

Learning Through Multiple Intelligences



Multiple Intelligence (MI) as a perspective is crucial in enhancing the teaching-learning process that assist educators in shaping learners. Such a framework enables educators to identify how children learn, to build on their strongest assets and to help them to enhance their intelligence by exposing them to a variety of ways of learning. Moreover, MI also helps teachers as educators to better individualize the interests and needs of children and to use teaching strategies that make learning more efficient, successful, and enjoyable for all learners. Meaningful learning experiences can be fostered by employing multiple teaching tools and strategies and by building positive, supportive relationships with children that in turn enables learners to engage constructively in the learning process. The concept of multiple intelligence needs to be understood in the light of learning particularly, classroom learning experiences.

What is Multiple Intelligence?

The theory of Multiple Intelligence (MI) was propounded by Harvard University psychologist, Howard Gardner and first appeared in his book, “Frames of Mind: The Theory of Multiple Intelligences” (1983) where he explored the question as to whether mental abilities support a wide range of adult roles over time and across culture.

Rather than defining intelligence in terms of IQ scores, Gardner offered an alternative view suggesting intelligence to be combinations of psychological and biological characteristics that enable individuals to solve problems or create products that are valued in one or more cultures (Gardner, 1999). In other words, intelligence was viewed as a capacity that is developed and expressed within specific social and cultural contexts. This suggests that thinking, problem solving, and creating are valued differently depending on the family and community in which individuals live, learn and work. So, in one context, persistence, sustained effort, and deferred gratification may be more valuable than other attributes. On the other hand, bursts of creativity and story telling might be particularly appreciated in a family where conversation and novelty are valued. However, whatever may be the culture or the social setting, individuals can demonstrate high ability levels according to the theory of MI. Therefore, **Multiple Intelligence theory respects, honours, supports, and nurtures each individual’s intellectual strengths.**

In his theory of MI, Gardner identified the following *eight intelligences*:

(1) Linguistic

(2) Logical-Mathematical

- (3) Spatial
- (4) Bodily-Kinesthetic
- (5) Musical
- (6) Inter-personal
- (7) Intra-personal
- (8) Naturalist

(1) **Linguistic Intelligence** allows individuals to communicate and make sense of the world through language. Those who have a keen sensitivity to language in its spoken and/or written forms might demonstrate this strength as poets, writers, lawyers, and public speakers. Linguistic intelligence is highly valued and rewarded in schools. Moreover, intelligence of this type is referred to as *thinking in words*. For example, *Martin Luther King, Jr.* is viewed as having linguistic intelligence. Individuals with this type of intelligence love reading, writing, telling stories, playing word games, etc. Thus, stories, writing tools, books, debates, diaries and discussion perhaps enable the development of linguistic intelligence.

(2) **Logical-mathematical Intelligence** enables individuals to use, appreciate, and analyze abstract relationships. In most cultures, this capacity is often harnessed in mathematical reasoning and scientific investigations and mathematicians, scientists, and engineers are seen to deploy this intelligence at high levels. **Like linguistic intelligence, logical-mathematical intelligence is emphasized in schools.** For example, *Madame Curie* was seen to possess this intelligence which is also referred to as *thinking by reasoning*. Experimenting, questioning, figuring out logical puzzles, calculating are characteristics of this type of intelligence wherein *exploring and thinking activities, usage of science materials, visits to science museums, etc.,* will assist in the development of this intelligence.

(3) **Spatial Intelligence** enables people to perceive visual or spatial information, to transform this information, and to recreate visual images from memory. Blind people skillfully employ this intelligence, using it to create mental maps of their environments. This intelligence is viewed as the ability to *think in images and pictures* and is commonly seen operating at high levels in architects, artists, surgeons, and pilots. *Pablo Picasso* was said to possess spatial intelligence. Individuals possessing this type of intelligence enjoy activities such as designing, drawing, visualizing, doodling, etc. *Art, legos, videos, movies, slides, mazes, puzzles* enable the development of such an intelligence.

(4) **Musical Intelligence** allows individuals to create, communicate, and understand meanings made out of sound. It is manifested to high degrees among composers, musicians, and acoustic engineers. *Mozart* was one such individual with musical intelligence who

showed *thinking through rhythms and melodies*. This type of intelligence is evident in individuals who love singing, whistling, humming, tapping feet and hands, listening, etc. Hence, *sing-along time, concerts, music playing, musical instruments* might help in developing or even honing this ability.

(5) **Bodily-kinesthetic Intelligence** entails using all or part of the body to solve problems or create products. The intelligence seems to stand in stark contrast to the reasoning that is prized in traditional tests of intelligence. Advanced forms of problem solving and creativity through use of the body are evident in the activities of choreographers, rock climbers, and skilled artisans. *Babe Ruth* was viewed to possess this type of intelligence that is also seen as the ability to *think through somatic sensations*. Individuals with bodily-kinesthetic intelligence love dancing, running, jumping, building, touching and gesturing. Therefore, activities such as *role plays, drama, movements, things to build, hands-on-exercises* help in fostering this type of intelligence.

(6) **Interpersonal Intelligence** is the capacity to recognize and make distinctions among others' feelings and intentions, and to draw on these in solving problems. Successful teachers, actors, therapists, political leaders, and salespeople rely on highly developed interpersonal intelligence. One such person with interpersonal intelligence was the former American President, *Jimmy Carter* whose *thinking was bouncing ideas off other people*. People possessing interpersonal intelligence show traits of leading, organizing, relating, manipulating, mediating and partying. Hence, friends, group games, socializing, clubs, community events are needed.

(7) **Intrapersonal Intelligence** enables individuals to recognize and distinguish among their own feelings, to build accurate mental models of themselves, and to draw on these models to make decisions about their lives. Intrapersonal intelligence is sometimes seen in skillful autobiographies, and, more generally, among those individuals who make sound choices about their life and work. *Gandhi* was one such individual with intrapersonal intelligence possessing the ability to *think deeply within himself*. Thus, goal-setting, meditating, dreaming, being quiet, planning are typical of such individuals. Therefore, secret places, time alone, ability to make choices, self-paced projects, etc is required to develop and sustain such intelligence.

(8) **Naturalist intelligence** finally allows people to solve problems by distinguishing among, classifying, and using features of the natural world. This intelligence is commonly seen in people's ability to categorize different kinds of plants and animals and has been harnessed to the task of distinguishing among human-made objects. It is essential to the work of landscape architects, hunters, archeologists, environmental scientists, and farmers. *Jane Goodall* was naturalistically intelligent since she displayed the ability to *think in organizing patterns*. Hence, exploring flora and fauna, observing animal life, camping, etc., are typical of individuals with naturalist intelligence and thus, outdoors, zoos, arboretums, plant life, exploration, rocks, pets will enable tapping of such intelligence.

The principles of MI theory are briefly outlined below.

Principles of MI Theory

- Each person possesses all 8 intelligences.
- Most people can develop each intelligence to an adequate level of competency.
- Every person is smart to varying degrees of expertise in each of the intelligences, stronger in some ways and less developed in others.
- Heredity and genetics influence the way the brain is neurologically "wired" before birth and are contributing factors that determine the strongest and/or most favoured types of intelligence. This is often seen in children with very strong and overt talents demonstrated at very young ages, such as Mozart, who had started to play and compose music by age five.
- The multiple intelligences usually work together in complex ways.
- There are many ways to be intelligent within each category.

Present researches reveal that one can become more intelligent in different ways and thus students and teachers alike can become more adept in all eight intelligences. There are certain pointers which one must be aware of before applying the theory of MI in our classrooms and these have been enumerated below as **“Brain Basics”**.

Brain Basics

Intellectual capabilities are contingent on a complex interplay between genes and the environment wherein some abilities are acquired more easily during certain sensitive periods, or “windows of opportunity.” These windows of opportunity are those windows or that phase when it is the best time for a child to acquire these intelligences. Therefore, exposure to various stimuli at the very onset of kindergarten is very important to enhance their hidden skills



Developmental Trajectory Windows of Opportunity

Windows	Wiring Window	Enhancement	Lifespan
Thinking Skills Logical- Mathematical Linguistic Naturalist	0-48 months	4 years to puberty	Decreases over time
Physical Skills Bodily- Kinesthetic Spatial	0-24 months	2 years to puberty	Decreases over time
Social Skills Interpersonal	0-48 months	4 years to puberty	Increases with practice
Emotional Skills Intrapersonal	0-48 months	4 years to puberty	Increases with practice
Music Skills Musical	0-3 years	3 years to 10 years	Decreases with time
Language Skills Linguistic	0-5 years	5 years to puberty	Decreases with time

Source (Pam Schiller)

Important points to be noted are:-

- Our bodies release chemicals (cortisol) when under stress that destroys brain connections in children.
- Negative emotions inhibit cognitive processing.
- Our bodies release chemicals (endorphins) when we feel happy and content. Emotions boost memory and assist in cognitive processing.



- The more connections made between new information and existing patterns in the brain, the greater the chances of moving information from working memory to long term memory.
- Intelligence is the ability to recognize patterns and build relationships with these patterns or variations of these patterns.
- **Learning something within a meaningful context increases the speed in which the information travels to long term memory. This is possible by providing a planned cycle of experiences and opportunities which foster each and every intelligence, and by making these opportunities available to every child in our classrooms.**
- By broadening our view of intelligence, and valuing and nurturing abilities other than mathematics and reading, we can open doors by using the strengths of children as a means of complementing their less developed areas.
- Each person has a unique profile. One may be very strong in one or two intelligences, medium in a few, and perhaps weak or empty (not yet filled) in one or two.
- **Consequently, one may have four or five intelligences that are equally developed and two that are less developed. However, the important thing is to identify and build on one's strengths to modify and increase the less developed intelligences in ourselves and in children.**

Teaching Strategies

Before you embark on a journey to develop teaching strategies using MI, reflect on and identify your own strengths and intelligences which are less developed. Identify the “strengths” and “weaknesses” of the children, too.

We naturally rely on and use teaching strategies that match our strongest intelligences. Our strengths, therefore, create unconscious teaching biases. Moreover, when we identify our own less developed intelligences, we may notice that we are untrained in or have avoided using the teaching strategies best designed for developing that intelligence in children. Therefore, it becomes our responsibility first to identify our own strengths and weaknesses and then to stretch and continue our lifelong learning process by developing our own intelligences and only then can we incorporate teaching strategies which support all eight intelligences and meet the needs of all children.

Environmental Strategies to Support Multiple Intelligences

It is important to note that whole group instruction activities dictate that we do the same thing with all or most of the children at the same time. Therefore these activities are among the least effective strategies for meeting the diverse needs and intelligences of young children.

Group activities often meet the strengths of only a few of the children.

The most significant modification we can make to meet diverse needs is by incorporating and using well-planned learning stations or centres where children can spend most of their day.

Learning stations are temporary activity locations where materials are put out and later put away, usually by an adult. Learning centres are permanent locations, visually and spatially defined areas, where materials are organized by subject and available for children to select independently. **These centres are more apt and relevant in the pre-primary and primary classes as in the pre-primary classes; children tend to explore all avenues.** Their strengths can be monitored by observing the corner or centre most frequented by the child. He or she will however not stop at that very centre but will explore other areas as well.

These centres are very useful in identifying the strengths in the pre-primary and primary classes as these can be clear indicators for a teacher to plan her teaching plan. This can further be handed over to the next teacher and so on.

Active Learning Centres for Multiple Intelligences

The following suggested learning centres foster the development of each intelligence and allow children opportunities to build on and expand their strengths.

Verbal/Linguistic

- Library or book-nook
- Listening centre
- Publishing centre
- Flannel board station
- Story time
- Writing centre

Logical/Mathematical

- Math centre
- Science centre
- Take-apart centre
- Puzzle centre
- Recycling centre
- Weather station
- Computer centre (e.g., logical thinking, sequential software)
- Cooking centre

Musical

- Music centre
- Instrument centre
- Singing circle
- Listening centre
- Background music
- Nature sounds

Visual/Spatial

- Art centre (e.g., sculpting dough, collage, painting, drawing)
- Manipulatives (e.g., visual puzzles)
- Block centre
- Media centre (e.g., videos, slides, photos, charts)
- Computer centre (e.g., visual design and layout software)

Kinesthetic

- Gross motor centre (e.g., open space for creative movement, climbing structure, mini-trampoline)

Intrapersonal	Design a dress for Oswald that he can wear on his circle shape
Naturalist	Search for circles in the classroom/bulletin board



Sample MI Lesson Concept: Fractions (part of set)

Linguistic	Read <i>The Doorbell Rang</i> by Pat Hutchins or any other story
Logical-mathematical	Have children fold sheets of paper into fractional parts. Color one section of each paper and write the fraction that shows the relationship of the colored section to the whole set.
Spatial	Draw a picture of three or four items. Circle 1 item to represent the numerator of $\frac{1}{3}$ or $\frac{1}{4}$.
Bodily-Kinesthetic	Play <i>Finding Fractions</i>
Musical	Song by Ron Brown called "Let's Make Fractions."
Interpersonal	Divide sandwiches in two or four equal parts. Share with a classmate.
Intrapersonal	Discuss families. How children represent their fractional part of the family unit?
Naturalist	Have children vote on which of four fruits they like best. Graph the result and express as fractions of the whole.

In the MI framework of teaching-learning, teachers deliver instructions, and assessment is on the basis of strengths of students that is based on the eight intelligences. In addition, when teachers use the multiple intelligence approach, they can teach students to learn almost any concept by using the different ways. **For example**, let's take the concept of learning the continents on earth and show what the learning activity could look like to address the intelligences.

Verbal Linguistic: The child could prepare a report, essay, concept web, teach somebody else about the continents or listen to an audio or video about the continents.

Logical-mathematical intelligence: The child could rank the continents by size and name and or population, would analyze why there may be six or seven continents, would design a quiz or game about the continents, or could compare each of the continents using a specific rationale.

Spatial intelligence: The child could create a mural, poster or drawing. The child could make a diagram or fill in a graphic organizer or story board.

Bodily-Kinesthetic intelligence: The child could construct a model of each of the continents, role play a skit about the continents, play guess the continent by drawing in the air the outline of the continent, or make a paper mache of each of the continents.

Interpersonal intelligence: This student could work in pairs or triads to discover and learn about the continents, could discuss and brainstorm with peers, could survey individuals to gather information or do a group project related to the continents.

Intrapersonal intelligence: The student could work alone on a report, narrative, diagram or journal and consider the various reasons as to why there may be 6 or 7 continents.

Naturalist intelligence: Studying about land is a naturalist's strength. The student could conduct their own research about the continents and make discoveries and comparisons between the continents and his/her own continent. The student could classify the continents based on specific criteria, find out about the habitat and wildlife throughout the continents.

The eight intelligences provide educators with a way to observe students to discover which areas of strength/intelligence they prefer. Learning activities can be individualized for groups of different intelligences. Thus, various activities with the same outcome are a great first step to meeting the varied needs in a student.





Multiple Intelligence Approach in Special Education

The MI framework has been successfully used with a class including children with special needs. **However, what is crucial is the educator's identification of the learners' strengths.** Although all students benefit from using a multiple intelligences approach in the classroom, students with special needs can really benefit since it taps into the existing eight intelligences that augment meaningful learning that perhaps may not be possible in traditional classrooms. Therefore, using MI as a backdrop, educators can begin to perceive children with special needs as whole persons possessing strengths in many areas (Armstrong, 2000).

MI unveils academic strengths and honours alternative ways of learning, which can be highly helpful when educating students identified for special education services. Armstrong (2000) has argued that the theory of MI has broad implications for special education. Because MI focuses on a wide spectrum of abilities, it helps place "special needs" in a broader context. Rather than accepting the "deficit paradigm" which depends on labels, or can be viewed as a medical model, Armstrong maintains that a "growth paradigm" would be more appropriate for students with special needs. Moreover, educators who view special needs in the context of the eight intelligences view all students differently. Numerous educators (Cushner, McClelland, & Safford, 2003; Gardner, 1999; Kornhaber, Fierros, & Veenema, 2004; Perkins, 1992) have argued that the best learning opportunities are those that are most successful for all students. **What may need emphasis, however, is the way in which lessons are specifically tailored to the needs of individual students or small groups of students.**

The application of MI in curriculum can be better understood through the following vignettes below.

Three primary students with ADHD were profiled in an endeavor to understand the application of MI in curriculum especially in relation to students with special needs. These students were found to have highly developed levels of intelligence in areas outside verbal-linguistic and logical-mathematical domains. For example, one student had pronounced cognitive strengths in the area of spatial intelligence despite experiencing difficulty in history which relies on understanding timelines and chronology. As a result, teachers need to be mindful of the means by which the learning needs of students with ADHD can be met by a curriculum driven by MI. **Teachers should focus on ability, or on the student's predominant intelligences.**

MI curriculum provides ways to differentiate instruction for students with ADHD, many of whom find it difficult to succeed in school. Students in special education benefit from teachers' use of MI as a framework for curriculum design and instruction. The following two vignettes provide examples of how MI can guide the choices that teachers make. The following is one example to ascertain how MI can help a child with special needs.

Case study: class 3 students being taught about rivers. Student X having an IQ of 76 (border line IQ)

The student has been going to the resource room for a one on one. His strengths are in spatial intelligence. The special educators with the help of charts, drawings and using material like washing powder, sand, trees and various other material teach the concept.

In the classroom...

(i) The class works together with the teacher as the facilitator or leader to construct meaningful learning based on the theme. In the preparation of the lesson, teachers use MI as a framework to tap into their students' different intelligences. Keeping in mind the child with special needs.

(ii) Children in the class, work in small groups to use their interpersonal intelligence. They complete chalk drawings using their artistic intelligence, river readings their linguistic intelligence, and construct bridges with their logical-mathematical, spatial, and interpersonal intelligences. Child X is included in all the activities thereby including him in the project and making him a part of the class. (The concept has once been done in the resource room and it is further enhanced in the class)

These multiple approaches to instruction provide all students with both the structure and the independence to participate in hands-on learning with their fellow classmates while drawing on students' different intelligences, which gives the students a better chance of succeeding in school.

Moreover, an approach to instruction that motivates students to learn is more likely to have a positive impact on student achievement and, by extension, test scores (Perkins, 1992; Vialle, 1997).

Thus, the intersection between MI and special education is very positive. MI can be used to improve the learning opportunities for diverse learners, and it has a positive impact on both students with special needs and their teachers (Haley, 2004; Kornhaber, Fierros, & Veenema, 2004; Rubado, 2002). **The challenge for teachers is to create learning environments that foster the development of all eight intelligences. Balanced instructional presentations that address MI benefit all learners and strengthen their underutilized intelligences.**

Teachers of diverse students and students with special needs recognize that not all learners excel in the linguistic and logical-mathematical intelligences. MI provides a framework for teachers so they can understand how their students learn. By approaching students with a model that targets their successful learning in a particular intelligence instead of a standard approach that limits learning, students get an opportunity to experience success in school. When students can associate school with a positive experience, for example, because they painted a notable piece of art, they are likely to work and improve in areas where they haven't had as much success (i.e., writing and mathematics).

Finally, MI theory cannot, by itself, address the learning needs of diverse student populations in urban, suburban, or rural settings, but it can change the way teachers think about students and their intelligences. The greatest impact of MI theory lies in the ability of teachers to identify the students areas of intelligence and to organize their instruction accordingly. As a result, teachers can meet the needs of students from multicultural backgrounds and different intelligences. The MI framework promotes diversity and inclusiveness, rather than the "one size fits all" approach to teaching, and such an outlook can help educators and learners alike engage actively and meaningfully in the teaching-learning process.

References

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