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Multiple Intelligence Approaches to Teaching Children

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**Multiple Intelligence Approach to Teaching Children with
Special Needs (SNE...)**

M.Ed., Fourth Semester

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Unit I: Multiple Intelligence Approach and IEP Goals

1.1 Foundation of MI and IEP

After years of research, Howard Gardner proposed a new theory and definition of intelligence in his 1983 book entitled *Frames of Mind: The Theory of Multiple Intelligences*. The basic question he sought to answer was: Is intelligence a single thing or various independent intellectual faculties? Gardner is Professor of Cognition and Education at the Harvard Graduate School of Education. He also holds an adjunct faculty post in psychology at Harvard and in neurology at Boston University School of Medicine. He is best known for his work in the area of Multiple Intelligences, which has been a career-long pursuit to understand and describe the construct of intelligence (Gardner, 1999a).

Gardner describes his work with two distinct populations as the inspiration for his theory of Multiple Intelligences. Early in his career, he began studying stroke victims suffering from aphasia at the Boston University Aphasia Research Center and working with children at Harvard's Project Zero, a laboratory designed to study the cognitive development of children and its associated educational implications (Gardner, 1999a). In *Intelligence Reframed*, Gardner states, Both of the populations he was working with were clueing him into the same message: that the human mind is better thought of as a series of relatively separate faculties, with only loose and non-predictable relations with one another, than as a single, all-purpose machine that performs steadily at a certain horsepower, independent of content and context.

Gardner concluded from his work with these two populations that strength in one area of performance did not reliably predict comparable strength in another area. With this intuitive conclusion in mind, Gardner set about studying intelligence in a systematic, multi-disciplinary, and scientific manner, drawing from psychology, biology, neurology,

sociology, anthropology, and the arts and humanities. This resulted in the emergence of his Theory of Multiple Intelligences (MI Theory) as presented in *Frames of Mind* (1983). Since the publication of that work, Gardner and others have continued to research the theory and its implications for education in general, curriculum development, teaching, and assessment.

Howard Gardner (1993a) stated the nature, nurture and importance of multiple-intelligence; he mentioned various types of human intelligences, and all of the combinations of different types of intelligences. Human beings are different largely because they all have different combinations of intelligences. Recognizing the types and importance of multiple intelligences is helpful in dealing and solving humanistic problems that they face in the world.

a. Foundation of multiple intelligence (MI)

The concept of intelligence multiple intelligence emerged in 1904 where the minister of public instruction in Paris asked the French psychologist Alfred Binet and a group of colleagues to develop a means of determining which primary grade students were "at risk" for failure so these students could receive remedial attention. The test measure for intelligence developed by Benet provided the foundation for multiple-intelligence.

Almost 80 years after the first intelligence tests were developed; a Harvard psychologist named Howard Gardner challenged this commonly held belief. Saying that our culture had defined intelligence too narrowly, he proposed in the book *Frames of Mind* (Gardner, 1993a) the existence of at least seven basic intelligences. More recently, he has added an eighth and discussed the possibility of a ninth (Gardner, 1999). In his theory of multiple intelligences (MI theory), Gardner sought to broaden the scope of human potential beyond the confines of the IQ score. He seriously questioned the validity of determining intelligence through the practice of taking individuals out of their natural learning environment and asking them to do isolated tasks they'd never done before—and probably would never choose to do again. Instead, Gardner suggested that

intelligence has more to do with the capacity for (1) solving problems and (2) fashioning products in a context-rich and naturalistic setting.

Types of intelligence

Once this broader and more pragmatic perspective was taken, the concept of intelligence began to lose its mystique and became a functional concept that could be seen working in people's lives in a variety of ways. Gardner provided a means of mapping the broad range of abilities that humans possess by grouping their capabilities into the following eight comprehensive categories or "intelligences":

Linguistic intelligence. The capacity to use words effectively, whether orally (e.g., as a storyteller, orator, or politician) or in writing (e.g., as a poet, playwright, editor, or journalist). This intelligence includes the ability to manipulate the syntax or structure of language, the phonology or sounds of language, the semantics or meanings of language, and the pragmatic dimensions or practical uses of language. Some of these uses include rhetoric (using language to convince others to take a specific course of action), mnemonics (using language to remember information), explanation (using language to inform), and meta-language (using language to talk about itself).

Logical-mathematical intelligence. The capacity to use numbers effectively (e.g., as a mathematician, tax accountant, or statistician) and to reason well (e.g., as a scientist, computer programmer, or logician). This intelligence includes sensitivity to logical patterns and relationships, statements and propositions (if-then, cause-effect), functions, and other related abstractions. The kinds of processes used in the service of logical-mathematical intelligence include categorization, classification, inference, generalization, calculation, and hypothesis testing.

Spatial intelligence. The ability to perceive the visual-spatial world accurately (e.g., as a hunter, scout, or guide) and to perform transformations upon those perceptions (e.g., as an interior decorator, architect, artist, or inventor). This intelligence involves sensitivity to color, line, shape, form, space, and the relationships that exist between these elements.

It includes the capacity to visualize, to graphically represent visual or spatial ideas, and to orient oneself appropriately in a spatial matrix.

Bodily-kinesthetic intelligence: Expertise in using one's whole body to express ideas and feelings (e.g., as an actor, a mime, an athlete, or a dancer) and facility in using one's hands to produce or transform things (e.g., as a crafts person, sculptor, mechanic, or surgeon). This intelligence includes specific physical skills such as coordination, balance, dexterity, strength, flexibility, and speed, as well as, tactile, and haptic capacities.

Musical intelligence: The capacity to perceive (e.g., as a music aficionado), discriminate (e.g., as a music critic), transform (e.g., as a composer), and express (e.g., as a performer) musical forms. This intelligence includes sensitivity to the rhythm, pitch or melody, and timbre or tone color of a musical piece. One can have a figural or "top-down" understanding of music (global, intuitive), a formal or "bottom-up" understanding (analytic, technical), or both.

Interpersonal intelligence: The ability to perceive and make distinctions in the moods, intentions, motivations, and feelings of other people. This can include sensitivity to facial expressions, voice, and gestures; the capacity for discriminating among many different kinds of interpersonal cues; and the ability to respond effectively to those cues in some pragmatic way (e.g., to influence a group of people to follow a certain line of action).

Intrapersonal intelligence: Self-knowledge and the ability to act adaptively on the basis of that knowledge. This intelligence includes having an accurate picture of oneself (one's strengths and limitations); awareness of inner moods, intentions, motivations, temperaments, and desires; and the capacity for self-discipline, self-understanding, and self-esteem.

Naturalist intelligence: Expertise in the recognition and classification of the numerous species—the flora and fauna; of an individual's environment. This also includes sensitivity to other natural phenomena (e.g., cloud formations, mountains, etc.) and, in

the case of those growing up in an urban environment, the capacity to discriminate among inanimate objects such as cars, sneakers, and CD covers.

The theoretical basis for MI theory

Many people look at the above categories—particularly musical, spatial, and bodily-kinesthetic—and wonder why Howard Gardner insists on calling them intelligences rather than *talents* or *aptitudes*. Gardner realized that people are used to hearing expressions like "He's not very intelligent, but he has a wonderful aptitude for music"; thus, he was quite conscious of his use of the word *intelligence* to describe each category. He said in an interview, "I'm deliberately being somewhat provocative. If I'd said that there are seven kinds of competencies, people would yawn and say 'Yeah, yeah.' But by calling them 'intelligences,' I'm saying that we've tended to put on a pedestal one variety called intelligence, and there's actually a plurality of them, and some are things we've never thought about as being 'intelligence' at all" (Weinreich-Haste, 1985, p. 48). To provide a sound theoretical foundation for his claims, Gardner set up certain basic "tests" that each intelligence had to meet to be considered a full-fledged intelligence and not simply a talent, skill, or aptitude. The criteria he used include the following eight factors:

- Potential isolation by brain damage
- The existence of savants, prodigies, and other exceptional individuals
- A distinctive developmental history and a definable set of expert "end-state" performances
- An evolutionary history and evolutionary plausibility
- Support from psychometric findings
- Support from experimental psychological tasks
- An identifiable core operation or set of operations
- Susceptibility to encoding in a symbol system

Potential Isolation by brain damage: Gardner found that brain lesions impaired the intelligence of the person in selective manner. Impairing intelligence and leaving all the other intelligences intact. For example, a person with a lesion in Broca's area (left frontal lobe) might have a substantial portion of his linguistic intelligence damaged and thus experience great difficulty speaking, reading and writing. Yet he might still be able to sing, do math, reflect on feelings, and relate to others. A person with a lesion in the temporal lobe of the right hemisphere might have her musical capacities selectively impaired, while frontal lobe lesions might primarily affect the personal intelligences.

The existence of savants, prodigy, and other exceptional individuals. In some people single intelligences operating at high levels, much like huge mountains rising up against the backdrop of a flat horizon. Savants are individuals who demonstrate superior abilities in part of one intelligence while one or more of their other intelligences function at a low level. They seem to exist for each of the eight intelligences. Examples are a logical-mathematical autistic savant, amazing musical compositor, savant on drawing, savant who read complex materials yet don't comprehend what they are reading (hyperlexics), and savants who have exceptional sensitivity to nature or animals.

A distinctive developmental history and a definable set of expert "End-State" performances. According to Gardner, culturally valued activity and that the individual's growth in such an activity help galvanizing individual intelligences. Such activities follow a developmental pattern. Each intelligence based activity has its own developmental trajectory; that is, each activity has its own time of arising in early childhood, its own time of peaking during one's lifetime, and its own pattern of either rapidly or gradually declining as one gets older. Musical composition, for example, seems to be among the earliest culturally valued activities to develop to a high level of proficiency: Mozart was only 4 years when he began to compose. Numerous composers and performers have been active well into their 80s and 90s, so expertise in musical composition seems to

remain relatively robust into old age. Other intelligences development in the individuals does not follow the same trajectory thus have different developmental pattern.

Gardner (1993b) points out that we can best see the intelligences working at their zenith by studying the "end-states" of intelligences in the lives of truly exceptional individuals. For example, we can see musical intelligence at work by studying Beethoven's Eroica Symphony, the naturalist intelligence through Darwin's theory of evolution, or spatial intelligence via Michelangelo's Sistine Chapel painting.

An evolutionary history and evolutionary plausibility: Gardner concludes that each of the eight intelligences meets the test of having its roots deeply embedded in the evolution of human beings and, even earlier, in the evolution of other species. So, for example, spatial intelligence can be studied in the cave drawing of Lascaux, as well as in the way certain insects orient themselves in space while tracking flowers. Similarly, musical intelligence can be traced back to archeological evidence of early musical instruments, as well as wide variety of bird songs.

MI theory also has a historical context. Certain intelligences seem to have been more important in earlier times than they are today. Naturalist and bodily-kinesthetic intelligence, for example, were probably valued more 100 years ago in the United States. Similarly, certain intelligences may become more important in the future. As more and more people receive their information from films, televisions, DVDs, and online sources, the value placed on having a strong spatial intelligence may increase. Similarly, there is now a growing need for individuals who have expertise in the naturalist intelligence to help protect endangered ecosystems.

Support from psychometric findings: Gardner has a supposition that the many existing standardized tests support the theory of multiple intelligences (although Gardner point out that standardized tests assess multiple intelligence in a strikingly de-contextualized fashion). For example, the Wechsler Intelligence Scale for Children includes subtests

that require linguistic intelligences (e.g., information, vocabulary), logical-mathematical intelligence (e.g., arithmetic), spatial intelligence (e.g., picture arrangement) and to a lesser extent bodily-kinesthetic intelligence (e.g., object assembly). Still other assessments tap personal intelligences (e.g., the Vineland Society Maturity Scale and the Coopersmith Self-Esteem Inventory).

Support from experimental psychological tasks: Gardner suggests that by looking specific psychological studies, we can witness intelligences working in isolation from one another. For example, in studies where subjects master specific skills, such as reading, but fail to transfer that ability to another area, such as mathematics, we see the failure of linguistic ability to transfer to logical-mathematical intelligence. Similarly, in studies of cognitive abilities such as memory, perception, or attention, we can see evidence that individuals possess selective abilities.

An identifiable core operation or set of operations: Just like in computer operation system (DOS), human intelligence has a set of core operations that serve to drive the various activities indigenous to that intelligence. In musical intelligence, for example, those components may include sensitivity to pitch or the ability to discriminate among various rhythmic structures. In bodily-kinesthetic intelligence, core operations may include the ability to imitate the physical movements of others or the capacity to master established fine-motor routines for building a structure.

Susceptibility to encoding in a symbol system: According to Gardner, one of the best indicators of intelligent behavior is the ability to use symbols. The word "cat" that appears here on the page is simply a collection of marks printed in a specific way, yet it probably conjure up for you an entire range of associations, images and memories. What has occurred is the bringing to the present of something that is not actually here. Gardener suggests that the ability to symbolize is one of the most important factors separating humans from other species. In his theory, each of the eight intelligences meets the criterion of being able to be symbolized.

b. Foundation of Individualized Education Plan (IEP)

Individualized Education Plan (IEP) was introduced into school systems around the world in 1975. The objective of IEP was to provide an equal opportunity to get the same education for the students whether they are physically or mentally or other kinds as every other student. It aims to meet the need of quality education for special needs children just with modifications to fit each child's disability and learning style. This could mean any one or more of several things. The student can be allowed more time to work on specific assignments in special classroom time which used to be called the Resource Room, which is basically like a study hall type environment for students with Special Needs. Another option that some families choose is doing the course work that is normally done in four years in five years. This allows the student to have a lighter course load to make it less intimidating and stressful.

The IEP needs to contain several very specific and detailed things. It should clearly explain the best way that the student learns, the way or ways that the student shows his or her full potential, and how best to support and encourage his or her educational goals.

The IEP, can be modified whenever necessary as long as all parties are advised of the modifications and agree with them. In addition to the school curriculum, also in most IEP's is what is referred to as a Behavioral Plan. This is a legally binding contract between the student, parents, school or school district staff, Mental Health Counselors, Pediatricians and Physicians. If this is not followed by one or more people involved in this contract, it can be looked at in a Court of Law and depending on if any part of the contract was violated, charges could be filed by any member or members of the contract. Upon determining that the student is a good candidate for the IEP, the school has thirty days to develop the individual student's IEP. Individualized Education Program (IEP) is a legal document which is designed to completely spell out the learning plan, needs, progress expected and accommodations a child will receive in order to improve their learning capabilities throughout the school year. An IEP is a legally binding document

and requires the school to provide everything it promises in the document. By law, an IEP must include:

- A Statement of the child's present level of performance (PLOP) – how the child is currently performing in school
- The child's annual educational goals
- Special education support and services that the school will provide to help the child reach their goals
- Modifications and accommodations the school will provide to help the child make progress
- Accommodations the child will be allowed when taking standardized tests
- How and when the school will measure the child's progress toward the annual goals
- Transition planning to help prepare teens for life after high school

An IEP is part of the special education process and is necessary for students to receive needed special education services through the school. Not all students who struggle with school will necessarily be approved or require an IEP. There are two actions that must be taken in order to qualify a child for an IEP; *an evaluation* and *a decision*. The evaluation is conducted by an IEP team after consulting with parents, teachers, a counselor or a doctor who may see the child is struggling to keep up in school. The decision to implement an IEP is done with an IEP team made of up parents and school officials who decide the child needs and will benefit from the use of special education services through the use of an IEP. The evaluation and decision making process can be lengthy in nature and take time to implement, but once an IEP is in place, the child is to be afforded all accommodations spelled out in the IEP by law.

1.2 Relation between MI and IEP (IDEA-2004)

School classrooms are becoming increasingly diverse. An increasing number of children with disabilities are being placed in general education classrooms. This change requires a shift in educational strategies if we are to reach the students in present classrooms. Howard Gardner's Theory of Multiple Intelligences (MI) has offered educators a comprehensive framework within which fundamentally different solutions can be implemented. A tenet of MI theory is that people learn, represent, and utilize knowledge in many different ways. These differences challenge an educational system which assumes that everyone can learn the same materials in the same way and that a uniform, universal measure suffices to test student learning. According to Gardner, "the broad spectrum of students--and perhaps the society as a whole--would be better served if disciplines could be presented in a number of ways and learning could be assessed through a variety of means" (Gardner, 1991).

The main purpose of an IEP is to solve the problem and fulfill the necessities of individual children considering their diverse needs. The objectives of the IEP are to enhance the intelligences of the child in multiple areas; especially to strengthen the strong areas of intelligences. MI theory consists of eight areas in human intelligences. Now a day, these areas of intelligences are forming strong bases for preparing an IEP for the children. The intervention strategies in IEP are focused in one or more area of intelligence; hence intelligences of the child can be enhanced through the implementation of IEP.

MI theory lends itself particularly well to the development of teaching strategies in individualized educational programs (IEPs) developed as part of a student's special education program. In particular, MI theory can help teachers identify a students' strength, and this information can serve as a basis for deciding what kinds of interventions are most appropriate for inclusion in the IEP.

<Table 1.1> Strategies and Tools for Empowering Intelligences in Areas of Difficulty

Area of Difficulty	Linguistic strategies and tools	Logico-mathematical strategies and tools	Spatial strategies and tools	Musical strategies and tools	Bodily-kinesthetic strategies and tools	Interpersonal Strategies and tools	Intrapersonal strategies and tools	Naturalist strategies and tools
Linguistic Difficulty	Tape recorder, Kurzweil reader	Spell/grammar check software	Ideographic languages	Song lyrics	Braille	Human readers or person to take dictation	Open-ended journal	Reading based on nature, plants or animals
Logical-mathematical Difficulty	Calculators	Math tutoring software program	Arts, diagrams, graphs	Exploring music and math connections	Abacus and other manipulative	Math tutor	Self-paced math or science programs	Using scientific instruments to observe programs
Spatial Difficulty	Talking books and tapes	Computer assisted design software	Magnifiers, maps	Walking stick with tone sensor	Relief maps, Mowat sensors	Personal guide	Self-guided tours	Smell gardens, touching zoos
Bodily-kinesthetic Difficulty	"How-to" books	Virtual reality software	Choreography diagrams	Neuro-feedback using tones	Mobility devices (motorized chairs)	Personal companion	Feedback from videotape	Canine companion
Musical Difficulty	Rhythmic poetry	Music software	Machine that translate music into a sequence of colored lights	Tapes, CDs, records	Amplified vibrating musical instruments	Music teacher	Self-paced music lessons	Recordings of the sounds of different kinds of ecosystem
Interpersonal Difficulty	"Talking cure" in psychotherapy	Cognitive therapy	Movies on interpersonal themes	Music groups (e.g. choir)	Outward Bound adventures	Recovery/self-help support groups	Individual psychotherapy	Sierra club activities
Intrapersonal Difficulty	self-help books	Personal digital assistance	Art therapy	Music therapy	Obstacle courses	Psychotherapist	Retreats, solitude	Vision quest in nature
Naturalistic Difficulty	Field guides, National geographic magazines	Taxonomies and classification systems	Nature programs of PBS, TLC, and the Discovery channel	Recordings and other natural/animal sounds	Extensive nature walks	Extend nature guide, volunteer for ecology organization	Taking care of a pet, planting a garden,	Campaign and hiking

All too often a student having problems in a specific area will be given an IEP that neglects his most developed intelligences while concentrating on his weaknesses. For instance, a student with well-developed bodily-kinesthetic and spatial intelligences may be having difficulty learning to read. In many schools today, he would be given an IEP that fails to include bodily-kinesthetic and spatial activities as a means of achieving his educational objectives. Frequently, the interventions suggested for such a student will include more linguistic tasks, such as reading programs and auditory awareness activities-in other words, more concentrated and controlled doses of the same sorts of tasks the student was failing at in the regular classroom.

MI theory suggests a fundamentally different approach: teaching through intelligences that have been previously neglected by educators working with the child. The following examples show the students' learning differences at both the instructional level and the assessment level.

1.3 Components of MI and IEP

Components of MI

Gardner provided a means of mapping the broad range of abilities that human possess by grouping their capabilities into the eight comprehensive categories or intelligences. For something to qualify as intelligence, it has to satisfy Howard Gardner's eight "signs" of intelligence. After extensive research, Gardner identified eight, distinct intelligences. These are what comprise his theory of Multiple Intelligences:

Spatial: The ability to conceptualize and manipulate large-scale spatial arrays (e.g. airplane pilot, sailor), or more local forms of space (e.g. architect, chess player). This intelligence involves sensitivity to color, line, shape, form, space and the relationships that exists between these elements. It includes the capacity to visualize, to graphically represent visual or spatial ideas, and to orient oneself appropriately in a spatial matrix.

Bodily-Kinesthetic: The ability to use one's whole body, or parts of the body (like the hands or the mouth), to solve problems or create products (e.g. dancer). This intelligence includes specific physical skills such as coordination, balance, dexterity, strength, flexibility, and speed, as well as proprioceptive, tactile, and haptic capabilities.

Musical: Sensitivity to rhythm, pitch, meter, tone, melody and timbre. May entail the ability to sing, play musical instruments, and/or compose music (e.g. musical conductor). This intelligence includes sensitivity to the rhythm, pitch or melody, and timbre or tone color of a musical piece. One can have a figural or "top-down" understanding of music, a formal or "bottom-up" understanding (analytic, technical) or both.

Linguistic: Sensitivity to the meaning of words, the order among words, and the sound, rhythms, inflections, and meter of words (e.g. poet). Sometimes it is called language intelligence. This intelligence includes the ability to manipulate the syntax or structure of language, the phonology or sounds of language, the semantics or meanings of language, and the pragmatic dimensions or practical uses of language. Some of these uses include rhetoric, mnemonics, explanation and meta-language (using language to talk about self).

Logical-mathematical: The capacity to conceptualize the logical relations among actions or symbols (e.g. mathematicians, scientists). Famed psychologist Jean Piaget believed he was studying the range of intelligences, but he was actually studying logical-mathematical intelligence. This intelligence includes sensitivity to logical patterns and relationships, statements and propositions (if-then, cause effect), functions, and other related abstractions. The kinds of processes used in the service of logical-mathematical intelligence include categorization, classification, inference, generalization, calculation, and hypothesis testing.

Interpersonal: The ability to interact effectively with others. It represents the sensitivity to others' moods, feelings, temperaments and motivations (e.g. negotiator). Sometimes it is called social intelligence. This includes the ability to perceive and make distinctions in the moods, intentions, motivations, and feelings of the people. This can include

sensitivity to facial expressions, voice and gestures; the capacity for discriminating among many different kinds of interpersonal cues; and the ability to respond effectively to those cues in some pragmatic way (e.g., to influence a group of people to follow a certain line of action).

Intrapersonal: Sensitivity to one's own feelings, goals, and anxieties, and the capacity to plan and act in light of one's own traits. Intrapersonal intelligence is not particular to specific careers; rather, it is a goal for every individual in a complex modern society, where one has to make consequential decisions for oneself. This is sometimes called self-intelligence.

Naturalistic: Experts in the recognition and classification of the numerous species—the flora and fauna—of an individual's environment. This also includes the ability to make consequential distinctions in the world of nature as, for example, between one plant and another, or one cloud formation and another (e.g. taxonomist). Sometimes it is called nature intelligence.

a. Components of IEP

IDEA '97 provides all students with disabilities a free, appropriate public education in the least restrictive environment that emphasizes special education and related services designed to meet their unique needs and prepare them for employment and independent living. At the heart of IDEA '97 is the Individualized Education Program (IEP). Each student who qualifies for special education and related services under IDEA '97 must have a current IEP. The IEP is the centerpiece of the special educational process for school age children. It is a written statement, documenting the student's educational needs and the tailor-made special education and related services required by that student for increased school achievement. The IEP must include:

- ***Present Level of Performance (PLOP):*** a statement of the child's present levels of educational performance, including how the child's disability affects the child's involvement and progress in the general curriculum (i.e., the same curriculum as

for the nondisabled children); or for preschool children, as appropriate, how the disability affects the child's participation in appropriate activities

- **Measurable annual goals:** a statement of measurable annual goals, including benchmarks or short-term objectives, related to meeting the child's needs that result from the child's disability to enable the child to be involved in and progress in the general curriculum, or for preschool children, as appropriate, to participate in appropriate activities; and meeting each of the child's other educational needs that result from the child's disability;
- **Aids and services:** a statement of the special education and related services and supplementary aids and services to be provided to the child, or on behalf of the child, and a statement of program modifications or supports for school personnel that will be provided for the child to: - advance appropriately toward attaining the annual goals; - be involved and progress in the general curriculum and to participate in extracurricular and other nonacademic activities; and, - be educated and participate with other children with disabilities and nondisabled children;
- **Participation:** an explanation of the extent, if any, to which the child will not participate with nondisabled children in the regular class and in activities;
- **Assessment of the child:** a statement of any individual modifications in the administration of State or district-wide assessments of student achievement that are needed in order for the child to participate in the assessment; and, if the IEP team determines that the child will not participate in a particular State or district-wide assessment of student achievement (or part of an assessment), a statement of - why that assessment is not appropriate for the child; and, - how the child will be assessed.
- **Time for various tasks:** the projected date for the beginning of the services and modifications, and the anticipated frequency, location, and duration of those services and modifications; and

- **Progress monitoring:** a statement of: - how the child's progress toward the annual goals will be measured; and - how the child's parents will be regularly informed (through such means as periodic report cards), at least as often as parents are informed of their nondisabled children's progress, of their child's progress toward the annual goals and the extent to which that progress is sufficient to enable the child to achieve the goals by the end of the year.
- **Transition services:** For each student beginning at age 14 (or younger, if determined appropriate by the IEP team), and updated annually, a statement of the transition service needs of the student that focuses on the student's courses of study (such as participation in advanced-placement courses or a vocational education program); and for each student beginning at age 16 (or younger, if determined appropriate by the IEP team), a statement of needed transition services for the student, including, if appropriate, a statement of the interagency responsibilities or any needed linkages.

In a State that transfers rights at the age of majority, beginning at least one year before a student reaches the age of majority under State law, the student's IEP must include a statement that the student has been informed of his or her rights, if any, that will transfer to the student on reaching the age of majority.

1.4 Issues of IEP

Individualized Education Plan is not a subject without controversy and dilemma. There are often several questions, inquisitives and queries from the parents. These are remaining as the issues in IEP and these issues are related to measurability, ambiguity and specificity of goals benchmarks, and also myths. The following are the issues of IEP:

1.4.1 Measurability

IDEA 2004 considered "measurability" an important ingredient in making IEP. IDEA has the following consideration about measurability:

"A statement of measurable annual goals, including academic and functional goals... and a description how the child's progress toward meeting the annual goals....will be measured (progress markers) and when periodic reports on the progress the child is making toward meeting the annual goals (such as through the use of quarterly reports, concurrent with the issuance of report cards) will be provided."

The IDEA changed the requirement somewhat in the provision existed on 1999 Regulations. The witness is that "Measurable annual goals, including benchmarks or short-term objectives, are critical to the strategic planning process used to develop and implement the IEP for each child with a disability. The IEP team can develop strategies after IEP team develops measurable goals and must develop either measurable, intermediate steps (short-term objectives) or major mile-stones (benchmarks) that will enable parents and educators to monitor progress during the year, and if appropriate, to revise IEP consistent with student instructional needs.

There is no doubt that measurability is both mandated and absolutely essential. Without measurability, progress cannot be monitored. However, measurability alone is not sufficient. Goals and objectives must be both measurable and measured in order to determine progress and to make necessary revisions to the IEP.

Measurable is the essential characteristic of IEP goal or objective. When a goal is not measurable, it cannot be measured. If it cannot be measured, it violets IDEA and may result in a denial of FAPE to the child. To measure something is to do something or to perform a particular operation. For example: to measure one's weight, stand on a scale.

Measurability can be described on the basis of the following four characteristics: An important question to keep in mind when writing measurable goals or objectives is "what would one do to see if the child has accomplished this goal or objective?" Another consideration is that, if several people evaluated the student's performance, they would come to the same conclusion about accomplishment of the goal or objective. The third issue that when the goal or objective is measured, we must be able to say how much progress has been made since the PLOP or previous goal or objective was measured.

The forth basis is that a measurable goal can be measured as written, without additional information.

If a GO/B contains a given or condition, the given is usually stated first. The learner's performance is stated next, and the desired level of performance or criteria is stated last.

For examples:

1. Given 2nd grade material, Jerry will read orally at 60 wpm with no more than 2 errors.
2. Jeremy will tantrum less than 5 minutes per week.
2. Given a 15 minute recess period, Jason will appropriately initiated interaction with at least one peer.
3. Jonathan will copy 20 letters per minute with all legible.

The "given" situation may or may not need and depends on the situation. For example, a 'Given' is needed:

Given access to the internet, student will locate ten sources of information on topic X.

A 'Given' is not needed:

The student will bounce to height of one foot, five consecutive times without falling off a trampoline.

Often the most problematic element of measurable goals to acquire or grasp is the observable, visible and countable behaviors. Here are some examples of observable and not observable behaviors:

<Table 1.2> Action verbs representing observable and not observable objectives

Observable	Not Observable
Matching author to book title	Appreciating art
Reading only	Enjoying literature
Constructing a time line	Understanding history
Dressing one's self	Becoming independent
Speaking to adults without vulgarities	Respecting authority
Pointing, drawing, identifying, writing etc.	Improving, feeling, knowing

Measurability is an absolute situation for the child to be measured in the given condition. IEP goals must be measurable, even in the short term objectives or benchmarks. Goals should be observable and comparable with respect to the PLOP.

1.4.2 Ambiguity/Specificity

During the formation and implementation of IEP annual goals, there may be frequently, a non-measurable, vague and general annual goal, which will have objectives and benchmarks which are not measurable, may be specific in nature. Let us take an example of Alex's story:

Alex is a highly intelligent, 16 years old non-reader who has severe dyslexia and a predictably high level of anger and confusion about why he can't read write or spell. There are three objectives are formed under Alex's IEP which contain totally non-measurable annual goal "develop functional academics".

Objective 1: "given ten words, Alex shall group letters and pronounce letter sounds in words with 80% accuracy.

Suppose we have to determine whether Alex has met his progress marker. For this, Alex is assigned to read aloud a list ten words. The problem is what type of words is there in the list, it makes the difference. For e.g. list of "sit, bun, log, cat," or it does like "exegesis, ophthalmology, entrepreneur," Of course the type of words assigned will make difference.

What is 80% accuracy in reading the list? If the word "palace" were read as "place" or "tentative" as "tentative", what percentage of accuracy do we assign to each effort? Or did the writer really mean that Alex should read 80% of the words accurately? If it is so, what is the time frame? One minute, ten minutes, or an hour? There are ambiguities in identifying progress marker although the objectives or benchmarks seem specific.

Objective 2: Alex will research the history and culture of the given country with 80% accuracy.

It is notable that Alex is a student of mid-first grade level and is presently working on letter sounds and decoding, what are we to make of these objective? If Alex comes into school tomorrow morning says, "I researched the history and culture of China without any mistakes last night," are we to check off the objective as completed? Is that what the writer intended? If not, could the objective be written to fit both Alex and the writer's intent? What about something like this:

"Given a one-hour PBS video on the history and culture of China and a tape recorder, after viewing the tape, Alex will dictate and record ten things he learned about China with no more than one factual error."

Objective 3: Through various community service projects Alex will develop a compassionate understanding for those less fortunate and from various cultural/ethnic backgrounds with 80% accuracy.

The third is still more challenging. Alex is to participate in three or more "various" activities which serve clients who are "less fortunate" and who have cultural/ethnic backgrounds different from Alex's. But how are we to know whether this participation has resulted in "compassionate understanding?" Apparently, there are more than one appropriate way to write a given goal or objective. There is more than one appropriate way to write goal or objective. There is a question that "what behaviors of a 16 year old could indicate compassionate understanding of the "less fortunate"?"

Admittedly, this is a very complex and lengthy objective. However, there are more than one appropriate way to write a given goal or objective. It is not possible for Alex to have compassionate understanding to look it through Alex's heart, soul or mind. Instead of this we should ask what behavior are reasonable, acceptable indicators of compassionate understanding.

1.4.3 Myths of IEP

There are several myths regarding eligibility, placement options, services and supports to be provided of IEPs. There are several ambiguities on understanding IEP, setting measurable goals and selecting students eligible for IEP. The major misconceptions about IEPs are stated under:

Myth 1: Every child who struggles is guaranteed an IEP

There are several false beliefs that often interfere with writing measurable progress markers.

Fact: To qualify for special education services (and an IEP), a student must meet two criteria. First, he must be formally diagnosed as having a disability as defined under the individuals with Disabilities Act (IDEA). This federal law covers 13 categories of disabilities, one of which is "specific learning disabilities." Second, the school must determine that student's needs special education services in order to make progress in school and learn the general education. Not all students with disabilities meet both criteria.

Myth 2: If something is in the IEP, the school will make it happen

Fact: The IEP is a legal contract, so the school is required to provide the services and supports promises for your child. But teachers and administrators are busy-and human-so sometimes details are overlooked or forgotten. Part of the role of parents as child's advocate is to make sure he is getting the services and accommodations outlined in his IEP. Monitor his schoolwork, test scores and attitude toward school. If things seem off track, meet with his teacher to discuss the situation. Explore other ways you can assess whether the child's IEP is being followed.

Myth 3: An IEP will provide services and supports for your child beyond the high school

Fact: The IEP (and the services it guarantees) will end when the students graduates from high school. Special education doesn't extend to college or the workplace. The IEP team is required to work with the students to create a transition plan as part of his IEP.

This plan will focus on the student's future goals and help him prepare for young adulthood.

Myth 4: Having an IEP means your child will be placed in a special education classroom

Fact: Federal law requires that children with IEPs be placed in the restrictive environment. This means students should spend as little as possible outside the general education classroom. The IEP may specify services and accommodations the child needs to succeed in the general education class. If students spend time in a "resource room" or special education class, that will be listed in the IEP.

Myth 5: The IEP is written by the school and then explained to the parents

Fact: According to federal law (IDEA), parents are full and equal members of their child's IEP team. This means that parents have a say in how their child's IEP is crafted. Even if they are not an expert on special education, they are expert to understand their child's needs. Their intimate knowledge of their child's development, strengths and challenges, home life and activities outside of school are extremely valuable for developing the IEP.

In addition to the IEPs, there are **myths in the measurability** of IEPs. There are false beliefs which interfere with writing measurable progress markers:

Myth 1: If a GO/B contains a percentage, it's measurable

Expressing the goals and objectives in percentage is not necessarily measurable. Including percentage in setting goal and objectives does not make a goal measurable.

These examples illustrate the myth:

- Ram will control his behavior 80% of the time.
- Shyam will write the paragraph with 70% accurately.
- Hari will name 2 ways to control a self destructive attitude with 75% accuracy.

Myth 2: If a GO/B contains technical language or 'words of art', it must be valid

Technical language does not make a goal measurable. These examples illustrate the myth:

- Ram will improve his central auditory processing

- Harimaya will demonstrate appropriate interpersonal and communication skill
- Sita will internalize the value of democracy

Myth 3: If a GO/B contains an "action" verb, it is measurable

An action verb does not guarantee measurability. The following example illustrates the myth:

- Determine high risk behavior
- Demonstrate an understanding of dating
- Ask questions to clarify issues

Myths on making IEP of the children bring confusion. Many IEP goals and objectives are expressed in SMART goals and objectives. However, all the goals and objectives we generally make may not work absolutely in real situation. Many verbs we think measurable may not guarantee measurability; or we think IEP contain should technical words, language or arts must be valid is wrong. Hence, false beliefs of IEP are the myths. Therefore, one needs a careful study of potential IEP work, before one is engaged in making IEP of the children.

Let Us Sum Up

Howard Gardner propounded the Theory of Multiple Intelligence (MI) in 1983 and came out with his book named "Frames of Mind: The Theory of Multiple Intelligence". Gardner set about studying intelligence in a systematic, multi-disciplinary, and scientific; drawing from psychology, biology, neurology, sociology, anthropology and the arts and humanities. Howard provided a means of mapping the broad range of abilities that human posse by grouping their capabilities into the eight comprehensive categories on "intelligences." The concept of Multiple Intelligence has theoretical basis which has to meet to be considered a fully fledged intelligence and not simply a talent, skill, or aptitude. The criteria used many factors.

MI theory has contribution in making IEP. IEP is a legal contract which is designed to completely spell out the learning plan, needs; progress expected accommodations a child will receive in order to improve their learning possibilities throughout the school year. The IEP contains several components and its making is a complex process. There are many myths about IEP and its role; many ambiguities and still many issues are lying down to be solved. However, IEP goals should be SMART, objectives must be clear and observable and objective, and whole IEP document should encompass the principle of measurability, specificity, objectivity and hence provide a clear picture about the future of the concerned child.

Unit-end Activities

Group "A"

Objectives questions:

Tick (✓) the best answers

1. Individuals who demonstrate superior abilities in one part of intelligence while one or more of their other intelligences function at a low level; such individual is called.....
 - a. master
 - b. savant**
 - c. genius
 - d. dull
2. A child is good at knowing self and has ability to adapt on the basis on that knowledge; he has.....
 - a. intra-personal intelligence**
 - b. inter-personal intelligence
 - c. naturalistic intelligence
 - d. musical intelligence

3. According to evolutionary history of Multiple Intelligence, which example signifies for spatial intelligence?
 - a. A variety of bird songs
 - b. Insects orienting them in space while tracking flowers**
 - c. Different symbol systems making calculations
 - d. None of the above
4. What is the full form of PLOP in IEP making?
 - a. Parental level of participation
 - b. Preferred level of performance
 - c. Parental love of progress
 - d. Present level of participation**
5. An IEP mentioned to teach Braille to the blind student; what type of intelligence is intended to promote in the student?
 - a. Linguistic
 - b. Bodily-Kinesthetic**
 - c. Logical mathematical
 - d. Spatial
6. Human mind with spatial intelligence has ability to.....
 - a. reason well
 - b. express ideas and feelings using whole body
 - c. perceive the visual-spatial world accurately**
 - d. recognize and classify the species existed in the natural environment.
7. The Broca's area (brain lesion at left frontal lobe) impairs the intelligence of the person....
 - a. entirely
 - b. making him paralyzed
 - c. with 50% loss if intelligence
 - d. in selective manner**

8. Multiple intelligence theory broadly categorizes the human potential into.....
- 6
 - 7
 - 8**
 - 9
9. The theory of Multiple Intelligence is purposed by.....
- Howard Gardner**
 - Alfred Benet
 - Aristotle
 - Samuel Kirk
10. An IEP is a.....
- student's document showing his performance at different stages
 - a legal contract
 - student's health report
 - both a and b**

Group "B"

- **Short answer questions:**

1. Define "Spatial Intelligence" according to Howard Gardner's Theory of Multiple Intelligence.
2. How the concepts of 'Savants and Prodigy' provide the theoretical basis for MI theory?
3. Describe with an example that how the evolution history supports the theory of MI?
4. State any 5 fundamental promises which must be included within an IEP.
5. Describe the myths that may be prevailing in making an IEP.

Group "C"

- **Long answer type questions:**

1. Describe the Theory of Multiple Intelligence with its components in brief.

2. What are the components of an IEP? Explain.
3. Give an account on the relation between an IEP and MI theory.

Points of Discussions

1. How IEP can well relate with MI Theory?
2. Practicing IEP making including IEP components
3. Finding myths in making IEP
4. What actually are 'measurability, specificity and objectivity' in IEP goals?

Unit II: Writing IEP Goals, Objectives and Benchmarks

2.1 Importance of IEP Goals, Objectives and Benchmarks

The IDEA is the nation's special education law. Under the IDEA, if a child is found to be a child with a disability, he or she is eligible for special education and related services. If your child has a disability and is eligible for special education and related services, a team of people will gather to talk about what special instruction and services of child needs. This team includes the parent and the team reviews the information available about the child. This includes such information as classroom work, reports from teachers and from parents, and achievement test results. It also includes the results of individual evaluations of the child, whether conducted by the school or private practitioners.

Parents and the other team members use this information to determine how your child is currently doing in school and what special needs he or she has. For example, the child may have trouble with reading, writing, paying attention, speaking, or behaving appropriately. Together, the team decides what the child needs to work on during the year. Team decisions are written down in a document called the Individualized Education Program (IEP). An important part of the child's IEP will be his or her annual goals and short-term objectives (sometimes major accomplishments called benchmarks are used in the IEP rather than objectives. Everything that applies to objectives applies to benchmarks in the same fashion.)

The Individuals with Disabilities Act indicates that the full individual evaluation of a child needs to be conducted by a group of qualified professionals. So from the very beginning of the instructional process, it is clear that the IEP process should be a collaborative process. A team of people should evaluate the child and develop an IEP within a collaborative meeting where all parties, including the parents, are active participants. Thus it is logical that the prioritized goals and objectives developed to “focus on the learning and behavioral problems resulting from the child’s disability” be developed as a

team rather than in isolation by various service providers. The goals should address the student's deficit skill areas which interfere with the student's ability to participate and progress in the general curriculum. Examples of areas that might be addressed are (not all inclusive): Reading, Writing, Listening, Organization Study Skills, Communication, Physical Development, Motor Skills, Cognitive Processing, Problem-solving, Social Skills, Play skills, Memory, Visual Perception, Auditory Perception, Attention Behavior, Career and Community Living (NASET, 2006-07).

Only after the goals have been created should the question be asked: What services are necessary for the student to be successful on the prioritized goals and objectives? So it is clear that there is only one set of student goals and objectives, and the implementers of the IEP are determined after the plan has been devised. Some questions to consider when determining necessary implementers are: 1) Is the service needed to help the student make progress with the educational goals? 2) Does the student have significant difficulty accessing areas of the school environment or communicating that would require the knowledge/expertise of other service providers for adaptations/modification or consultation? 3) Can the student's needs/skills be addressed in the curriculum through the educational staff, parents, student, or community programs without additional specialists? 4) And most importantly, will the absence of the services interfere with the student's access to or participation in his educational program this year?

In this way the intervention services and strategies match the child's specially designed instruction and are coordinated to assure that the child is successful in mastering the goals and objectives as stated in the student's IEP. Identification of integrated IEP goals and intervention strategies that maximize a child's opportunities to succeed depend on the team's willingness to...rethink traditional disciplinary boundaries. Integration of goals and objectives, as well as intervention strategies, allow for effective instruction where all implementers of the IEP are working together for the same outcome.

Teaming allows specialists, teachers and families to work together to teach skills in the natural contexts where there is more opportunity for frequent practice. Brain research indicates that basic skills must be taught in an explicit or targeted way so they become

automatic and efficient. This allows the brain to concentrate on additional learning and/or generalization of the skills. Thus instruction must be targeted and focused on the skills the student needs to learn and the instructional strategies must allow the student to be actively involved so that the student can: – Understand and make sense of the new material – Relate ideas and information to prior knowledge/experience – Use organizational tools or principles to integrate ideas – Look for principles or patterns – Learn and apply the skills. This is easier to accomplish if the learning takes place in the natural context of the classroom or learning environment rather than pull-out in an isolated unrelated setting.

In addition students need multiple opportunities for guided practice in order to master a skill. Guided practice requires a high level of repetition with immediate feedback so that the student does not practice the skills incorrectly. Random practice is not effective. Thus to achieve maximum student success it is best practice for IEP goals and objectives to be integrated so that interventions can be targeted by the direct service providers as well as those who are providing support through consultation. This is not to mean that all goals will be integrated. At times a service provider might be providing instruction outside the typical class until the skill can be mastered to the degree that it can be integrated into the natural context.

A teacher of the visually impaired might need to teach a student Braille outside of the classroom until the student learns the foundational skills well enough that they can be integrated into the classroom activities. An orientation and mobility specialist might work on community travel skills ahead of time so that the student may fully participate in an extracurricular activity, a work-study program, etc. A physical therapist or adaptive physical education teacher may need to focus instruction on a particular skill so that the student can participate safely in a physical education class. However, in these cases it is imperative that the service provider provide instruction frequently enough that the student can receive targeted instruction, guided practice and reach mastery of the skills as soon as possible so that the skills can be generalized into the classroom setting and become integrated to allow the student to continue to make educational progress.

The Purpose of Benchmarks and Short-Term Objectives

One of the changes made by the 2004 Amendments to IDEA concerns the requirement for benchmarks or short-term objectives in IEPs. Previously, benchmarks or short-term objectives were required to be developed in correlation with a child's annual IEP goals. While this requirement changed in the 2004 reauthorization, their general purpose has not.

Benchmarks indicate the interim steps a child will take to reach an annual goal. They also serve as a measurement gauge to monitor a child's progress and determine if the child is making sufficient progress towards attaining an annual goal. Using a roadmap analogy, benchmarks and short-term objectives are used to divide the trip to the final destination into concrete, smaller steps.

An Example

Here's an example of an annual goal with short-term objectives for a student named David. The IEP team developed David's reading goal and objectives by looking at the information in his present level statement. Then they determined the skills that David needs to learn in order for him to be able to read at a 5th grade level.

Annual Goal: David will achieve a reading score at the 5th grade level or above, as measured by the Qualitative Reading Inventory (QRI).

Short-term Objectives

By October, when given a list of 20 unfamiliar words that contain short-vowel sounds, David will decode them with 90% accuracy on each of 5 trials.

By October, when given 20 unfamiliar words that contain long-vowel sounds, David will decode them with 90% accuracy on each of 5 trials.

By December, David will correctly pronounce 20 words with 90% accuracy on each of 5 trials to demonstrate understanding of the rule that where one vowel follows another, the

first vowel is pronounced with a long sound and the second vowel is silent (ordeal, coast).

By December, David will correctly separate 20 words by syllables with 90% accuracy on each of 5 trials to demonstrate understanding of the rule that each syllable in a word must contain a vowel (les-son).

For who are benchmarks or objectives required?

As was said above, now benchmarks or short-term objectives are required only for children who take alternate assessments aligned to alternate achievement standards (e.g., an alternate, non-standard curriculum). Alternate assessments based on alternate academic achievement standards are intended for children with the most significant cognitive disabilities.

While this type of alternate assessment must be linked to grade-level content, it typically does not fully represent grade-level content, only a sampling of it. Moreover, this type of alternate assessment may be linked to “extended content standards” that a state develops, standards that may restrict or simplify grade-level content in order to make it accessible to children with the most significant cognitive disabilities (U.S. Department of Education, 2007, p. 18). The state may define these content standards in grade clusters (e.g., grades 3-5).

2.2 IEP Writing Process

The Individual Education Program (IEP) is every exceptional or identified student's lifeline for academic success. If students with special needs are to achieve the academic curriculum or an alternative curriculum to the best of their ability and as independently as possible, the professionals involved in the delivery of their programming must have a plan in place. The IEP document is critical because it steers the educational program for any given student. Because of the importance of this document, the task of writing an effective IEP can be daunting. The IEP is the document that provides a blueprint for a

child's instructional program and lays the framework for how his time is spent. Because the IEP plays such a critical role, it is essential for parents to identify both long-term and short-term objectives for their child, and that the document is well written. The following points are important to consider while writing an IEP for a child:

2.2.1 Assessing Present Level of Performance (PLOP)

An appropriate program for a student with a disability begins with an IEP that reflects the results of the student's individual evaluation and describes the needs of the student to be addressed through the provision of special education services, including a student's strengths, interests and preferences and concerns of the parents. This section of a student's IEP identifies the areas of unique needs related to the student's disability and the current level of functioning, including the strengths of the student, related to those areas. This is the foundation on which the Committee builds to identify goals and services to address the student's individual needs.

PLOP also known as the PLP or the present level of academic and functional performance (PLAAFP), the present level of performance is the portion of your child's IEP that details how she is doing academically at the moment. An accurate and complete PLOP is essential for determining appropriate goals for the child. After all, if parents and child's teachers can't agree on where a child is starting from, it is difficult to determine where actually they should go.

While fine tuning an IEP, teachers, therapists and parents should contribute their observations about the student's performance level in academic and non-academic areas. This can be determined by a portfolio of the student's work, report cards and notes about the student's interpersonal skills. Also, test scores should be included as appropriate to further document the student's current ability.

Most of the IEP writing process contain a section called "present level of performance" (PLOP) or "Educational Status." Typically this is completed by a lengthy narrative about the student, often including information on the family, the disability, school history and

more, plus all the assessment data from speech and language evaluations, psychological and psycho-educational evaluation and more. The present level of performances (PLOPs) is the starting point in the goal/progress marker development process. These PLOPs are linked to the annual goal by the progress markers. Another element is the service to be provided to move the child's performance from the present level to the accomplishment of the goal. The IEP team, parents and professionals together, should never lose focus on what the child needs, how the child's need will be addressed (service) and what the child will accomplish (GO/Bs) as a result of the services.

If one wants to know how much progress a child has done over a period of time, one must know what it was before. This helps the team to set the goal for the child for a year. Reading 8th grade material at the rate of 150 wpm with only random error is a responsible annual goal depends on that student's present reading level, as well as on his or her intellectual ability, and most of all on the quality and intensity of the instruction. Hence, we must have an actual measured point, a PLOP, from which progress can be evaluated.

Once we have a specific, measured PLOP, we can begin to write an appropriate goal and its progress markers. When we say "measured," we recognize that many perfectly useful PLOPs are based on best remembered "guesstimates," such as how frequently the child hits other children ("at least 3 times every day, sometimes as many as 6 or 7"). The point is that we have a known starting level from which progress can be measured.

2.2.2 Writing Measurable Goals and Objectives

Objectives are the building blocks or steps towards achieving a program's goals. Objectives are specific and concise statements that state that will make what change, by how much, where and by when. When writing goals and objectives, they should be keeping SMART (Specific, Measurable, Attainable, Relevant, and Time-bound).

S = Specific goals and objectives “target areas of academic achievement and functional performance. They include clear descriptions of the knowledge and skills that will be taught and how the child’s progress will be measured

Non specific: Joey will improve reading comprehension skills.

Specific: Given a 5th grade level reading passage with 5 paragraphs, Joey will read each paragraph, identify the main idea of the story and answer 6 reading comprehension questions at 80% accuracy on 4 of 5 samples.

M = Measurable means that the goal can be measured by counting occurrences or by observation. “Measurable goals allow parents and teachers to know how much progress the child has made since the performance was last measured. With measurable goals, you will know when the child reaches the goal.”

Non-measurable: Jack will improve his writing skills.

Measurable: Given a 5th grade writing prompt, Jack will compile a 4-5 paragraph essay at the 4.0 grade level or above using appropriate conventions on 3 samples.

A = Action words – IEP goals include three components that must be stated in measurable terms:

(a) direction of behavior (increase, decrease, maintain, etc.)

(b) area of need (ie: reading, writing, social skills, transition, communication, etc.)

(c) level of attainment (ie; to age level, without assistance, etc.)

No use of action words: Luke will maintain an appropriate physical distance from his peers.

Use of action words: Provided with an appropriate social story and teacher facilitation, Luke will be able to remove himself from altercations with other students and ask the teacher for assistance in controlling his behavior to avoid inappropriate physical touching.

R = Realistic and Relevant goals and objectives “address the child’s unique needs that result from the disability. SMART IEP goals are not based on district curricula, state or district tests, or other external standards.”

Unrealistic Realistic: Evan will demonstrate improved performance on math word problems.

Realistic and relevant: Given a 5th grade level math word problem, Evan will draw pictures representing the word problem steps to assist him in visualizing the problem steps in order to comprehend the language of the math problem.

T = “Time-limited goals enable you to monitor progress at regular intervals.”

Not time limited: Rachel will improve her reading skills by 1 grade level.

Time-limited: Rachel will improve her reading skills from a 3.0 grade level to a 4.0 grade level by the end of the year.

Rachel will improve her reading skills from a 3.0 grade level to a 3.2 grade level within 9 weeks.

Rachel will improve her reading skills to a 3.4 grade level within 18 weeks

Rachel will improve her reading skills to a 3.7 grade level within 27 weeks.

Rachel will improve her reading skills to a 4.0 grade level within 1 year.

In addition to writing goals that fit the **SMART** criteria, we must learn to use the data provided to us by our educational team to help us write those goals. All test results, evaluations, benchmark tests and studies conducted on, with or for your child are available to you simply by asking for them. I encourage everyone to visit learn about the evaluations used on your child by the schools, learn what the scores mean and learn how to apply them to writing goals. The better educated we are, as parents, the better advocates we can be for our children.

In writing measurable goals and objectives, the first step is to identify the child's unique needs. Next, for the major needs that requires a goal (i.e., it is something the student needs to learn to do), the PLOP must be specific, objective, and measurable. The PLOP must be current, accurate and specific because it is the point from which future progress will be measured. The unit in which it is measured will be the measurable unit for the goal and the progress markers. Once we have the PLOP, we can begin to write the GO/B. To be measurable, a goal or progress marker must contain an observable learner performance, specify the criterion or level of satisfactory performance and include any essential givens or conditions.

Suppose an IEP meeting revealed that a disabled child who is successful in the general curriculum in a regular class, he must be able to do the activity that he has learnt. This behavior is important to the regular teacher on the IEP team and it will become a goal. Perhaps it can be reached in a few weeks and then replaced by a different goal. However, ignoring replaceable behavior, reinforcement positive behavior is reasonable. Sometimes it is easier or more to think first of writing the annual goal. Other times, it might work better to begin with writing the first progress marker and move toward the goal. Here it seems very clear that we want the child have zero negative behavior.

Once we have a measured PLOP and a reasonable, measurable goal in the same units (e.g. number of hand raises), we use our best judgment, writing reasonable progress markers, and specify the service needed.

2.2.3 Factors in Projecting Annual Goals

The goal setting error occurred when goals are based solely on past rate of progress. A closely related error is that wrongly using a disability as the reason for low goal setting. For instance, some say "Joe has a learning disability in math. Therefore, we should project an annual goal of only a few months in math," even though Joe may have above average intelligence. There is need of finding appropriate methodology that is effective for the children and enable them to make more rapid progress. The IEP team is more

likely to be faulted for projecting insufficient progress than for being overly optimistic. Another factor which comes during goal setting is known about the effectiveness of the teacher and the program to be used. For example, daily 1:1 Orton Gillingham tutoring or small group direct instruction with a qualified, experienced teacher would be expected to provide far greater gains than would result from a resource room placement for 45 minutes three times a week with 18 other students and a new teacher not certified in special education or remedial reading.

The next factor is the importance we attach to the goal and the quality of focus on it. Suppose that Kassie is a 5th grader struggling to read between 2nd and 3rd grade material. Next year she will enter middle school where she'll be lost if she cannot read independently. We need to make a real push this year to get to her to a solid fourth or eleven grade level. We are willing to sacrifice something else to get her to an independent level independent level in reading, and we believe it can be done. With the IEP team's agreement, Kassie's approval, and everyone's recognition of the importance of reading, we set a goal for the year: "Given 5th grade reading material, Kassie will read orally at 120 cwpm and will correctly answer 9 of 10 literal comprehension questions over that material." It's a high expectation which all parties support. The service, in turn, must be geared to producing this desired outcome.

In a nutshell, goal setting is based on experience, common sense, team input and professional judgment. It takes into account the abilities of the student and the importance of the goal area to the student at the time.

2.3 Benchmarking IEP Goals and Objectives

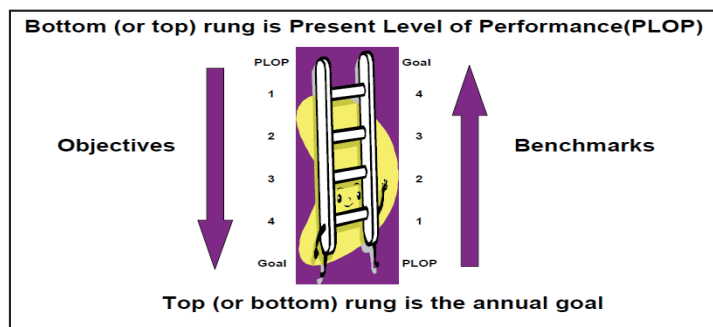
Benchmarks are the major milestones that the student will demonstrate that will lead to the annual goal. Benchmarks usually designate a target point in time for a behavior to occur (for example, the amount of progress the student is expected to make within specified segments of the year). Generally benchmarks establish expected performance

levels that allow for regular checks of progress that coincide with the reporting periods for informing parents of their child's progress toward the annual goals.

There are two processes of writing PLOPs and GO/Bs viz. ladders and pies. However, the grand rule of GO/Bs-there is more than one right way to write any measurable goal or objective. For almost every example of good GO/B, there are additional ways it could have been written. The vital element in a GO/B is always objective measurability.

Ladders

Goals and their progress markers come in two styles- ladders and pies. Ladders consist of bottom (or top) rung in the ladder is the PLOP and the top (or bottom) rung is the annual goal. The in-between rungs are the objectives or benchmarks, one for each grading/reporting period. The annual goal is simply the progress marker for the last grading/reporting period. All the rungs, including the PLOP and the annual goal, use the same unit of measurement. Some of us are more comfortable thinking and writing from 'up' to 'down'. Others like the idea of building 'up'. Perhaps building up works best conceptually, but climbing down the ladder may be a more familiar, comfortable progression. We'll use climbing down from PLOP to goal (safe on the ground).



<Figure 2.1> IEP goals objective rung with PLOP

For ladder type GO/Bs, all the rungs from PLOP to annual goal must use the same units of measurement. Below are examples of abbreviated and "lying-on-their-side" ladders. These have only one progress marker instead of the usual three or more, to illustrate the necessary of keeping the same units of measurement throughout the sequence.

<Table: 2.1> PLOP, Progress Marker and Annual Goals

PLOP	Illustrative Progress Marker	Annual Goal
Orally read 3rd grade text at 25 wpm with 5-10 errors	Orally reads 3rd grade text at 50 wpm with 0-2 errors	Orally reads 3rd grade text at 90 wpm with 0-2 errors.
Spells 30 words dictated from 7th grade list with 50% correct	Spells 30 words dictated from 7th grade list with 75% correct	Spells 30 words dictated from 7th grade list with 95% correct
Tantrum an average of 50 minutes per week	Tantrum an average of less than 5 minutes per week	Tantrums an average of zero minutes per week.
Independently walks about 4 steps before falling	Independently walks across the room without falling	Independently walks on even surfaces without falling.

Pie

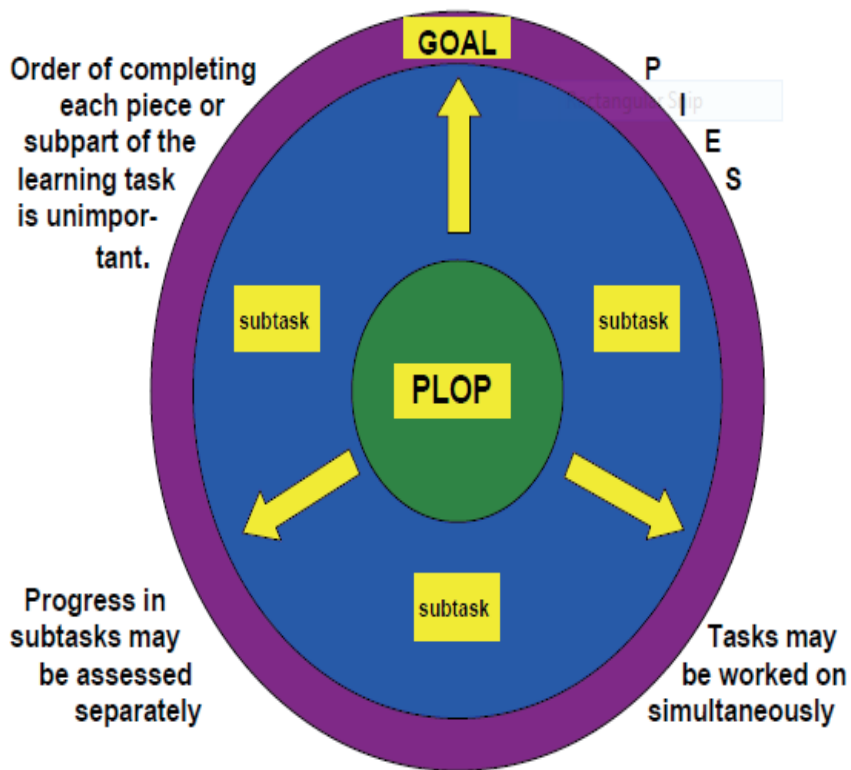
Pies are different from ladders in that in a pie the order of completing each piece or subpart of the task may be worked on simultaneously. The order of completion matters little or not at all. Progress in each subtask may be assessed separately and in different units. In the following example, Bethany will have reached the goal (outer rim of the pie), when all three subtasks are mastered.

PLOP: Bethany books down at the ground when an individual starts talking to her, moves 2 or more feet away and doesn't respond when the person introduces himself/herself.

Goal: Bethany will stay or move within one foot of a

Person, who initiates verbal interaction, will maintain eye contact as long as that person is talking to her, and will respond to introduction by looking the person in the eye and saying, "Hi, my name is Bethany."

Pie example #1



<Figure 2.2> Pie showing PLOP, Goal and subtasks (objective benchmarking)

Pie example #2

A second pie example is learning to tell time. Unless one uses only digital time pieces, learning to tell time requires that the student be able to (a) count to 60, at least by 5s, (b) show which direction the hands move (c) identify the numerals or their substitutes and (b) apply the rule that "the little hand points (to the hour) and the big hand counts (the minutes)." All of these pie pieces need to be mastered but the order matters little. If all slices of a pie are worked on together, it's possible that none would be mastered by the end of a grading period. Special care is then required progress accurately and meaningfully.

So far we have glossed over the difference, if any, between objectives and benchmarks. According to IDEA, short-term objectives "break the skills described in the annual goal down into discrete components, "while benchmarks described in the amount of progress the child is expected to make within specified segments of the year". Thus, technically speaking, the subtasks in a pie are objectives and our ladder rungs are benchmarks which specify the amount of progress anticipated each grading period. However the distinction seems to make very little difference and the term "progress markers" includes both.

2.4 MI Theory in the Development of IEPs

In special education program, the MI theory comes itself into consideration in mind well to the development of teaching strategies particularly for the preparation of individualized education programs (IEPs). MI theory is extremely useful in identifying students' strengths, and this information can serve as a basis for deciding what kinds of interventions are most appropriate for inclusion in the IEP..

<Table: 2.2> an Example of Remedial Strategies for Different Type of Intelligences

Strategy	Linguistic Remedial Strategy	Logical-mathematical Remedial Strategy	Spatial Remedial Strategy	Bodily-Kinesthetic Remedial Strategy	Musical Remedial Strategy	Interpersonal Remedial Strategy	Intrapersonal Remedial Strategy	Naturalist Remedial Strategy
Letter Reversals: "b" and "d"	Identify through context in words or sentences	Play anagrams or other word pattern games	Color code b's and d's; use stylistic features unique to each other; create "pictures" out of letters	Use kinesthetic mnemonic	Sing songs with lots of b's in them to help differentiate	Give letter cards with b's and d's randomly to students, have them find others with their sound and then check answers visually with cards	List favorite words that begin with b and d	List favorite animals and plants that begin with b and d

All too often a student having problems in a specific area will be given an IEP that neglects his most developed intelligences while concentrating on his weakness. For instance, a student with well developed bodily-kinesthetic and spatial intelligences may be having difficulty learning to read. In many schools today, he would be given an IEP that falls to include bodily-kinesthetic and special activities as a means of achieving his educational objectives

MI theory suggests a fundamentally different approach: teaching through intelligences that have been previously neglected by educators working with the child. The following [Table 2.2](#) shows examples of IEPs that might be written for students who have had difficulty learning to read yet possess strengths in other intelligence areas.

<Table 2.3> Sample MI Plans for Individualized Education Programs

<p>Subject: Reading</p> <p>Short-term Instructional Goal: When presented with an unfamiliar piece of children's literature with a readability level of beginning 2nd grade, the students will be able to effectively decode 80 percent of the words and answer four out of five comprehension based on its content.</p> <p>Plan-1: For a child with strong bodily-kinesthetic and spatial intelligence</p> <p>Student can</p> <ul style="list-style-type: none">• Act out new words and the content of new stories• Make new words into pictures (e.g., hanging lights on the word "street")• Sculpt new words using clay.• Draw pictures expressing the content of the books <p>Assessment. Student is allowed to move his body while reading the book; student can answer content questions by drawing answer rather than (or in addition) responding orally.</p> <p>Plan 2: For a child with strong musical and Interpersonal Intelligence</p> <p>Students can</p> <ul style="list-style-type: none">• Make up songs using new words.• Play board games or card games that require learning new words.• Read children's literature to another child.• Teach a younger child to read. <p>Assessment. Student is allowed to sing while reading a book; student may demonstrate competency by reading a book to another child or answering content questions posed by peer.</p>

In the new role of teacher, MI consultants, perhaps operating like Gardner's student-curriculum brokers can assist regular classroom teachers in some of the following tasks:

- Identifying students' strongest intelligences
- Focusing on the needs of specific students
- Designing MI curriculum
- Creating specific MI interventions
- Working with groups using MI activities

Let Us Sum Up

IEP writing is a rigorous process of making a legal document intended for the needy students to provide him/her all necessary and possible services to enhance academic performance. It is prepared by the group of highly qualified professionals along with the school family and parents. Goals and objectives are carefully chosen for the child so that they could be monitored objectively and frequently to achieve the targeted performance. Benchmarking of short term objectives to meet the annual goal and frequent marking them is the special feature of an IEP. In IEP writing process, present level of performance is taken a base to precede IEP. PLOP gives a bass to compare the performance achieved later once the IEP is being implemented. Goals and objectives should be measurable. There are many ambiguities in making the goals and objectives measurable. For e.g., only the action verbs used in writing goals and objectives does not guarantee that they became measurable. Benchmarking IEP goals and objectives is necessary for ensuring good measurement of the targeted progress. The Multiple Intelligence Theory has become a useful reference to develop an IEP. Now a day, MI Theory has been an inseparable part in developing IEP.

Unit-end Activities

Group "A"

- **Objective questions:**

Tick (✓) the best answers

1. IEP process is a complex job. It is carried out by.....
 - a. a group of teachers only
 - b. school administration only
 - c. a group of parents
 - d. a group of professionals, parents and teachers**
2. What is an IEP process?
 - a. A process of making IEP
 - b. A rigorous process of making and implementing IEP**
 - c. A process of implementing an already made IEP
 - d. A process of collecting and interpreting the special events experienced by the child
3. What is the meaning of the term "Benchmarking" in IEP process?
 - a. Specially marking the benches where the disabled children sit in the classroom
 - b. Setting the classroom furniture as needed by the disabled children
 - c. An interim steps a child will take to reach an annual goal**
 - d. Comparing the achievement of the individual child with their friends
4. The core concern of the whole IEP process is to enhance the child's.....
 - a. social behavior
 - b. school behavior
 - c. mobility
 - d. education and learning**

5. The IEP writing process is usually just begins from a section called.....
 - a. **Child's Present Level of Performance**
 - b. Child's initializing behavior
 - c. Child's entering behavior
 - d. Study of child's psychology
6. Which one of these is not a component of SMART goal in IEP?
 - a. Specific
 - b. Measurable
 - c. **Accurate**
 - d. Relevant
7. In 'Ladder' style of progress marking of goals and objectives in IEP, PLOP is on the.....
 - a. **bottom rung of the ladder**
 - b. middle rung of the ladder
 - c. every rung of the ladder
 - d. none of the above
8. MI theory is useful for making different components child's need based in an IEP. However, it is not intended in.....
 - a. developing curricula
 - b. developing instructional strategies
 - c. developing instructional materials
 - d. **developing vocational skills**
9. The progress monitoring of goals and objectives by using 'Pizza Model' style, the ring of the pizza denotes for.....
 - a. PLOP
 - b. benchmarks
 - c. subtasks
 - d. **goals**

10. The IEP team should have while making IEP for a particular student.
- Individual-student perspective
 - whole-student perspective**
 - disability-focused perspective
 - focused perspective medical intervention

Group "B"

- **Short answer questions:**

1. Define IEP goals and objectives in short.
2. What is the purpose of benchmarking goals and objectives in IEP process?
3. What is PLOP? Describe its importance in writing IEP.
4. Describe 'Ladder' style of progress monitoring of goals and objectives.
5. How MI theory can contribute in the development of IEP? Explain.

Group "C"

- **Long answer questions:**

1. Explain the importance of IEP goals, objectives and benchmarks in detail.
2. Describe an IEP writing process in brief.
3. How MI Theory and IEP process are interrelated? Describe providing some references.

Points for Discussion

- Making SMART IEP goals and objectives
- Process of IEP writing
- Monitoring progress during implementation of IEP
- Using MI Theory in developing IEP

Unit III: MI Theory and Personal Development of Special Needs Students

3.1 Describing Intelligences in Children

It is true that every child possess all eight intelligences and can develop them to a reasonable level competence, children begin showing what Howard Gardner calls "proclivities" toward specific intelligences from a very early stage. During the schooling time, the students might have developed their own ways of learning that run more along the lines of some intelligence than others. The following figure provides an idea about the capacities of children who display proclivities in specific intelligences. Teacher should keep in mind that most students have strengths in several areas, so teacher should avoid pigeon-holing a child in only one intelligence.

<Figure: 3.1> Eight Ways of Learning

Eight Ways of Learning			
Children who are highly...	Think...	Love....	Need.....
Linguistic	In words	Reading, writing, telling stories, playing word games	Books,, tapes, writing tools, paper, diaries, dialogue, discussion, debate, stories
Logical-Mathematical	By reasoning	Experimenting, questioning, figuring out logical puzzles, calculating	Materials to experiment with, science materials, manipulative, trips to planetariums and science museum
Spatial	In images and pictures	Designing, drawing, visualizing, doodling	Art, legos, video, movies, slides, imagination games, mazes, puzzles, illustrated books, trips to art museum
Bodily-Kinesthetic	Through somatic sensations	Dancing, running, jumping, building, touching, gesturing	Role-play, drama, movement, building things, sports and physical games, tactile experiences, hands-

			on learning
Musical	Via rhythms and melodies	Singing, humming, tapping, foot and hands, listening, whistling, tapping	Sing-along time, trips to concerts, playing music at home and school, musical instruments
Interpersonal	By bouncing ideas off other people	Leading, relating, mediating, partying, organizing, manipulating	Friends, groups games, social gatherings, community events, clubs, mentors/apprenticeships
Intrapersonal	In relation to their needs, feelings, and goals	Setting goals, dreaming, reflecting, mediating, planning	Secret places, time alone, self-paced projects, choices
Naturalist	Through nature and natural forms	Playing with pets, gardening, investigating nature, raising animals, caring for planet earth	Access to nature, opportunities for interacting with animals, tools for investigating nature (e.g., magnifying glasses, binoculars)

H. Gardner says that our schools and culture focus most of their attention on linguistic and logical-mathematical intelligence. We esteem the highly articulate or logical people of our culture. However, Dr. Gardner says that we should also place equal attention on individuals who show gifts in the other intelligences: the artists, architects, musicians, naturalists, designers, dancers, therapists, entrepreneurs, and others who enrich the world in which we live. Unfortunately, many children who have these gifts don't receive much reinforcement for them in school. Many of these kids, in fact, end up being labeled "learning disabled," "ADD (attention deficit disorder)," or simply underachievers, when their unique ways of thinking and learning aren't addressed by a heavily linguistic or logical-mathematical classroom.

The theory of multiple intelligences proposes a major transformation in the way our schools are run. It suggests that teachers be trained to present their lessons in a wide variety of ways using music, cooperative learning, art activities, role play, multimedia, field trips, inner reflection, and much more. Now a day, the theory of multiple intelligences has grabbed the attention of many educators around the country, and hundreds of schools are currently using its philosophy to redesign the way it educates children. The bad news is that there are thousands of schools still out there that teach in the same old dull way, through dry lectures, and boring worksheets and textbooks. The

challenge is to get this information out to many more teachers, school administrators, and others who work with children, so that each child has the opportunity to learn in ways harmonious with their unique minds.

How to teach or learn anything 8 different ways

One of the most remarkable features of the theory of multiple intelligences is how it provides eight different potential pathways to learning. If a teacher is having difficulty reaching a student in the more traditional linguistic or logical ways of instruction, the theory of multiple intelligences suggests several other ways in which the material might be presented to facilitate effective learning. Whether you are a kindergarten teacher, a graduate school instructor, or an adult learner seeking better ways of pursuing self-study on any subject of interest, the same basic guidelines apply. Whatever you are teaching or learning, see how you might connect it with

- words (linguistic intelligence)
- numbers or logic (logical-mathematical intelligence)
- pictures (spatial intelligence)
- music (musical intelligence)
- self-reflection (intrapersonal intelligence)
- a physical experience (bodily-kinesthetic intelligence)
- a social experience (interpersonal intelligence), and/or
- an experience in the natural world. (Naturalist intelligence)

For example, if you're teaching or learning about the law of supply and demand in economics, you might read about it (linguistic), study mathematical formulas that express it (logical-mathematical), examine a graphic chart that illustrates the principle (spatial), observe the law in the natural world (naturalist) or in the human world of commerce (interpersonal); examine the law in terms of your own body [e.g. when you supply your body with lots of food, the hunger demand goes down; when there's very little supply, your stomach's demand for food goes way up and you get hungry] (bodily-

kinesthetic and intrapersonal); and/or write a song (or find an existing song) that demonstrates the law.

You don't have to teach or learn something in all eight ways, just see what the possibilities are, and then decide which particular pathways interest you the most, or seem to be the most effective teaching or learning tools. The theory of multiple intelligences is so intriguing because it expands our horizon of available teaching/learning tools beyond the conventional linguistic and logical methods used in most schools (e.g. lecture, textbooks, writing assignments, formulas, etc.). To get started, put the topic of whatever you're interested in teaching or learning about in the center of a blank sheet of paper, and draw eight straight lines or "spokes" radiating out from this topic. Label each line with a different intelligence. Then start brainstorming ideas for teaching or learning that topic and write down ideas next to each intelligence (this is a spatial-linguistic approach of brainstorming; you might want to do this in other ways as well, using a tape-recorder, having a group brainstorming session, etc.)

3.2 Components of MI Theory

Gardner posited that in order for a cognitive capacity to qualify as an independent "intelligence" (rather than as a sub-skill or a combination of other kinds of intelligence), it must meet eight specific criteria. First, it must be possible to thoroughly symbolize that capacity by using a specific notation that conveys its essential meaning. Second, neurological evidence must exist that some area of the brain is specialized to control that particular capacity. Third, case studies must exist that show that some subgroups of people (such as child prodigy) exhibit an elevated mastery of a given intelligence. Fourth, the intelligence must have some evolutionary relevance through history and across cultures. Fifth, the capacity must have a unique developmental history for each individual, reflecting each person's different level of mastery of it. Sixth, the intelligence must be measurable in psychometric studies that are reflective of differing levels of mastery across intelligences. Seventh, the intelligence must have some definite set of

core operations that are indicative of its use. Last, the proposed intelligence must be already plausible on the basis of existing means of measuring intelligence

For something to qualify as intelligence, it has to satisfy Howard Gardner's eight "signs" of intelligence. After extensive research, Gardner identified eight, distinct intelligences. These eight areas of intelligence almost cover all necessary intelligences that a human have possibility to acquire. These are what comprise his theory of Multiple Intelligences:

Spatial

The ability to conceptualize and manipulate large-scale spatial arrays (e.g., airplane pilot, sailor), or more local forms of space (e.g., architect, chess player)



Source: <http://multipleintelligencesoasis.org/about/the-components-of-mi/>

Bodily-Kinesthetic

Bodily-Kinesthetic intelligence is the ability to use one's whole body, or parts of the body (like the hands or the mouth), to solve problems or create products (e.g. dancer).



Source: <http://multipleintelligencesoasis.org/about/the-components-of-mi/>

Musical

Musical Intelligence is related to the sensitivity to rhythm, pitch, meter, tone, melody and timbre. May entail the ability to sing, play musical instruments, and/or compose music (e.g. musical conductor).



Source: <http://multipleintelligencesoasis.org/about/the-components-of-mi/>

Linguistic

Sensitivity to the meaning of words, the order among words, and the sound, rhythms, inflections, and meter of words (e.g. poet). (Sometimes it is called language intelligence.)



Source: <http://multipleintelligencesoasis.org/about/the-components-of-mi/>

Logical-mathematical

The capacity to conceptualize the logical relations among actions or symbols is known by Logical-mathematical intelligence (e.g. mathematicians, scientists). Famed

psychologist Jean Piaget believed he was studying the range of intelligences, but he was actually studying logical-mathematical intelligence.



Source: <http://multipleintelligencesoasis.org/about/the-components-of-mi/>

Interpersonal

This type of intelligence is attributed of ability to interact effectively with others. Sensitivity to others' moods, feelings, temperaments and motivations are predictors of this intelligence (e.g. negotiator). (Sometimes this type of intelligence is also called social intelligence.



Source: <http://multipleintelligencesoasis.org/about/the-components-of-mi/>

Intrapersonal

Sensitivity to one's own feelings, goals, and anxieties, and the capacity to plan and act in light of one's own traits. Intrapersonal intelligence is not particular to specific careers; rather, it is a goal for every individual in a complex modern society, where one has to make consequential decisions for oneself. Sometimes it is called self intelligence.



Source: <http://multipleintelligencesoasis.org/about/the-components-of-mi/>

Naturalistic

The ability to make consequential distinctions in the world of nature as, for example, between one plant and another, or one cloud formation and another (e.g. taxonomist). Sometimes it is called nature intelligence.



Source: <http://multipleintelligencesoasis.org/about/the-components-of-mi/>

3.3 Application of MI Theory

MI theory has been proved extremely successful in enhancing students' learning through the development of curriculum, changing instructional strategies, classroom management, and many more. It is also useful to identify the students' potentialities in which he or she can be successful in the future. The theory has been a good predictor of the student's success and providing broad guidelines for enhancing academic as well as professional career. This theory is not limited to educational institution, but also helps in develop the professional career of the people of different walks of life. Every person

confusing in choosing their future career can be benefitted with the application of this theory. Therefore this theory has many implications in the various fields.

3.3.1 Identifying Multiple Intelligences

Developing a profile of a person's intelligences is not a simple matter. No test can accurately determine the nature or quality of a person's intelligences. As Howard Gardner has repeatedly pointed out, standardized test measures only a small part of the total spectrum of abilities.

An MI inventory for Adults

Check those statements that apply in linguistic intelligence. Space has been provided at the end of each intelligence for you to write additional information not specifically referred to in the inventory items:

For e.g. (Linguistic Intelligence)

- ✓ Books are very important to me
- ✓ I can hear words in my head before I read, or write them down
- ✓ I get more out of listening to the radio or spoken- word recording than I do from television or films.
- ✓ Other people sometimes have to stop and ask me to explain the meaning of the words I use in my writing and speaking
- ✓ English, social studies, and history were easier for me in school than math and science
- ✓ Learning to speak or read another language has been relatively easy for me.
- ✓ My conversation includes frequent references to that I have read or hear
- ✓ I have written something recently that I was particularly proud of or that earned me recognition from others

Other Linguistic Abilities:

Logical-mathematical intelligence

- ✓ I can easily compute numbers in my head.
- ✓ Math and science were among my favorite subjects in school.
- ✓ I enjoy playing games or solving brainteasers that require local thinking.
- ✓ I like to set up little "what if" experiments.
- ✓ My mind searches for patterns, regulations, or logical sequences in thing.
- ✓ I am interested in new development in science.
- ✓ I believe that almost everything has a rational explanation.
- ✓ I am sometimes think in clear, abstract, wordless, imageless concepts.
- ✓ I like finding logical flaws in things that people say and do at home and work.
- ✓ I feel more comfortable when something has been measured, categorized, analyzed or quantified in some way.

Other Logical-mathematical abilities

Spatial Intelligence

- ✓ I often see clear visual images when I close my eyes.
- ✓ I'm sensitive to color.
- ✓ I frequently use a camera or camcorder to record what I see around us.
- ✓ I enjoy doing jigsaw, puzzles, mazes, and other visual puzzles.
- ✓ I have vivid dreams at night.
- ✓ I can generally find my way around unfamiliar territory.
- ✓ I like to draw a doodle.
- ✓ Geometry was easier to me than algebra in school.
- ✓ I prefer looking at reading material that is heavily illustrated.

Other Spatial Abilities:

The best way to assess own multiple intelligences, therefore, is through a realistic appraisal of own performance in the many kinds of tasks, activities and experiences associated with each intelligence. Rather than perform several artificial learning tasks, look back over the kinds of real life experiences that one already had involving these eight intelligences.

It is important to keep in mind that formation of MI inventory helps connecting life experiences with the eight intelligences. It gives the experiences of memories, feelings, and ideas emerge from this process

3.3.2 Tapping MI Resources

The theory of multiple intelligences is an especially good model for looking at teaching strengths as well as for examining areas needing improvement. Perhaps one avoids drawing pictures on the blackboard or stay away from using highly graphic materials in your presentations because spatial intelligence is not particularly developed in one's life. Or one possibly gravitates toward cooperative learning strategies or ecological activities because he/she are an interpersonal or naturalist sort of learner/teacher oneself. Use MI theory to survey in own style, and see how it matches up with the eight intelligences. While one does not have to be a master in all eight intelligences, one should probably know how to tap resources in the intelligences one typically shy away from in the classroom. Here are some ways to do it:

Draw on colleagues' expertise. If you don't have ideas for bringing music into classroom because your musical intelligence is undeveloped, consider getting help from school's music teacher or a musically inclined colleague. The theory of multiple intelligences has broad implications for team teaching. In a school committed to developing student's multiple intelligences, the ideal teaching team or curriculum planning committee includes expertise in all eight intelligences, that is, each member possesses a high level of competence in a specific intelligence.

Ask students to help out. Students can often come up with strategies and demonstrate expertise in areas where your own knowledge may be deficient. For example, students may be able to do some picture drawing on the board, provide musical background for a learning activity, or share knowledge about lizards, insects, flowers, or other fauna or flora, if you don't feel comfortable or competent doing these things yourself.

Use Available technology. Tap your school's technical resources to convey information you might not be able to provide through your own efforts. For instance, you can use tape recordings of music if you are not musical, videotapes if you are not picture-oriented, calculators and self-paced computers software to supplement your shortcomings in logical-mathematical areas, and so on.

The final way to come to grips with intelligences that seem to be "blind spots" in your life is through a process of careful cultivation or personal development of your intelligences. MI theory provides a model through which you can activate your intelligences and balance your use of all intelligences.

3.3.3 Developing Multiple Intelligences

Describing a person's intelligences, the terms "strong intelligences" and "weak intelligences" should not be used with due care while describing individual differences among a person's intelligences, because a person's "weak" intelligence may actually turned out to be her strongest intelligence, once it is given the chance to develop. The key point in MI theory is that most people can develop all their intelligences to a relatively acceptable level of mastery. The following three factors are responsible for developing the intelligences:

1. *Biological endowment:* including hereditary or genetic factors and insults or injuries to the brain before, during, and after birth
2. *Personal life history:* including experiences with parents, teachers, peers, friends, and others who awaken intelligences, keep them from developing, or actively repress them
3. *Cultural and historical background:* including the time and place in which you were born and raised and the nature and state of cultural or historical developments in different domains.

The following picture provides some tips to reflecting the essence of all the factors as a whole to develop intelligences in different areas:



<Figure 3.1> factors essential for developing Multiple Intelligence

Wolfgang Mozart came into life already possessing a strong biological endowment (a highly developed right temporal lobe, perhaps). He was born into a family of musical individuals; in fact, his father was a composer who gave up his own career to support his son's musical development. Mozart was genius, therefore, arose through a confluence of biological, personal, and cultural/historical factors. His musical gifts likely would never have developed to a high level because of the forces working against his biological endowment.

The interaction of the above factors is also evident in the musical proficiency of many of the children who have been enrolled in the Suzuki Talent Education Program. MI theory is a model that values nurture as much as, and in some ways more than, nature in accounting for the development of intelligence.

3.4 Activators and Deactivators of Intelligences

In the developing of intelligences, there are two key processes: (a) **Crystallization experiences** and (b) **paralyzing experiences**. The first concept originating with David Feldman (1980) at Tufts University and further developed by Howard Gardner and his colleagues (Walter and Gardner, 1986), are the "turning points" in the development of a person's talents and abilities. Often these events occur in early childhood, although they can occur any time during the life span. For example, when Elbert Einstein was 4 years old, his father showed him a magnet compass. The adult Einstein later said this compass filled him with a desire to figure out the mysteries of the universe. Essentially, this experience activated his genius and started him on his journey toward discoveries that would make him one of the towering figures on 20th century thought. Crystallization experiences then are sparks that light intelligence and start its development toward maturity.

Conversely, the term paralyzing experiences to refer to experiences that "shut down" intelligences. Perhaps a teacher humiliated a student in front of classmates when he showed his drawing during art period, and that event marked the end of his artistic development. Paralyzing experiences are often filled with shame, guilt, anger, and other negative emotions that our intelligences from growing and thriving (Miller, 1981)

The following environmental influences also promote or suppress the development of intelligences:

- Lack of access to resources or mentors
- Historical-cultural factors

- Kind of intelligences that developed in the children depends on the geography where they are brought up.
- Conflicting interest of parents and children
- Situational factors such as family size in which one has grown up

MI theory offers a model of personal development that can help educators understand how their own profile of intelligences affects their teaching approaches in the classroom. Further, it opens the gate to a broad range of activities that can help us develop neglect intelligences, activate underdeveloped or paralyzed intelligences, and bring well-developed intelligences to even higher levels of proficiency.

Let Us Sum Up

From the very beginning of the childhood, children develop the specific line of intelligence which in Gardner's word is called "proclivities". Most students have strength in certain areas which a teacher should heed out. Gardner categorized the intelligences in 8 different types and suggested that there must be the separate teaching strategy with the teachers to address all the areas of intelligence of the children. Teachers should wide varieties of ways of teaching to enhance different intelligence, so that each child has the opportunity to learn in ways harmonious with their unique minds. There are eight different components of Multiple Intelligence representing different type of abilities of the children. This theory has very crucial in making IEP of the children and applicable if enhancing al round academic development of the children. There are methods of identifying the intelligences existed in an individual; through the use of separate inventories for different type of intelligences. There are different ways to tapping MI resources like drawing on colleagues' expertise, ask student to help out, use available technology etc. All the people can develop their intelligences to a relatively acceptable level of mastery. Biological factors, endowment, personal life history and cultural and historical background of person can make difference in the ability of intelligence. Intelligences can be activated and deactivated by certain experiences of an

individual. Crystallization experiences help in developing intelligences while paralyzing experiences inhibit the intelligence exposure or "shut-down" intelligences.

Unit-end Activities

Group "A"

- **Objective questions:**

Tick (✓) the best answers

1. Every child possess.....
 - a. one intelligence
 - b. three intelligences
 - c. maximum five intelligences
 - d. all the areas of intelligences**
2. 'Doodling' is
 - a. linguistic intelligence
 - b. Logical-mathematical intelligence
 - c. Spatial intelligence**
 - d. Bodily-kinesthetic intelligence
3. According to Howard Gardner, Schools focus most of their attention on.....
 - a. linguistic and logical-mathematical intelligences**
 - b. linguistic and spatial intelligences
 - c. interpersonal and intrapersonal intelligences
 - d. natural and musical intelligences
4. One of the most remarkable features of the MI theory is.....
 - a. how it provides eight different potential pathways to learning**
 - b. student are able to select their career
 - c. teachers are able to carry out their duty effectively
 - d. schools are able to keep the students' discipline intact

5. Which is the intelligence attributed of ability to interact effectively with others?
 - a. Intrapersonal intelligence
 - b. Interpersonal intelligence**
 - c. Natural intelligence
 - d. linguistic intelligence
6. The theory of Multiple Intelligence has broad implications for.....
 - a. traditional teaching
 - b. single teaching
 - c. team teaching**
 - d. one to one teaching
7. The key point in MI theory is that most people can develop their intelligences to a...
 - a. relatively acceptable level of mastery**
 - b. extremely high level
 - c. controlled level of mastery
 - d. none of the above
8. Shame, guilt, anger and other negative emotions are.....
 - a. crystallization experiences
 - b. paralyzing experiences**
 - c. natural experiences
 - d. monotonous experiences

Group "B"

• **Short answer questions:**

1. Give an account on the way of earning logical-mathematical intelligence.
2. How intelligence in adult can be identified? Describe with an example.
3. What do you understand by 'tapping MI resources'? Explain.
4. Describe in brief the way of developing musical intelligence in children.
5. What are activators and deactivators intelligence?

Group "C"

- **Long answer questions:**

1. Explain how MI theory contributes in career building of children.
2. Describe how a teacher should eight different intelligences in the children.
3. What are the components of Multiple Intelligences? Describe each component with necessary examples.

Points for Discussion

- How to find out intelligences in children
- Importance of MI knowledge by the teacher
- How to tap MI resources
- Identifying activators and deactivators of intelligence in children

Unit IV: MI and Curriculum Development

4.1 Concept of Multimodal Teaching

The concept of multimodal teaching was first developed by Even Plato (1952) and he wrote ".....do not use compulsion, but let early education be a sort of amusement; you will then be better able to find out the natural bent". In the modern time, most of the teaching models developed systems of teaching based upon more than verbal pedagogy. The 18th century philosopher Jean Jacques Rousseau declared in his classic treatises on education, *Emile* that the child must learn not through words but through experiences, not through books but through "the book of life."

Multimodal teaching is a style in which students learn material through a number of different sensory modalities. For example, a teacher will create a lesson in which students learn through auditory and visual methods, or visual and tactile methods. Teachers can use any combination of learning modalities; however in multimodal teaching, a teacher must utilize more than one. This successful teaching style implements many strategies to ensure students understand and retain information.

The Swiss educationist Johann Heinrich Pestalozzi emphasized on integrated curriculum that regarded physical, moral, and intellectual training based solidly on concrete experiences. The founder of the modern day kindergarten, Friedrich Froebel, developed a curriculum consisting of hands-on experiences with manipulative (gifts), in addition to playing games, singing songs, gardening and caring for animals. The 20th century philosophers like Maria Montessori and Johan Dewey evolved the system of instruction based upon MI-like techniques, including Montessori's tactile letters and other self-paced materials and Dewey's vision of the classroom as a microcosm of society.

In the light of these different models, MI system of instruction is another alternative educational model which use different terminologies (with varying level of emphasis

upon the different intelligences). Cooperative learning, for example, seems to place its greatest emphasis upon interpersonal intelligences; yet specific activities can involve students in each of the other intelligences as well. Other sorts of instructions are whole language instruction and in its core, the cultivation of linguistic intelligence, yet uses music, hands-on activities, introspection and group work to carry out fundamental goals.

The theory of Multiple Intelligence encompasses what good teacher has always done in their teaching: reaching beyond the text and the blackboard to awaken students' minds. The movies about great teachers like *Stand and Deliver (1987)* and *Dead Poets Society (1989)* underlie these points. In *Stand and Deliver*, Jaime Escalante, a high school mathematics teacher, uses apples to introduce fractions, fingers to teach multiplication, and imagery and metaphor to clarify negative numbers (if one digs a hole in the ground, the hole represents negative numbers, the pile of dirt next to it signifies positive numbers). In *Dead Poet Society*, John Keating, the pre-school instructor has students reading literary passages while kicking soccer balls and listening to classical music. MI theory provides a way for all teachers to reflect upon their best teaching methods and to understand why these methods work (or why they work well for some students and not for all students). It also helps teachers expand their current repertoire to include a broader range of methods, materials, and techniques for reaching an ever wider and more diverse range of learners. This model of teaching has the following features:

Basics

Multimodal teaching has proven to increase student's test scores. Multimodal teaching is successful because it appeals to all learning styles. Students are ensured to receive their lesson by one or more modality, through which they learn best. Unimodality is another teaching style, in which students receive information through only one modality, such as a visual diagram, or a lecture. In multimodal learning, a teacher will implement a visual to reinforce the lecture or create a multimedia presentation that goes along with the lesson. This interactive teaching style breaks monotony and reinforces overall learning.

Avoiding overload

One of the teaching strategies that multimodal teachers will implement is working to avoid the potential overload that comes with multimodal learning. If the lesson becomes overly complicated and stimulating, students will begin to miss out on the larger message at hand. Overload comes from bogging the lesson down with too many inputs or modalities at once. Teachers will keep modalities both focused and organized. They will also switch activities and lessons every 15 to 20 minutes, as this is the point at which students begin to tune out and lose focus.

Focus and organization

Teachers will implement strategic focus and organization for their students during multimodal learning. Otherwise, they run the risk of information passing over their students without them truly absorbing the lesson. Each modality will work in conjunction with the other, creating a presentation in which words, pictures and multimedia all have a purpose at a logical time within the lesson. Auditory and visual cues that are separated by too much time or space within the lesson will lose impact. With the proper organization and focus, multimodal lessons engage memory and encourage thinking.

Collaboration and reinforcement

Another multimodal teaching strategy that teachers will implement is the use of collaboration and exercises that reinforce learning. Lessons are specifically designed to be interactive. Students will also collaborate with one another and work in pairs or groups. The overall goal is to get students to use as many different learning modalities as possible to absorb the material. Lessons are reinforced by repeating the same, or similar, material through many different modalities. When concepts are repeated, students have a better chance of retaining the information. Quizzes and tests give teachers a measure to see

which modality works best for their students. Homework and supplementary activities also serve as a review (<http://classroom.synonym.com/multimodal-teaching-strategies-12049345.html>).

4.2 The MI Teacher

The MI teachers need to observe my students from seven new perspectives. In planning the centers, a MI teacher finds himself pushing his students from behind rather than pulling them from in front. Also he feels like working *with* them, rather than *for* them. The teacher explores what they explore, discovers what they discover, and often learns what they learn. A teacher in an MI classroom contrasts sharply with a teacher in a traditional linguistic/logical-mathematical classroom. A traditional classroom is characterized by a teacher lecturing in front of the students, writing on the blackboard, asking students about the home assignment, reading hands out materials, and let the students to complete their written work. The MI teacher finds satisfaction in their enthusiasm for learning and independence, rather than in their test scores and ability to sit quietly. And most importantly, because he is planning for such a diversity of activities, he finds himself more creative and multimodal in his own thinking and his own learning. He can now comfortably write and sing songs. He sees growth and development within himself. The teacher sometimes wonders who is changing the most, his students or himself.

In an MI classroom, keeping educational objectives firmly in mind, teacher changes the variety of ways of instructional methods from linguistic to musical to spatial and so on, often combining intelligences in creative ways. MI teacher also do lecturing and writing on the blackboard standing in front of the classroom and spend his a part of instruction time. It is legitimate when applied appropriately but in general teachers in the classrooms have been doing too much of it. The MI teacher draws pictures on the blackboard or shows a video clip to illustrate an idea. The MI teacher may play short music once during the class hour due to one of the following three reasons: (a) to set the

stage for an objective (b) provides the environment for studying the objective and (c) to make a point about the objective.

The MI teacher provides hands on experiences through having the students build something tangible to reveal their understanding. The MI teacher lets the students to interact in different ways, for e.g. in pairs, small groups, or large groups. He also plans time for students to engage in self-reflection, undertake self-paced work, or link their personal experiences and feelings to the material being studied; and creates opportunities for learning to occur through living things.

What MI teacher does or does not should not be rigid for covering instructional dimensions because the MI theory can be implemented in wide range of instructional contexts. It can be implemented from traditional classroom environment to open environments where students regulate most of their own learning. Even traditional linguistic teaching can take place in a variety of ways designed to stimulate the eight intelligences. For e.g. lectures with rhythmic emphasis (musical), draws pictures on the board to illustrate points (spatial), makes dramatic gestures as she talks (bodily-kinesthetic), pauses to give students time to reflect (intrapersonal), and includes references to nature in his lectures (naturalist) is using MI principles within a traditional teacher-centered perspective.

4.3 Key Materials and Methods of Teaching

There is a number of teaching tools in MI theory that go far beyond the traditional teacher-as lecturer mode of instruction. The examples provided below show the key information on material and methods employed in teaching through multiple intelligences.

<Table 4.1> Eight Ways of Teaching

Summary of the Eight Ways of Teaching						
Intelligence	Teaching Activities (Examples)	Teaching Materials (Examples)	Instructional Strategies	Sample Educational movement (primary intelligence)	Sample Teacher Presentation Skill	Sample Activity to Begin a Lesson
Linguistic	Lectures, Discussions, word games, storytelling, choral, reading, journal writing	Books, tape recorders, typewriters, stamp sets, books on tape	Read about it, write about it, talk about it, listen to it	Critical literacy	Teaching through storytelling	Long word on the blackboard
Logical-Mathematical	Brainteasers, problem solving, science experiments, mental calculations, number games, critical thinking	Calculators, math manipulative, science equipment, math games	Quantity it, think critically about it, put it in a logical framework, experiment with it	Critical thinking	Socratic questioning	Posing a logical paradox
Spatial	Visual presentations, art activities, imaginations games, mind-mapping, metaphor, visualization	Graphs, maps, video, lego sets, art materials, optical illusions, cameras, picture library	See it, draw it, visualize it, color it, mind-map it	Integrated arts instruction	Drawing/mind-mapping concepts	Unusual picture on the overhead
Bodily-Kinesthetic	Hands-on learning drama, dance, drama, sports	Building tools, clay, sports equipment,	Build it, act it out, touch it, get a "gut feeling" of it,	Hands-on learning	Using gestures/dramatic expressions	Mysterious artifact passed around the

	that teach tactile activities, relaxation exercises	manipulative, tactile learning resources	dance it			class
Musical	Rhythmic learning, rapping, using songs that teach	Tape recorder, tape collection, musical instruments	Sing it, rap it, listen it	Orff Schulwerk	Using voice rhythmically	Piece of music played as students come into class
Interpersonal	Cooperative learning, peer tutoring, community involvement, social gatherings, simulations	Board games, party supplies, props for role-plays	Teach it, collaborate on it, interact with respect to it	Cooperative learning	Dynamically interacting with students	"turn to a neighbor and share..."
Intrapersonal	Individualizing instruction, independent study, options in course of study, self-esteem building	Self-checking materials, journals for projects	Connect it to your personal life, make choices with regard to it, reflect on it	Individualized instruction	Bringing feeling into instruction	"close your eyes and think of a time in your life when..."
Naturalist	Nature study, ecological awareness, care of animals	Plants, animals, naturalists' tools (e.g., binoculars) gardening tools	Connect to living things and natural phenomena	Ecological studies	Linking subject matter to natural phenomenon	Bring in an interesting plant or animal to spark discussion about topic

Linguistic

- Books
- Brain storming
- Choral reading
- Debates
- Extemporaneous speaking
- Individualized reading
- Journal keeping
- Large and small group discussions
- Lectures
- Manuals
- Memorizing linguistic facts
- Publishing
- Reading to the class
- Sharing time
- Storytelling
- Student speeches
- Talking books
- Tape recording one's words
- Using word processing software
- Word games
- Worksheets
- Writing activities

Logical-Mathematical

- Classification and categorizations
- Computer programming languages
- Creating codes

- Heuristics
- Logical puzzles and games
- Logical problem-solving exercises
- Logical-sequential presentation of subject matter
- Mathematical problems on the board
- Piagetian cognitive exercises
- Calculations and quantifications
- Science thinking
- Scientific demonstration
- Socratic questioning

Spatial

- 3-D construction kits
- Art appreciation
- Charts, graphs, diagrams, and maps
- Colour cues
- Computer graphics software
- Creative daydreaming
- Draw-and-paint/computer-assisted-design software
- Graphic symbols
- Idea sketching
- Imaginative storytelling
- Mind-maps and other visual organizers
- Optical illusions
- Painting, collage, and other visual arts
- Photography
- Picture literacy experiences
- Picture metaphors
- Videos, slides, and movies

- Visual awareness activities
- Visual pattern seeking
- Visual puzzles and mazes
- Visual thinking exercises
- Visualization

Bodily-Kinesthetic

- Body answers
- Body maps
- Classroom theater
- Competitive and cooperative games
- Cooking, gardening, and other "messy" activities
- Crafts
- Creative movement
- Field trips
- Hands-on activities of all kinds
- Hands-on thinking
- Kinesthetic concepts
- Manipulative
- Mime
- Physical awareness exercises
- Physical education exercises
- Physical relaxation exercises
- Tactile materials and experiences
- Use of kinesthetic imagery
- Using body language/hand signals to communicate
- Virtual reality software

Musical

- Creating new melodies for concepts
- Discographies
- Group singing
- Linking old tunes with concepts
- Listening to inner musical imagery
- Mood music
- Music appreciation
- Musical composition software
- Musical concepts
- Playing live music on piano, guitar, or other instruments
- Playing recorded music
- Rhythms, songs, raps, and chants
- Singing, humming, or whistling
- Super-memory music
- Using background music

Interpersonal

- Academic club
- Apprenticeships
- Board games
- Community involvement
- Conflict mediation
- Cooperative groups
- Cross-age tutoring
- Group brainstorming sessions
- Interactive software or internet platforms
- Interpersonal interaction

- Parties or social gatherings as context for learning
- Peer sharing
- People sculptures
- Simulations

Intrapersonal

- Choice time
- Exposure to inspirational/motivational curricula
- Feeling-toned moments
- Goal-setting sessions
- Independent study
- Individualized projects and games
- Interest centers
- One-minute reflection periods
- Options for homework
- Personal connections
- Private spaces for study
- Self-esteem activities
- Self-paced instruction
- Self-teaching programmed instruction

Naturalist

- Aquariums, terrariums, and other portable ecosystems
- Class weather station
- Eco-study
- Gardening
- Nature-oriented software
- Nature study tools (binoculars, telescope, microscope)

4.4 Preparing Lesson Plans by Using MI Approach

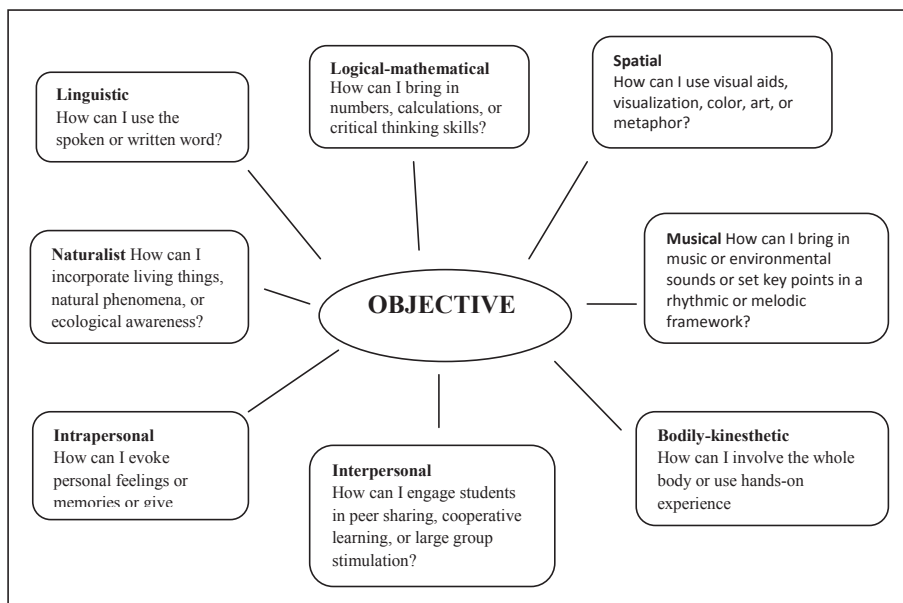
MI theory represents a model of instruction that has no distinct rules other than the demands imposed by the cognitive components of the intelligences themselves and the specific needs of the domain in which they are teaching (e.g., science, math, literatures). On one level, MI theory applied to the curriculum might best be represented by a loose and diverse collection of teaching strategies. Teachers can pick and choose from the activities they do, implementing the theory in ways suited to their own unique teaching style and congruent with their educational philosophy.

On deeper level, however, MI theory suggests a set of parameters within which educators can create new curricula. In fact, the theory provides a context within which educators can address any skill, content area, theme, or instructional objective and develop at least eight ways to teach it. Essentially, MI theory suggests a means of building daily lesson plans, weekly units, year-long themes, and programs in such a way that all students can have their strongest intelligences addressed at least some of the time. The best way to approach curriculum development using the theory of Multiple Intelligence is by thinking about how one can translate the material to be taught from one intelligence to another.

The following seven-step procedure suggests one way to create lesson plans or curriculum units using MI theory as an organizing framework:

- 1. Focus on a specific objective or topic:** Teacher may want to develop curricula on a large scale (e.g., for a year-long theme) or create a program for reaching a specific instructional objective. Teacher should be sure clearly and concisely stated the objective. Place the objective or topic in the centre of a sheet of paper.
- 2. Ask key MI questions:** The kinds of questions to ask when developing a curriculum for a specific objective or topic. These questions can help prime the creative pump for the next step.

3. **Consider the possibilities:** Teacher should find the ample of possibilities of MI techniques and materials which are most appropriate.
4. **Brainstorm:** Make the lists of as many teaching materials as possible for each type of intelligence. When listing approaches, be specific about the topic you want to address. The rule of thumb for brainstorming is "list everything that comes to mind". Aim for at least 20 or 30 ideas and at least two three ideas for each intelligence. Brainstorming with colleagues may help stimulate thinking.



<Figure 4.1> MI Planning Questions

5. **Select appropriate activities:** From the ideas of complete planning sheet, circle the approaches that seem most workable in educational settings.
6. **Set up a sequential plan:** Using the selected approaches, design a lesson plan or unit around the specific topic or objective chosen.

- 7. Implement the plan:** Gather the material needed, select an appropriate time frame, and then carry out the lesson plan. Modify the lesson as needed to incorporate changes that occur during implementation (e.g., based on feedback from students).

Example of MI lesson and programs:

Example One

Level: Preschool

Subject: Shapes

Objective: To teach students to recognize circles

Students will experience different types of circles in the following ways:

- Make a group circle by joining hands. [interpersonal, Bodily-kinesthetic]
- Make circles by using their bodies. [Intrapersonal, Bodily-kinesthetic]
- Look for circles around the classroom. [Spatial]
- Make circles in art projects [Spatial, Bodily-kinesthetic]
- Sing "The Circle Game" by Ram and other circle songs (including "rounds" which are they musically circular). [Musical]
- Make up the story about circles. [Linguistic]
- Compare size of circles (from small to large). [Spatial, Logical-mathematical]
- Find circular forms in nature. [Naturalist]

Example Two

Level: K-1st grade

Subject: Reading

Objective: To help develop a "book positive" attitude in students

Materials: Books that combine linguistic intelligence with one or more other intelligences

A classroom library will be stocked with the books of following types:

- Books with read-along CDs [Linguistic]
- Three dimensional pop-up books [Spatial]
- Touch-and –feel books [Bodily-kinesthetic]
- Books with sing-along CDs [Musical]
- Books with computerized key boards and song lyrics [Musical]
- Science fun books [Logical-mathematical]
- Counting books [Logical-mathematical]
- "This is me"-type books [Intrapersonal]
- Books on emotional themes, such as loss or anger [Intrapersonal]
- Interactive books [Interpersonal]
- Books with nature themes [Naturalist]
- Books that come with naturalist tools (e.g., book on insects with magnifying glass) [Naturalist]

4.5 MI and Thematic Instruction

From the interdisciplinary point of view, educators are recognizing this view as an importance of teaching. Although academic skill teaching or the teaching of isolated chunks of knowledge may provide students with competencies or background information that can prove useful to them in their further education, such instruction often fails to connect students to the real world—a world that they will have to function in as citizens a few years hence. Consequently, educators are turning toward models of instruction that more closely imitate or mirror life in some significant way. Such instruction is frequently thematic in nature. Themes cut through traditional curricular boundaries, wave together subjects and skills that are found naturally in life, and provide students with opportunities to use their multiple intelligences in practical ways.

An Integrated Thematic Instruction Model developed by Susan Kovalik (1993) has an idea that a key feature of *here and now* curriculum is that it is immediately recognized by the student as being relevant and meaningful. Furthermore, it purports to teach our young about their world and the skills necessary to act within and upon it, thus preparing themselves for living the fast-paced changes of the [future]".

<Table 4.2> A Sample Eight-Day Lesson Plan

Level 4 th
Subject Language arts
Objective: To understand the function of, and difference between, four punctuation marks: the question marks, period, comma, and exclamation point
Monday (Linguistic Intelligence): Students listen to verbal explanation of the function of punctuation marks, read sentences having examples of each mark, and complete a worksheet requiring them to fill in their own marks.
Tuesday (Spatial Intelligence): The teacher draws on the board graphic images that correspond in meaning and form to each mark.
Wednesday (Bodily-Kinesthetic Intelligence): The teacher asks students to use their bodies to form the shapes of the different punctuation marks as she reads sentences requiring these marks (e.g., a curved body posture for question mark)
Thursday (Musical Intelligence): Students make up different sounds for the punctuation marks.
Friday (Logical-Mathematical Intelligence): Students form groups of four to six. Each group has a box divided into four compartments, each of which is assigned a punctuation mark. The groups sort sentence stubs with missing punctuation marks into the four compartments according to the punctuation needed.
Monday (Interpersonal Intelligences): Students from groups of four to six. Each group has a different punctuation mark written on it. The teacher places a sentence requiring a

contd...

given punctuation mark on the overhead projector. As soon as students see the sentence, they toss the relevant card in the centre of their group's circle. The first student in the group to throw in a correct card gets five points, the second four, and so on.

Tuesday (Interpersonal Intelligence): Students are asked to create their own sentences using each of the punctuation marks; the sentences should relate to their personal lives.

Wednesday (Naturalist Intelligence): Students are asked to assign an animal and its respective sound to each of the punctuation marks (e.g., a period might be a dog barking; a comma, a duck quacking; a question mark, a cat meowing; and an exclamation point, a lion roaring). As the teacher (or a student) reads a passage, the students make the animal sounds corresponding to each punctuation mark encountered.

Kovalik's thematic model is based in part on year-long themes that are themselves made up of month-long components (e.g. clocks/time, electrical power, transportation) and weekly topics (e.g., seasonal change and geologic time).

Other curricular approaches focus on alternative time frames, such as semester units or three-month themes. Regardless of the time element involved, MI theory provides a context for structuring thematic curricula. It provides a way of making sure the activities selected for a theme will activate all eight intelligences and therefore draw upon every child's inner gifts.

In MI classes, the traditional academic subjects connecting eight intelligences can be structured into thematic activities. This strategy is useful to focus on all type of intelligences rather than focusing on logical-mathematical intelligence (in case of science) or only on reading and writing in linguistic intelligence.

It is better to understand that curriculum can be implemented by using the MI theory in variety of ways. There are no such hard and fast rules to follow. This chapter provides

suggestions only, and every instructor is free to choose or create their own formula for lesson planning and thematic development of instructional strategy. It is necessary that the teacher must be guided by the deepest and sincerest attempts to reach beyond the intelligences so that every child has an opportunity to succeed in school.

Let Us Sum Up

In the present time, Multiple Intelligence has been a hot issue in constructing curriculum for K-12 grades. Its relevance is in all the grades and levels and even every aspects of human life. However, it has still more relevant for lower grade students because their intelligences are just started blooming and can be better molded according to students' interest, strength and inclination. These days, many instructional models of teaching are in practice addressing the Multiple Intelligence of the students and particularly focusing on the intelligence already existed with better capacity, strength and potentialities. This concept of teaching is called multimodal teaching. The Multiple Intelligence teacher can carry out multimodal teaching well in the classroom because he has the insights of hoe to grow up intelligences in the children through his creativity, thinking, own learning and self-made strategies. Curriculum, teaching models, and teachers are the major parts of teaching learning activities in every classroom. In addition these aspects, teaching materials and teaching methods are also equally important for learning. Development of different intelligences needs the use of different types of instructional materials and teaching methods. The major aspects mentioned above needed for learning is essential to have planning for using them appropriately. Therefore, lesson plan that can well incorporate these important aspects is needed. Seven step procedures are suggested in the chapter to make a good lesson plan. In MI classes, the traditional academic subjects connecting eight intelligences can be structured into thematic activities so that each theme could focus on one aspect of Multiple Intelligences. Thus, every child gets opportunity to succeed in school education.

Unit-end Activities

Group "A"

- **Objective questions:**

Tick (✓) the best answers

1. The base on which the concept of Multiple Intelligence is required to include for shaping school education; just starts from.....
 - a. curriculum development**
 - b. instructional material development
 - c. lesson planning
 - d. parents' meeting
2. In the modern time, most of the teaching models developed system of teaching based upon more than.....
 - a. written pedagogy
 - b. demonstration
 - c. signing
 - d. verbal pedagogy**
3. In 18th century philosopher Jean Jacques Rousseau declared his classic treaties on education *Emile*, that the children must.....
 - a. learn through lecturing
 - b. not learn through words but through playing
 - c. learn through experiences**
 - d. learn through reading books aloud
4. Multimodal teaching is a style in which students learn material through.....
 - a. field visit
 - b. different sensory modalities**
 - c. reading and writing
 - d. auditory training

5. Whose vision was the 'classroom as microcosm off society'?
 - a. Johann Heinrich Pestalozzi
 - b. Friedrich Frobel
 - c. Maria Montessori
 - d. John Dewey**
6. MI teacher finds himself.....
 - a. pushing his students from behind rather than pulling them from in front**
 - b. teaching students and doing their defined job
 - c. a smart inside the classroom
 - d. very weak in dealing with disabled students
7. Word games, publishing, large and small group discussions, tape recording one's words etc. are the teaching materials used to teach.....
 - a. linguistic intelligence**
 - b. logical-mathematical intelligence
 - c. spatial intelligence
 - d. bodily-kinesthetic intelligence
8. In which linguistic intelligence the following teaching materials (Independent study, interest centers, and self-paced instruction) belong to?
 - a. Interpersonal intelligence
 - b. Intrapersonal intelligence**
 - c. Naturalist intelligence
 - d. Musical intelligence
9. Curriculum can be better implemented by using the MI theory.....
 - a. specially focused on linguistic intelligence
 - b. specially focused on logical-mathematical intelligence
 - c. by using child first approach
 - d. in variety of ways**

10. Students are asked to create their own sentences using each of the punctuation marks.

What intelligence is intended to develop in the student by the above statement?

- a. Linguistic intelligence
- b. Logical-mathematical intelligence
- c. Intrapersonal intelligence**
- d. Interpersonal intelligence

Group "B"

- **Short answer questions:**

1. What is Multimodal teaching? Describe briefly.
2. How multimodal teaching enhances collaboration and reinforcement in classroom teaching?
3. What are the essential features of MI teacher? How does MI teacher make difference in teaching? Describe.
4. Describe methods and materials necessary for teaching musical intelligence.
5. Give a short account on the difference in teaching interpersonal and intrapersonal intelligence in children.
6. Why is it necessary to arrange the instructions in thematically in preparing curriculum?

Group "C"

- **Long answer questions:**

1. How MI theory can be incorporated in preparing curriculum? Describe with reference to eight human intelligences.
2. Prepare a lesson plan by using key materials, instructional methods with reference to MI theory.
3. What is the importance of Multimodal teaching? Describe it with its salient features.

Points for Discussion

- Practice of Multimodal teaching in Nepal
- Adopting MI theory in curriculum
- Developing teaching materials necessary for teaching intelligences
- Preparing lesson plan by using MI theory

Unit V: MI Theory and Special Needs Education

5.1 MI Theory as a Growth Paradigm

In new trend, it is not necessary to regard children with special needs primarily in terms of deficit, disorder, and disease. Instead of this, growth paradigm as a new parameter is taken for describing disable children. There are some differences between deficit and growth paradigm. MI theory provides a growth paradigm for assisting special-needs students in school. It acknowledges difficulties or disabilities but does so within the context of reading special-needs students as basically healthy, or "neurodiverse" individuals. MI theory suggests that "learning disabilities" for example occur in all eight intelligences. That is , in addition to students with *dyslexia* (linguistic deficit), and *dyscalculia* (logical-mathematical deficit), some have *prosopagnosia* or specific difficulties recognizing faces (a spatial deficit); *ideomotor dyspraxia*, or difficulty executing specific motor commands (bodily-kinesthetic deficit); *dysmusia*, or difficulty carrying a tune (a musical deficit); *dysemia*, or difficulty reading nonverbal social signals, as well as specific personality disorder (intrapersonal deficit); and difficulty relating well to pets or working in garden (nature deficit).

These deficits, however, often operate relatively autonomously in the midst of other dimensions of the individual's learning profile that are relatively intact and healthy.

The Deficit Paradigm versus the Growth Paradigm in Special Education

The Deficit Paradigm

- Labels the individual in terms of specific impairment(s) (e.g., ADHD, ED, BD, EMR, LD)
- Diagnosis the specific impairments using a battery of standardized tests; focuses on errors, low scores, and weakness in general.
- Remediates the impairments using a number of specialized treatments in a segregated class, group, or program.

- Uses an esoteric collection of terms, tests, programs, kits, materials, and workbooks that are different from those found in a regular classroom.
- Segments the individual's life into specific behavior/educational objectives that are regularly monitored, measured, and modified.
- Creates special education programs that run on a track parallel with regular education programs; teachers from the two tracks rarely meet, except in IEP meetings.

The Growth Paradigm

- Avoids labels, views the individuals as an intact person who happens to have a special need.
- Assesses the needs of an individual using authentic assessment approaches within naturalistic contexts, focuses on strengths.
- Assists the person in learning and growing through a rich and varied set of interactions with real-life activities and events.
- Maintains the individual's connections with peers in pursuing as normal a life pattern as possible.
- Uses materials, strategies, and activities that are good for all kids.
- Applies the understandings of biodiversity and cultural diversity to the neuro-diversity of each student
- Establishes collaborative models that enable specialists and regular classroom teachers to work hand in hand.

MI theory thus provides a model for understanding the autistic savant who cannot communicate clearly with others but plays music at a professional level, the dyslexic who possesses special drawing or designing gifts, the "developmentally disabled" student who can act extremely well on the stage, or the student with cerebral palsy who has special linguistic and logical-mathematical genius.

5.2 Individuals with Disability as Role Model

In the history, there were several such eminent individuals who struggled with disabilities of one kind or another. Such a study reveals, in fact, the existence of people of all types of special needs who are also exceptionally gifted in one or more of the eight intelligences.

<Table 5.1> High- Achieving People Facing Personal Challenge

Intelligence	LD	CD	ED	PD	HD	SD
Linguistic	Agatha Christie	Demosthenes	Edgar Allan Poe	Alexander Pop	Samuel Jonson	Rudyard Kipling
Logico-mathematical	Albert Einstein	Michael Faraday	Charles Darwin	Stephen Hawking	Thomas Edison	Johannes Kepler
Spatial	Leonardo da Vinci	Marc Chagall	Vincent Van Gogh	Henri de Toulouse-Lautrec	Granville Redmond	Otto Litzel
Bodily-kinesthetic	Auguste Rodin	Admiral Peary	Vaslav Nijinsky	Jim Abbott	Marlee Matlin	Tom Sullivan
Musical	Sergei Rachmaninoff	Maurice Ravel	Robert Schumann	Itzhak Periman	Ludwig van Beethoven	Joaquin Rodrigo
Interpersonal	Nelson Rockefeller	Winston Churchill	Harry Stack Sullivan	Franklin Roosevelt	King Jordan	Harry Truman
Intrapersonal	General George Patton	Aristotle	Friedrich Nietzsche	Joan of Arc	Helen Keller	Aldous Huxley
Naturalist	Linnaeus	Charles Darwin	Gregor Mendol	Jean Jacques Rousseau	Johannes Kepler	E.O. Wilson

Note: LD = Learning difficulties; CD = communicative difficulties; ED = emotional difficulties; PD = physical difficulties; HD= hearing difficulties; SD = sight difficulties

The following above figure illustrates of these creative individuals along with the specific disability they struggled with and the primary intelligence through which they expressed much of their genius. These persons were great for their outstanding work during their

life. Their disabilities may have helped them spur them on to develop their exceptional abilities. MI theory provides a context for discussing these lives and for applying the understanding gained from such study to the lives of students who are struggling with similar problems. For example, a student with dyslexia can begin to understand that his difficulty may directly affect only a small part of one intelligence area (i.e., the reading dimensions of linguistic intelligence), leaving unimpaired vast regions of his learning potential. Many great writers were dyslexic.

MI theory provides a perspectives context for envisioning positive channels through students can learn to deal with their disabilities. Educators who view disabilities against the background of the eight intelligences see that disabilities occur in only part of a student's life; thus, they can begin to focus more attention on the strengths of special-needs students as a pre-requisite to developing appropriate remedial strategies.

5.3 Implications of MI Theory for Special Needs Education

The influence that MI theory can have on special education goes far beyond the development of new remedial strategies and interventions. If MI theory is implemented on a large scale in both the regular and special education programs in a school district, it is likely to have some of the following effects:

Fewer referrals to special education classes: When the regular curriculum includes the full spectrum of intelligences, referrals to special education classes will decline. Most teachers now focus on the linguistic and mathematical intelligences, neglecting the needs of students who learn best through the musical, spatial, bodily-kinesthetic, interpersonal, or intrapersonal intelligences. It is this student who most often fall in regular classrooms and are placed in special settings. Once regular classrooms themselves become more sensitive to the needs of different kinds of learners through MI learning disabilities and behavior problems will diminished. This model thus supports the full inclusion movement in education.

A change role for the special education teacher: The special education teacher or learning specialist will begin to function less as a "pullout" or special class teacher and more as a special MI consultant to the regular classroom teacher. In this new role, MI consultants can assist regular classroom teachers in some of the following tasks:

- Identifying student's strongest intelligences
- Focusing on the needs of specific students
- Designing MI curricula
- Creating specific MI interventions
- Working with groups using MI activities

All or most of a special needs/MI teacher's time can be spent in the regular classroom focusing on the individual needs of students and the targeting of special MI activities to achieve educational outcomes.

Greater emphasis on identifying strengths: Teachers assessing special-needs students will likely put more emphasis on identifying the strengths of students. Qualitative and authentic measures are likely to have a larger role in special education and may perhaps even begin to supplant standardized diagnostic measures as a means of developing appropriate educational programs.

Increased self-esteem: With more emphasis placed on the strengths and abilities of special-needs children, students' self-esteem and internal locus of control are likely to rise, thus helping to promote success among a broader community of learners.

<Figure 5.2 > MI Remedial Strategies for Specific Topics

Examples of MI Remedial Strategies for Specific Topics			
Strategy	Letter Reversals: "b" and "d"	The Three States of Matter	Understanding Simple Fractions
Linguistic Remedial Strategy	Identify through context in words or sentences	Give verbal description, assign reading matter	Use storytelling, word problems
Logical-Mathematical Remedial Strategy	Play anagrams or other word pattern games	Classify substances in the classroom	Show math ratios on number line
Spatial Strategy	Colour code b's and d's; use stylistic features unique to each letter, create pictures out of letters	Draw pictures of different states; look at pictures of molecules in different states	Look at a diagram of "pies", draw pictures
Bodily-Kinesthetic Remedial Strategy	Use kinesthetic mnemonic (put fits together, thumps upraised, palms facing you-this makes a "bed")	Act out the three states in dance, do hands-on lab experiments; build models of three states	Put together manipulative puzzles divided into fractions
Musical Remedial Strategy	Sing songs with lots of b's and d's in them to help differentiate	Play musical recording at three different speeds	Play a fraction of songs (e.g., one note of a three-note song)
Interpersonal Remedial Strategy	Give letter cards with b's and d's randomly to students; have them find others with their sound and then check answers visually with cards	Create the three states as a class (each person as a molecule)	Divide the class into different fraction pies
Intrapersonal Remedial Strategy	List favourite words that began with b and d	Examine the three states in one's body, home, and neighborhood	Choose a favorite fraction and collect specific instances of it
Naturalist Remedial Strategy	List favorite animals and plants that begin with b and d	Examine three states as they exist in nature (e.g., clouds, rain, sand)	Divide appeals or other food items into segments

Increased understanding and appreciation of students: As students use MI theory to make sense of their individual differences, their tolerance, understanding, and

appreciation of those with special needs is likely to rise, making their full integration into the regular classroom more likely.

Ultimately, the adoption of MI theory in education will move special education toward a growth paradigm and facilitate a greater level of cooperation between special education and regular education. MI classrooms will then become the least restrictive environment for all special-needs students except the most disruptive.

Implication for Curriculum: Influencing the development of curriculum are the beliefs that (1) the only limits to our intelligence are limits we set; (2) we can become more intelligent by increasing the activity of perception and knowing by working on higher levels of thought; (3) there are many ways we know, understand, and learn about our world beyond what the IQ tests measure; and (4) when there is a challenge, all of our "intelligence" work together in an integrated way. These beliefs considered together from the multiple intelligence theory first posited by Howard Gardner.

Gardner (1991) presents seven intelligences or distinct ways individuals learn and live within reality: (1) verbal/linguistic intelligence, responsible for the production of language and complex possibilities such as poetry, humor, grammar and abstract reasoning; (2) logical-mathematical intelligence, scientific thinking or deductive reasoning, the capacity to recognize patterns, work with abstract symbols, and discern relationships; (3) visual/spatial intelligence, including visual arts (painting, drawing, and sculpture), navigation (map-making and architecture), visualization of objects from different perspectives and angles (e.g., chess playing), all which use the sense of sight include the ability to form images and pictures in the mind; (4) bodily/kinesthetic intelligence, the ability to use the body to express emotions (dance and body language), participate in sports, and create a new product (devise and intervention); (5) musical/rhythmic intelligence, recognition and use of rhythmic and tonal pattern sensitivity to sounds from the environment (human voice and musical instruments); (6) interpersonal intelligence,

the ability to work cooperatively in a group as well as ability to communicate verbally and nonverbally with others (and thereby notice distinctions such as moods, temperament, motivation, and intentions); and (7) intrapersonal intelligence, knowledge of the internal aspects of the self such as feelings, emotional responses, thinking processes (metacognition), and self-reflection. This is one's ability to transcend the self, the capacity to experience wholeness and unity and to discern patterns of our connection with the large order of things.

His theory of multiple intelligences can guide educators in designing curriculum and instruction that appeals to more than a single dimension of intelligence (Oliva, 1997). The theory has many implications for curriculum models and how teachers view and teach children. The curriculum is the place these multiple ways to learn can come together and serve as a basis from which instructional strategies can be developed. Different types of intelligences are highly valued in individual cultures, and educators should be aware of this. For example, linguistic and mathematical intelligences are considered supreme among most Americans where spatial intelligence is most valued among Eskimo people, because knowledge and awareness of even slight differences in ice surfaces are significant to survival skills.

Let Us Sum Up

The special needs children have been perceived through deficit paradigm for long time which primarily focus on deficits, disorder or disease prevailed in the children. Instead of this, new "growth paradigm" is used as new parameter. Growth paradigm perceives special child or a person as a savant, not a less worthy human with innumerable problems or deficits. There are so many personalities who are successful in their life regardless of their disability. Very creative, very eminent personalities were there in the world and many such persons exist until the present time. MI theory has several implications in education programs. It has been proved to be very useful in making

referral, changing the role of the teacher from traditional chalk and talk method to inclusionary, modern and child friendly teaching enhancing the intelligences of the children. This theory presents several remedial strategies for several topics related to intelligences. Curriculum development is another very important contributing aspect of MI theory.

Unit-end Activities

Group "A"

- **Objectives questions:**

Tick (✓) the best answer

1. The paradigm which assists the person in learning and growing through a rich and varied set of interactions with real-life activities and events is called....
 - a. deficit paradigm
 - b. growth paradigm**
 - c. development paradigm
 - d. paradigm in educational change
2. Student with dyslexia has deficits.
 - a. linguistic**
 - b. logical-mathematical
 - c. musical
 - d. interpersonal
3. *dysmusia* is.....
 - a. difficulty in mathematical calculation
 - b. difficulty in language processing
 - c. difficulty in carrying a tune**
 - d. a specific personality disorder

4. Albert Einstein was a high achieving person who had.....disability.
 - a. **Learning**
 - b. communication
 - c. hearing
 - d. emotional
5. Select a high achieving the person who suffered from physical disability.....
 - a. Leonardo da Vinci
 - b. Winston Churchill
 - c. **Stephen Hawking**
 - d. Helen Keller
6. MI theory can be implemented in.....
 - a. special schools
 - b. regular schools
 - c. in lower level
 - d. **all of the above**
7. "Give letter cards with b's and d's randomly to students; have them find others with their sound and then check answers visually with cards." This example represents for strategy for developing.....
 - a. naturalist intelligence
 - b. **interpersonal intelligence**
 - c. linguistic intelligence
 - d. interpersonal intelligence
8. Gardner (1991) presented seven intelligences or distinct ways individuals learn and live within reality. The missing one was.....
 - a. interpersonal intelligence
 - b. intrapersonal intelligence
 - c. musical intelligence
 - d. **naturalistic intelligence**

9. From perspectives of Growth Paradigm, within the context of reading special needs students are basically healthy orindividuals.
- psycho-diverse
 - socio-diverse
 - neuro-diverse***
 - emotionally disturbed
10. Students with Cerebral Palsy might have been genius in.....
- spatial intelligence
 - logical-mathematical intelligence**
 - natural intelligence
 - musical intelligence

Group "B"

- **Short answer questions:**

- Describe about Growth Paradigm with reference to the MI theory.
- "Disabled people are also genius in certain aspects of intelligence." Describe it with some examples.
- Describe the changing role of teacher incorporating the importance of MI theory.
- Give some examples of strategies that are needed to enhance linguistic intelligence in the children.
- Is MI theory applicable for common people outside the school premises? Give your opinion.

Group "C"

- **Long answer questions:**

- What are the implications of MI theory for special education? Explain.
- Give a comparative account on "Deficit versus Growth Paradigm".
- Why some disabled people are appearing so genius, creative and outstanding and why most of them are not? Give your opinion with reference to MI theory of intelligence.

Points for Discussion

- Deficit paradigm and Growth Paradigm in case of Nepali classroom
- Use of MI theory in the curriculum development
- Genius disabled persons in Nepal
- Using MI theory in teacher development

References

Armstrong, T. (2006). *Multiple Intelligences in the classroom* (Third edition). Alexandria: Association for Supervision in the Classroom.

Barbara D. B. & Cynthia M.H. (2006). *Writing measurable IEP goals and objectives* (Second edition). New York: Attainment Co., Inc.

Gardner, H. (1993). *Frames of mind: The theory of multiple Intelligences*. New York: Basic Books.

Gardner, H. (1999). *Intelligence reframed: Multiple intelligences for the 21st century*: New York: Basic books.

Gardner, H. (2006a). *Multiple intelligences: New horizons in theory and practices*. New York: Basic Books.

<http://classroom.synonym.com/multimodal-teaching-strategies-12049345.html>