



MULTIPLE INTELLIGENCES: A CONTRIVANCE FOR EMPOWERING LEARNERS BY USING IT IN LEARNING STYLES FOR 21ST CENTUARY

Neeraj Saxena¹, Ph. D. & Sanjeev kumar²

¹Head; Department of Education. Meerut College, Meerut

²Research Scholar Meerut College Meerut

Of the seven different ways we learn, schools focus on only two.

Add the other five, and you increase the chances of success.

By Bruce Campbell

Abstract

This paper attempts to provide a solution to teaching students with differences. Many teachers resist with finding ways to reach individual learning styles and desires. One teaching method that can accommodate for this variety of learning styles is Howard Gardner's Multiple Intelligences. This article attempts to provide a brief indication of the eight multiple intelligences associated with Howard Gardner's theory. Each of the intelligences encompasses certain characteristics and these characteristics lend themselves to particular professions, discussed in the paper. The article also suggests specific teaching methods and ways for educators to incorporate the intelligences into their daily lesson planning for practical use in the classroom. This, in turn, allows each child to learn in a way that is associated to his or her strengths, solving the age-old dilemma of how to meet the individual differences of individual students.

Keywords- *Multiple Intelligences, empowering Learners*



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Howard Gardner of Harvard has identified seven distinct intelligences. This theory has emerged from recent cognitive research and "documents the extent to which students possess different kinds of minds and therefore learn, remember, perform, and understand in different ways," according to Gardner (1991). According to this theory, "we are all able to know the world through language, logical-mathematical analysis, spatial representation, musical thinking, and the use of the body to solve problems or to make things, an understanding of other individuals, and an understanding of ourselves. Where individuals differ is in the strength of these intelligences - the so-called profile of intelligences -and in the ways in

which such intelligences are invoked and combined to carry out different tasks, solve diverse problems, and progress in various domains."

Gardner says that these differences "challenge an educational system that assumes that everyone can learn the same materials in the same way and that a uniform, universal measure suffices to test student learning. Indeed, as currently constituted, our educational system is heavily biased toward linguistic modes of instruction and assessment and, to a somewhat lesser degree, toward logical-quantitative modes as well." Gardner argues that "a contrasting set of assumptions is more likely to be educationally effective. Students learn in ways that are identifiably distinctive. The broad spectrum of students - and perhaps the society as a whole - would be better served if disciplines could be presented in a numbers of ways and learning could be accessed through a variety of means." In recent years, new definitions of intelligence have gained acceptance and have dramatically enhanced the appraisal of human competencies. Howard Gardner of Harvard University in his book *Frames of Mind: the Theory of Multiple Intelligences*, suggests that *there are at least seven human intelligences, two of which, verbal/linguistic intelligence and logical/mathematical intelligence, have dominated the traditional pedagogy of western societies.*

What is multiple intelligence theory-

The theory of multiple intelligences differentiates intelligence into specific 'modalities', rather than seeing intelligence as dominated by a single general ability. Howard Gardner planned this model in his 1983 book *Frames of Mind: the Theory of Multiple Intelligences*. According to Gardner, an intelligence must fulfill eight criteria: potential for brain isolation by brain damage, place in evolutionary history, presence of core operations, susceptibility to encoding (symbolic expression), a distinct developmental progression, the existence of savants, prodigies and other exceptional people, and support from experimental psychology and psychometric findings. Gardner chooses eight abilities that he detained to meet these criteria: musical-rhythmic, visual-spatial, verbal-linguistic, and logical mathematical, bodily-kinesthetic, interpersonal, intrapersonal, and naturalistic. He later suggested that existential and moral intelligence may also be worthy of inclusion. Although the distinction between intelligences has been set out in great detail, Gardner opposes the idea of labeling learners to a specific intelligence. Gardner maintains that his theory of multiple intelligences should "empower learners", not restrict them to one modality of learning. According to Gardner, intelligence is "a bio psychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture."

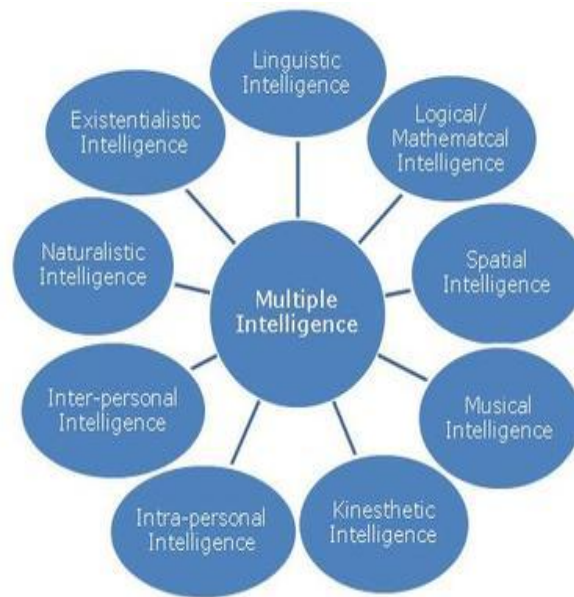


Fig- Showing kinds of Multiple Intelligences.

Many of Gardner's "intelligences" correlate with the g factor, supporting the idea of a single, dominant type of intelligence. According to a 2006 study, each of the domains proposed by Gardner involved a blend of g, cognitive abilities other than g, and, in some cases, non-cognitive abilities or personality characteristics.

Factors Influencing Individual Possession of Multiple Intelligences-

This is commonly referred to as a learning style. Many learning styles can be establish within one classroom, which may be influenced by any one or more of the following criteria:

- The potential for brain isolation by brain damage,
- Its place in evolutionary history,
- The presence of core operations,
- Susceptibility to encoding (symbolic expression),
- A distinct developmental progression,
- The existence of idiot-savants, prodigies and other exceptional people, support from experimental psychology and psychometric findings

Beyond the descriptions of the original eight intelligences and respective theoretical underpinnings, Gardner emphasizes that:

- Each person possesses all seven intelligences between the lowest and highest extreme
- Most people can develop each intelligence to an adequate level competency with adequate encouragement, enrichment and instruction
- Intelligences usually work together in complex ways. No one intelligence stands out alone, but rather they interact with each other in complex ways depending on the person

Kinds of learning activities take place at each center-

All students learn each day's lesson in seven ways. They build models, dance, make collaborative decisions, create songs, solve deductive reasoning problems, read, write, and illustrate all in one school day. Some more specific examples of activities at each center follow:

- In the **Personal Work Center** (Intrapersonal Intelligence), students explore the present area of study through research, reflection, or individual projects.
- In the **Working Together Center** (Interpersonal Intelligence), they develop cooperative learning skills as they solve problems, answer questions, create learning games, brainstorm ideas and discuss that day's topic collaboratively.
- In the **Music Center** (Musical Intelligence), students compose and sing songs about the subject matter, make their own instruments, and learn in rhythmical ways.
- In the **Art Center** (Spatial Intelligence), they explore a subject area using diverse art media, manipulates, puzzles, charts, and pictures.
- In the **Building Center** (Kinesthetic Intelligence), they build models; dramatize events, and dance, all in ways that relate to the content of that day's subject matter.
- In the **Reading Center** (Verbal/Linguistic Intelligence), students read, write, and learn in many traditional modes. They analyze and organize information in written form.
- In the **Math & Science Center** (Logical/ Mathematical Intelligence), they work with math games, manipulative, mathematical concepts, science experiments, deductive reasoning, and problem solving.

The daily work at the seven centers can be overwhelmingly influenced their ability to formulate informative, entertaining, multimodal presentations of their studies in the following way-

1. The students can develop increased responsibility, self-direction and independence over the course of the year. The students became skilled at developing their own projects, gathering the necessary resources and materials, and making well-planned presentations of all kinds.
2. Discipline problems can be significantly reduced. Behavior problems can be rapidly improved. Positive leadership roles can be enhanced among students.
3. All students can develop and applied new skills. Moreover, they will all making multimodal presentations of independent projects including songs, skits, visuals, poems, games, surveys, puzzles, and group participation activities.

4. Cooperative learning skills can be improved in all students. They learned not only to respect each other, but also to appreciate and call upon the unique gifts and abilities of their classmates.

5. Academic achievement can be developed. So Students will become high achievers in new areas.

Learning styles according to Howard Gardner-

The learning styles are as follows:

Visual-Spatial - They like to draw, do jigsaw puzzles, read maps, and daydream. They can be taught through drawings, verbal and physical imagery. Tools include models, graphics, charts, photographs, drawings, 3-D modeling, video, videoconferencing, television, multimedia, texts with pictures/charts/graphs.

Bodily-kinesthetic - They use the body effectively, like a dancer or a surgeon. They like movement, making things, touching. They communicate well through body language and are taught through physical activity, hands-on learning, and acting out, role playing. Tools include equipment and real objects.

Musical - They show sensitivity to rhythm and sound. They may study better with music in the background. They can be taught by turning lessons into lyrics, speaking rhythmically, and tapping out time. Tools include musical instruments, music, radio, stereo, CD-ROM, multimedia.

Interpersonal - They understand, interacting with others. These students learn through interaction. They have many friends, empathy for others, street smarts. They can be taught through group activities, seminars, and dialogues. Tools include the telephone, audio conferencing, time and attention from the instructor, video conferencing, writing, computer conferencing, E-mail.

Intrapersonal - These learners tend to shy away from others. They're in tune with their inner feelings; they have wisdom, intuition and motivation, as well as a strong will, confidence and opinions. They can be taught through independent study and introspection. Tools include books, creative materials, diaries, privacy and time. They are the most independent of the learners.

Linguistic - These learners have highly developed auditory skills and often think in words. They like reading, playing word games, making up poetry or stories. They can be taught by encouraging them to say and see words, read books together. Tools include computers, games, multimedia, books, tape recorders, and lecture.

Logical -Mathematical - They think conceptually, abstractly and are able to see and explore patterns and relationships. They like to experiment, solve puzzles, and ask cosmic questions. They can be taught through logic games, investigations, and mysteries. They need to learn and form concepts before they can deal with details.

Employ of appropriate multimedia to teach learning style for multiple intelligence-

At first, it may seem impossible to teach to all learning styles. However, as we move into using a mix of media or multimedia, it becomes easier. It satisfies the many types of learning preferences that one person may embody or that a class embodies. They are as follows-

Visuals: Visual media help students acquire concrete concepts, such as object identification, spatial relationship, or motor skills where words alone are inefficient.

Printed words: There is disagreement about audio's superiority to print for affective objectives; several models do not recommend verbal sound if it is not part of the task to be learned.

Sound: A distinction is drawn between verbal sound and non-verbal sound such as music. Sound media are necessary to present a stimulus for recall or sound recognition. Audio narration is recommended for poor readers.

Motion: Models force decisions among still, limited movement, and full movement visuals. Motion is used to depict human performance so that learners can copy the movement. Several models assert that motion may be unnecessary and provides decision aid questions based upon objectives. Visual media which portray motion are best to show psychomotor or cognitive domain expectations by showing the skill as a model against which students can measure their performance.

Color: Decisions on color display are required if an object's color is relevant to what is being learned.

Instructional Setting: Design should cover whether the materials are to be used in a home or instructional setting and consider the size what is to be learned. Print instruction should be delivered in an individualized mode which allows the learner to set the learning pace. The ability to provide corrective feedback for individual learners is important but any medium can provide corrective feedback by stating the correct answer to allow comparison of the two answers.

Learner Characteristics: Most models consider learner characteristics as media may be differentially effective for different learners. Although research has had limited success in identifying the media most suitable for types of learners several models are based on this method.

Reading ability: Pictures facilitate learning for poor readers who benefit more from speaking than from writing because they understand spoken words; self-directed good readers can control the pace; and print allows easier review.

Multiple Intelligence Type	Incorporated into subject matter	Way of demonstrating understanding
Verbal-Linguistic	Books, stories, poetry, speeches, author visits	Writing stories, scripts, poems, storytelling
Mathematical-Logical	Exercises, drills, problem solving	Counting, calculating, theorizing, demonstrating, programming computers
Musical	Tapes, CD's, concert going	Performing, singing, playing, composing
Visual-Spatial	Posters, art work, slides, charts, graphs, video tapes, laser disks, CD-ROMs and DVDs, museum visits	Drawing, painting, illustrating, graphic design, collage making, poster making, photography
Bodily-Kinesthetic	Movies, animations, exercises, physicalizing concepts, rhythm exercises	Dance recital, athletic performance or competition
Interpersonal	Teams, group work, specialist roles	Plays, debates, panels, group work
Intrapersonal	Reflection time, meditation exercises	Journals, memoirs, diaries, changing behaviors, habits, personal growth
Naturalist	Terrariums, aquariums, class pets, farm, botanical garden and zoo visits, nature walks, museum visits	Collecting, classifying, caring for animals at nature centers
Existential	Working on causes, charity work, astrology charts	Community service

Fig showing Multiple Intelligences Types & their relation with subject Matter and way of demonstrating understanding

Categories of Learning Outcomes: Categories ranged from three to eleven and most include some or all of Gagne's (1977) learning categories; intellectual skills, verbal information, motor skills, attitudes, and cognitive strategies. Several models suggest a procedure which categorizes learning outcomes, plans instructional events to teach objectives, identifies the type of stimuli to present events, and media capable of presenting the stimuli.

Events of Instruction: The external events which support internal learning processes are called events of instruction. The events of instruction are planned before selecting the media to present it.

Performance: Many models discuss eliciting performance where the student practices the task which sets the stage for reinforcement. Several models indicate that the elicited

performance should be categorized by type; overt, covert, motor, verbal, constructed, and select. Media should be selected which is best able to elicit these responses and the response frequency. One model advocates a behavioral approach so that media is chosen to elicit responses for practice. To provide feedback about the student's response, an interactive medium might be chosen, but any medium can provide feedback. Learner characteristics such as error proneness and anxiety should influence media selection.

Role of teacher in multiple Intelligences program-

Teachers should structure the presentation of material in a style, which engages all or most of the intelligences. When teachers center lessons on the students' needs, it optimizes learning for the whole class. Teachers who teach towards the multiple intelligences realize the benefits such as active learners and successful students. Each of the intelligences is potential in every learner and it is part of a teacher's job to nurture and help the children develop their own intelligences.

.Multiple intelligence lesson Plan-

To begin lesson planning, teachers should reflect on a concept that they want to teach and identify the intelligences that seem most appropriate for communicating the content. The "instructional menus" shown (see box) offer some ideas for increasing pedagogical repertoires and quickly infusing variety into lessons.

Multiple Intelligences Menus

Linguistic Menu

Use storytelling to explain ____

Conduct a debate on ____

Write a poem, myth, legend, short play, or news article about ____

Create a talk show radio program about ____

Conduct an interview of __ on __

Logical-Mathematical Menu

Translate a ____ into a mathematical formula

Design and conduct an experiment on ____

Make up syllogisms to demonstrate ____

Make up analogies to explain ____

Describe the patterns or symmetry in ____

Others of your choice ____

Bodily-Kinesthetic Menu

Create a movement or sequence of movements to explain ____

Make task or puzzle cards for ____

Build or construct a ____

Plan and attend a field trip that will ____

Bring hands-on materials to demonstrate ____

Visual Menu

Chart, map, cluster, or graph ____

Create a slide show, videotape, or photo album of ____

Create a piece of art that demonstrates ____

Invent a board or card game to demonstrate ____

Illustrate, draw, paint, sketch, or sculpt ____

Musical Menu

Give a presentation with appropriate musical accompaniment on ____

Sing a rap or song that explains ____

Indicate the rhythmical patterns in ____

Explain how the music of a song is similar to ____

Make an instrument and use it to demonstrate ____

Interpersonal Menu

Conduct a meeting to address ____

Intentionally use ____ social skills to learn about ____

Participate in a service project to ____

Teach someone about ____

Practice giving and receiving feedback on ____

Use technology to ____

Intrapersonal Menu

Describe qualities you possess that will help you successfully complete ____

Set and pursue a goal to ____

Describe one of your personal values about ____

Write a journal entry on ____

Assess your own work in ____

Naturalist Menu

Create observation notebooks of ____

Describe changes in the local or global environment ____

Care for pets, wildlife, gardens, or parks ____

Use binoculars, telescopes, microscopes, or magnifiers to ____

Draw or photograph natural objects ____

Lesson Plan Based on Multiple Intelligences

Area of Concentration: Botany

Grade Level: 7th grade

Aims:

- Students will increase their knowledge of the botanical world.
- Students will be able to apply scientific techniques to different areas of study.

Goals:

Students will be able to identify and classify trees from their communities by using many different teaching strategies.

Objectives & Procedure

A. Verbal/Linguistic Intelligence

Objective: Students will use their verbal skills to anthropomorphize, or give human characteristics to a tree.

Procedure: Students will be assigned to a specific tree, where they will be responsible for creating an identity for that tree. Individually, they will give the tree personal traits and characteristics in a short essay format.

B. Logical/Mathematical Intelligence

Objective: Students will count the rings on a tree in order to calculate the tree's approximate age.

Procedure: In groups of two, students will calculate the age of a tree by counting the number of rings that appears on a tree stump.

C. Spatial/Visual/Verbal and Interpersonal Intelligences.

Objective: Students will describe to partners what a tree looks like.

Procedure: Using partners, one student will vividly describe the visual aspects of a specific tree to his/her partner; while the other will visualize it in his/her mind. Upon verbal description, the student will then draw the tree to see if their visualizations match the description of the other student.

D. Musical/Rhythmic/Auditory Intelligences

Objective: Students will learn and memorize 20 different types of trees from a specific area.

Procedure: Using rhyme, rhythm or song, small groups of students will identify and name specific trees.

E. Bodily/Kinesthetic and Intrapersonal Intelligences

Objective: Students will feel and describe a tree.

Procedure: Individually, students will choose a tree that is somehow appealing to them. He/she will touch and carefully examine that tree, and then in a journal describe what it feels like and explain what impression it leaves them with.

Gardner believes that the purpose of schooling "should be to develop intelligences and to help people reach vocational and vocational goals that are appropriate to their particular spectrum of intelligences. People, who are helped to do so, feel more engaged and competent and therefore more inclined to serve society in a constructive way. Gardner contends that IQ tests focus mostly on logical and linguistic intelligence. Upon doing well on these tests, the chances of attending a prestigious college or university increase, which in turn creates contributing members of society. While many students function well in this environment, there are those who do not. Gardner's theory argues that students will be better served by a broader vision of education, wherein teachers use different methodologies, exercises and activities to reach all students, not just those who excel at linguistic and logical intelligence. It challenges educators to find "ways that will work for this student learning this topic". In spite of its lack of general acceptance in the psychological community, Gardner's theory has been adopted by many schools, where it is often conflated with learning styles, and hundreds of books have been written about its applications in education. So we can say that, the applications of the theory are currently being examined in many projects in the field of education. Three recommendations for educators should be followed that teaching style should be individualized (to suit the most effective method for each student), teach important materials in multiple ways and avoid the term "styles" as being confusing. Finally, students will develop responsibility, self-reliance and independence as they took an active role in shaping their own learning experiences.

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