic intelligence – communicate with other team members, communicate with coaches, argue points with referees; (3) Spatial intelligence – orient to the playing field or court, anticipate and orient to the trajectories of balls, orient out-of-bounds lines.
- MI theory is a cognitive model, not a process oriented model. Gardner developed the theory to describe how individuals use their inner complexity of intelligences to solve problems, communicate, affect changes in the environment, and produce products.

Eighth Intelligence

In the book *Intelligence Reframed* (1999) Gardner described and added an eighth intelligence to the list: naturalist. An individual that possesses the naturalist intelligence displays knowledge in the recognition and classification of species in her/his environment. Cultures value individuals that can recognize species by their characteristics, physical attributes, and name, and in particular if the species is valuable or dangerous such as poisonous. Cultures also value the fact that the person can categorize and name new species. But naturalist goes beyond taxonomy; the naturalist is at ease in the world of organisms and possesses the ability and desire to care for, tame, and interact with species.

Cultures that have not been exposed to formal science still have individuals who have the naturalist intelligence such as the “healer” in a tribe; in cultures in which science is formalized, the naturalist include biologists, environmentalists, horticulturalists, landscapers, forest rangers, and wildlife guides.

The abilities of the naturalist are established in the history of evolution. The survival of an organism, such as the hominids, depended on its ability to recognize similar species, avoid dangerous species such as predators, and identify those that could be helpful such as prey for food and clothing.

Determining Students’ Multiple Intelligences

There is no tried-and-true method, test or survey for providing a comprehensive analysis of your students’ MI. The best method for assessing the students is good ole observation. For example, an excellent observation that provides clues to a particular student’s MI is how does she/he spend their free time at school and out of school. Observing how a student chooses to spend their personal-initiated activities can provide an instructor a wealth of information.

Some other methods that can be used as an aid include:

- Review student school records. Look at the courses they have taken, especially the electives and the grades achieved in each course including trends.
- Talk with other instructors, both present and past.

- Talk with parents.
- Talk with the student and ask specific questions as to how he/she thinks they learn.

Curriculum Development

A primary contribution of MI theory to the classroom is compelling instructors to finally expand their methods, techniques and strategies of teaching and go beyond the day-to-day, typical linguistic and logical tools commonly known as lecturing. Classrooms are consumed with instructors who day-after-day perform “teacher talk” – teachers talking “at” students by lecture. These type of instructors are referred to as “talking heads” or “bucket-fillers” (fill the students’ heads with information and more information by lecturing until the “bucket” is overfilled and overflowing). MI theory works to break this narrow and confined method of learning and remedy the one-sidedness to teaching. In doing so, stimulating curricula is developed that serves to awaken the numbed minds of students and reaches beyond the lecture podium and blackboard.

What distinguishes the MI classroom from the traditional? Here are some observations:

- Instructor provides smooth transitions within methods of presentation from spatial to linguistic to logical and so forth. Continuously standing at the front of the classroom, writing on the blackboard, asking students questions about assignments, and waiting for students to finish their work is eliminated.
- The MI instructor will spend a some time lecturing and writing on the board since this is a legitimate method of teaching and the student must be given basic information to work with. However, the MI instructor will draw on the blackboard, show PowerPoint presentations that have illustrations, show a videotape, demonstrate a skill and have the students practice the skill in preparation for return demonstrations.
- MI instructor arranges for the students to interact in pairs, small groups, or large groups on a frequent basis.
- MI instructors allow students time to self-reflect on what they have learned and connect what they have learned to the real world. Some MI instructors will schedule a 5-minute quiet time near the end of each class to allow students to self-reflect and regurgitate in their minds the days’ topics. Then the last 5-10 minutes of class ask the students to share their thoughts, asking that the student discuss how the day’s information affects him/her, not the class.

The following are suggestions of some techniques and materials that could be used when using MI in the classroom. Not every MI is covered in the following, but should provide some ideas for approaching the use of MI in the classroom.

- Linguistic
 - large- and small-group discussions
 - brainstorming
 - storytelling
 - student speeches

- Spatial
 - visualization
 - videos
 - slides – PowerPoint
 - charts, diagrams
 - computer graphics software

- Intrapersonal
 - self-paced instruction
 - 2-3 minute reflection periods
 - options for homework
 - self-teaching programmed instruction

The Classroom Environment

“Nowhere else [but in schools] are large groups of individuals packed so closely together for so many hours, yet expected to perform at peak efficiency on difficult learning tasks and to interact harmoniously.” Carol Weinstein (1979)

MI theory indicates that the classroom environment also requires changes to aid in meeting the learning needs of the students. The following are questions to consider that will provide a context for the instructor to ask herself/himself, “What am I doing or not doing that promotes or interferes with learning and what can I incorporate into the classroom to facilitate learning by the students?”

- Linguistic
 - How are spoken words used in the classroom?
 - Am I, as the instructor, using too complex of terms or too simple based on the students’ level of understanding?
 - How are students exposed to the written word?
 - Are words represented in the classroom through sources such as charts, posters, journals, etc.?

- Logical-Mathematical
 - How is time structured in the classroom?
 - Are the days’ activities properly sequenced?

- Are the days' activities scheduled as such to make optimum use of students' attention spans, i.e. morning is best for academic work, afternoon and evenings best for hands-on, open activities.
- Spatial
 - How are the desks and furniture arranged in the classroom? Is it always one arrangement no matter the activity?
 - Is the room attractive, spacious, and well illuminated?
 - Are students exposed to various visual experiences such as videos, charts, computer, etc.?
- Bodily-Kinesthetic
 - Are the students required to spend a lot of time at their desks or given the opportunity to move around?
- Musical
 - Is the classroom environment interfered with outside noises that disturb the learning processes (traffic noise, aircraft overhead, machines, hallway noise)?
 - Do you, as the instructor, vary the intensity, tone, and inflections of your voice, or is it always a dull monotone that puts the students to sleep?
- Interpersonal
 - Are procedures established to solve conflicts between students, or are the problems always referred to upper administration (vice-president of allied health), for solving?
 - Has an atmosphere of trust been established between the students, and between the students and instructor, or do the students feel alienated and mistrustful of each other?
 - Do the students have many opportunities to interact with one another in positive ways to facilitate the establishment of trust and teamwork, or are they isolated from one another?
- Intrapersonal
 - Are students given opportunities to work independently?
 - Are students given opportunities to work on self-paced projects?
 - Are students given the occasional opportunity to choose how they would like to learn?
 - Are students always subjected to negative experiences, negative criticisms and told they are making no progress (preceptors in surgical rotation are prone to doing this with students), or is a balance achieved between correcting the student and letting him/her know they are successful and providing other positive reinforcements?

- Naturalist
 - Are students given the opportunity to express their knowledge of species as related to the classroom? For example, the study of microbiology related to aseptic technique and/or surgical wound infections.

Conclusion

MI theory has contributed to rupturing the hold that psychometricians have held that there is a single intelligence that can be measured and assigned a number. IQ tests will most likely continue to exist for the purposes of some individuals. However, the most important fact is that educators now acknowledge students have varying learning styles and possess varying strengths and limitations of intelligences. MI theory has contributed to instructor's improvement in the art of teaching and meeting the learning needs of students, in particular the student that is struggling in the classroom. It is another tool for the instructor to draw upon to develop a classroom environment that empowers the instructor and students.

Bibliography

Armstrong, T. (1994). *Multiple intelligences in the classroom*. Alexandria, VA: Association for Supervision and Curriculum Development.

Gardner, H. (1999). *Intelligence reframed*. New York: Basic Books.

For Further Information on MI Theory

Campbell, L., Campbell, B., & Dickinson, D. (1993). *Teaching and learning through multiple intelligences*. Tucson: Zephyr Press. Very good source of teaching strategies.

Gardner, H. (1993). *Frames of mind: The theory of multiple intelligences*. New York: Basic Books. This is the bible of MI theory.

Gardner, H., & Thomas, H. (November/December 1998). New research on intelligence. *Learning* 17, 4: 37-39. Excellent introductory article on MI theory for instructors that provides the basics of the theory.

Lazear, D. (1991). *Seven ways of knowing: Teaching for multiple intelligences*. Palatine, Ill: Skylight. Another very good introduction to MI theory with activities for the instructor to consider using in the classroom.

Newsletter

MI-News. E-mail newsletter. C. Morris (Ed.). Available from Multiple Intelligences Research and Consulting (subscription information: subscribe-mi-news@xc.org)