

# Innovation to Multiple Intelligence in the Classroom

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## Abstract

Student who are high in creative intelligence are often not on the top rank of their class because instead of giving conformist answers, they give unique answers, for which they get marked down. Like-wise, students with high practical intelligence do not often relate well outside the classroom and have excellent social skills and good common sense. They should be given opportunities to learn through creative and practical thinking. In addition to conventional strategies that focus simply on learning and remembering a body of information.

**Key Words:** Students, Class Room, Psychology laboratory, social skills, Class rank, practical intelligence, common sense



## 1 INTRODUCTION

“BY education I do not mean the present system, but something in the line of positive teaching .Mere book learning won’t do. We want that education by which character is formed, strength of mind is increased ,the intellect is expanded and by which one can stand on one’s own feet. What we want is Western Science coupled with *Vedanta* ,`*Brahmacharya*` As the guiding motto, and also `*Shraddha*` and faith in one’s own self” Swami Vivekananda).

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.

Mahatma Gandhi articulates his vision of education as, “By education, I mean an all-round drawing out of the best in the child and man-body, mind and spirit.” It leads the student to become emotionally, mentally, socially and psychologically intelligent.

In India, student are asked to remember information. Facts and rules of action that they have to reproduce in the tests and examinations. There is a common perception .That knowing can be conveyed by telling and didactic exposure is enough for learning. But, a student is also the construction of knowledge. His cognitive structures become developed through interaction with the environment and assimilation and combination of experiences in a social setting.

## 2. PRINCIPLES AND IMPORTANCE IN EDUCATION

The principles of multiple intelligences offered by Gardner are:

- (1) Emphasis on the development of certain intelligences;
- (2) Utilizing of all intelligences in developing different teaching methods;
- (3) Based on the concept of multiple intelligences, instructors should review lesson plans and ensure they have variety, fairness and richness;
- (4) Provide students with the opportunity to choose learning activities and assessment methods;
- (5) Provide students with the opportunity to use the dominant intelligences to develop the weaker intelligences;
- (6) Use the intelligences to fully comprehend broad subjects (Gardner, 1983).

The importance of the multiple intelligences in education is:

- (1) Highlighting uniqueness of each student;
- (2) Bring out the students’ dominant intelligences;
- (3) Dominant intelligence helps learning;
- (4) Variety of learning experiences;
- (5) Multiple intelligences teaching;
- (6) Variety of assessment methods;
- (7) Variety of means of expression (Hoerr, 2000).

## 3 CHARACTERISTICS OF MULTIPLE INTELLIGENCES

In 1980, Howard University psychologist, Howard Gardner set about studying 'intelligence' in a systematic, multi-disciplinary and arts and humanities, He had a pluralistic view of mind and recognized many discrete facts of cognition. He defined 'intelligence' as the ability to solve problems or to fashion products that are valued in one or more cultural settings. To qualify 'intelligence' as a particular capacity under study was considered from multiple perspectives consisting of eight specific criteria listed below drawn from the biological sciences, logical analysis, developmental psychology, experimental psychometrics.

1. The potential for brain isolation by brain damage;
2. Its place in evolutionary history;
3. The presence of core operations;
4. Susceptibility to encoding;
5. A distinct developmental progression;
6. The existence of idiot savants, prodigies and other exceptional people;
7. Support from experimental psychology; and
8. Support from psychometric findings;
9. Linguistic intelligence: Oral reports, writing presentations are used.
10. Bodily-kinesthetic intelligence: Acting or dancing. (Furnham & Mkhize, 2003;Strecker, 2008).

From the above eight criteria, Gardner proposed and defined eight intelligences .They are linguistic, logical-mathematical. Musical, spatial. Bodily-kinesthetic, interpersonal, intrapersonal and naturalistic intelligences. Howard Gardner acknowledged that people have different cognitive strengths as well as different cognitive styles. According to him, multiple intelligences are eight different ways to demonstrate intellectual abilities. These intelligences may be discussed as follows:

3.1 **Linguistic Intelligence (word smart):** It is the capacity to use words effectively, both orally and in writing, as a vehicle of expression and communication .It is also the ability to learn from reading the printed word, and listening to other's conveyed information through speaking. It include the ability to manipulate the syntax and structure of language ,such as rhetoric-to convince; mnemonics-to remember; explanation-to inform; meta language – to use language to discuss language; Example of people gifted with this intelligence would include, among others, poets, writers, orators, journalists,

speakers and comedians like Shakespeare, Virginia Woolf, Abraham Lincoln and Walt Whitman.

- 3.2 **Logical-Mathematical Intelligence (number/reasoning smart):** It is the capacity to think logically. To use number effectively, to solve problem scientifically, and to discern relationship and patterns between concepts and objects. It include the ability to use inductive and deductive reasoning. Solve abstract problems and understand the complex relationships of interrelated concepts, ideas and things. Mathematicians, economists, engineers, accountants, lawyers and scientists possess this type of intelligence.
- 3.3 **Musical Intelligence (music smart):** It is the capacity to perceive, discriminate, transform and express musical forms. This includes sensitivity to rhythm, pitch, melody, tone and colour. Singers, musicians and composers possess this type of intelligence.
- 3.4 **Spatial Intelligence (picture smart):** It is the ability to think visually and orient spatially, i.e. ability to perceive the visual-spatial world accurately. This includes sensitivity to colour, line, shape, form, space and the relationships between these. Artists, decorators, architects ,pilots, sailors, surveyors, inventors and guides belong to this category. Famous examples; Picasso, Frank, Loyd Wright and Leonardo Da Vinci.
- 3.5 **Bodily-Kinesthetic Intelligence (body smart):** It is the capacity to use body in highly differentiated and skilled ways for expression as well as for goal-directed purposes. It includes our fine and gross motor movements, sense of timing and direction. It is also physical coordination, balance, dexterity, strength , speed , flexibility and tactile capacities, Dancers, actors, athletes, sculptors, surgeons, mechanics and crafts people are very high on this type of intelligence.
- 3.6 **Interpersonal Intelligence (people smart):** It is the capacity to interact with others, to understand them and to interpret their behaviour accurately. It is ability to notice distinctions among other people and to recognize their moods, temperaments, motivations and intentions. It is the sensitivity to other's facial expressions, voices and gestures, and the ability to respond effectively to these cues. 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 (Armstrong, 1994). Teachers, sales people,

politicians, religious leaders, talk show hosts etc. possess high degree of interpersonal intelligence.

**3.7 Intrapersonal Intelligence (self smart):** It involves verbal and nonverbal communication skills, collaborative skills, conflict management, consensus building skills and the ability to trust, respect, lead and motivate others to the achievement of a mutually beneficial goal. It represents self-knowledge and ability to act adaptively on the basis of this knowledge. It is the ability to have an accurate picture of one's inner self, strengths and weaknesses and one's inner moods, goals, intentions, motivations, temperament, beliefs and desires. It is the capacity to cultivate superb self-discipline, self-understanding and high self-esteem. Entrepreneurs, therapists, theologians, psychologists and philosophers are likely to possess high level of intrapersonal intelligence. These people are likely to be well adjusted with their own self.

**3.8 Naturalistic Intelligence (nature smart):** It is the ability to recognize and classify plants, minerals including mastery of taxonomies. It is the capacity to learn best through nature. This includes the ability to have greater sensitivity to nature, the ability to nurture and grow things, and greater ease in earning for , taming and interacting with animals. This also includes the ability to discern changes in weather or similar fluctuations in natural surroundings. Biologists, naturalists, gardeners, botanist, ecologists, landscapers, farmers are likely to possess high level of naturalistic intelligence.

#### 4 MULTIPLE INTELLIGENCE IN THE TEACHING

Teachers should first evaluate their own intelligence before carrying out multiple intelligences teaching, and use their dominant intelligence in planning materials and lesson plans. They should also keep track of student performances with observations and written records. This can help to assess each student's intelligence and provide support accordingly. Gardner thought physics, biology, humans, products, self-understanding and understanding of the world are very important educational objectives. Therefore teachers should make clear the lesson's key points and contents and teach with practical and interesting material to enrich the lessons and reinforce learning. Lastly, there is neither right nor wrong with the multiple intelligences theory itself; the key is to understand and adopt the most beneficial method for students. (Seefchak, 2008).

Each students has an individual profile of characteristics, abilities and challenges that result from learning and

development. These manifest as individual difference in intelligence, creativity, cognitive style, motivation and the capacity to process information, communicate and relate to others. Two fundamental assumptions that underlie formal education system are: (a) students retain knowledge and skills they acquire in classroom; and (b) they can apply them in situation outside the classroom. But are these assumptions accurate? Students who are high in creative intelligence are often not on the top rank of their class. The reason behind this is that instead of giving conformist answers, they give unique answers, for which they get marked down. Likewise, students with high practical intelligence often do not relate well to the demands of school. However, these students often do well outside the classroom. They might have excellent social skills and good common sense. Therefore, students should be given opportunities to learn through creative and practical thinking, in addition to conventional strategies that focus on simply Learning and remembering a body of information. It is important in teaching to balance instruction related to different types of intelligence. Teachers could develop multiple intelligence in the classroom stepwise, that is, identify instructional goals and objectives; consider activities that may help the students in the development of multiple intelligence; limit the number of activities to two or three; consider what resources and materials he will need to implement the lesson; specify a time-frame for the lesson; provide an opportunity for reflection by students; and integrate assessment into the learning process.

#### 5 ROLE OF TEACHER IN DEVELOPING MULTIPLE INTELLIGENCES

In the society where education is so vital, it is important to have students catch up and get ahead in different skills. This can be accomplished through purposeful teaching of specific skills and strategies. Students are asked to take on multiple roles and to learn many different skills in educational institutions. For a variety of reasons, students need to prioritize what roles they can accept and what skills to develop-learning some important skills underdeveloped?

Teachers can cultivate *Linguistic intelligence* by adopting the following techniques of teaching: creative writing, brainstorming activities, formal speaking, poetry, reading, story-telling/story-creation, verbal debate, lecture, discussion, journal writing, co-operative learning, word origins, vocabulary etc.

*Logical-mathematical intelligence* can be strengthened by encouraging the use of computer programming languages, critical thinking activities, linear outlining, Piagetian cognitive stretching exercise, science fiction scenarios,

logic puzzles and logical/sequential presentation of subject matter. The following teaching methods can be used: abstract symbols/formulas, calculations, forcing relationships, graphic/cognitive organizers, logic/pattern games (number games), number sequences/patterns and problem solving-listing appropriate procedures for problem-solving situations, critical thinking, classifying Socratic questioning etc.

Teachers can foster *musical intelligence* by integrating environmental sounds, instrumental sounds, music composition/creation, music performance, percussion vibrations, rhythmic patterns etc.

*Spatial Intelligence* can be fostered by utilizing charts, graphs, diagrams, graphic organizers, videotapes, colour coding systems, art activities, doodling, microscopes and computer graphics software, active imagination, colour/texture schemes, drawing, mind mapping, painting, sculpting, etc.

Teaching may encourage growth in *bodily kinesthetic intelligence* through the use of touching, feeling, movement, improvisation, "hands-on" activities, facial expressions and physical relaxation exercises, body language/physical gestures, body sculpture/tableaus, dramatic enactment, folk/creative dance, gymnastic routines, human graphs, inventing, role playing/mime, using manipulative, hand signals, pantomime, real life situations, puzzles and board games, activities, role-playing, action problems, sports and games etc.

*Interpersonal intelligence* can be encouraged by designing lessons that include group work and by planning cooperative learning strategies, collaborative skills teaching, empathy practices, giving feedback, group projects, intuiting others' feelings, person-to-person communication, role playing, group brainstorming etc.

Teachers can assign reflective activities to awaken students *'intrapersonal intelligence'*. The following teaching strategies can be used to foster this intelligence: know thyself procedures, meta-cognition techniques, mindfulness practices, emotional processing, focusing/concentration skills, higher-order reasoning, independent studies/projects, silent reflection methods, thinking strategies, reflective teaching, interviews, reflective listening etc.

*Naturalistic Intelligence* can be inculcated by adopting the following methods: developing an outdoor classroom, making celestial observation, using scientific equipments for observing nature, initiating projects on the food chain, what cycle or environmental issues etc.

It is not possible for a student to be blessed with all types of intelligences in equal measure. Most of the students are likely to possess high level of intelligence in one or two types and an average or less than average level of intelligence in other types. This calls for differential curricular inputs and transactional strategies for different students.

It is the first essential thing for healthy development of learners to provide planned and structured environment in which they grow and learn in a natural way. Eight kinds of intelligences need eight ways to teach. Whatever a teacher is teaching, he might connect it with the words, numbers or logic, music, pictures, physical experience, social experience, self-reflection and experience in the natural world. When he will connect all these with each other directly or indirectly, he can foster learners and help them develop linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, interpersonal, intrapersonal and naturalistic intelligence respectively. But, it is very difficult for a teacher to adopt eight different ways to teach, so, a learner desirous of knowledge should go from teacher to teacher like the bee avid of honey going from flower to flower.

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## 6 CONCLUSION

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