Conceptual Article

Multi Techno Pedagogy for Mixed Ability Learner

Dr. F. L. Antony Gracious,
Assistant Professor in Physical Science Education,
Bishop Agniswamy College of Education,
Muttom.

F. L. Jasmine Anne Shyla,
Assistant Professor in computer Science,
Babuji Memorial College of Education,
Manavalakurichy.

ABSTRACT

Multiple intelligences are an educational theory developed by Howard Gardner, which describes an array of different kinds of “intelligences" exhibited by human beings. Gardner suggests that each individual manifests varying levels of these different intelligences and thus each person has a unique "cognitive profile. The theory suggests rather than relying on a uniform curriculum, schools should offer "individual-cantered education", with curriculum tailored to the needs of each child. Gardner identifies kinds of intelligences based upon nine criteria. His nine criteria describe something as an independent kind of intelligence. Multiple Intelligences is a way of understanding the intellect. Howard Gardner originally identified and labelled seven different kinds of intelligences, although he recently added an eighth. There has even been some consideration of a ninth intelligence - existential intelligence. The eight intelligences according to Gardner are: Musical Intelligence, Bodily-Kinesthetic Intelligence, Logical-Mathematical Intelligence, Linguistic Intelligence, Spatial Intelligence, Interpersonal Intelligence, Intrapersonal Intelligence and Naturalist Intelligence. The theory has been widely criticized in the psychology and educational the01y communities. The most common criticisms argue that Gardner's theory is based on his own intuition rather than empirical data and that the intelligences are just other names for talents or personality types. Despite these criticisms, the theory has enjoyed a great deal of success amongst educators over the past twenty years. There are several schools which espouse MI as pedagogy and many individual teachers who incorporate some or all of the theory into their methodology. Many books and educational materials exist which explain the theory and how it may be applied to the classroom.

Keywords: Multi Techno Pedagogy, Mixed Ability Learners, Technology-Enhanced Learning, Differentiated Instruction, Digital Pedagogy, Inclusive Education, Classroom Innovation

Multiple Intelligence

Multiple intelligences are an educational theory developed by Howard Gardner. It describes an array of different kinds of "intelligences" exhibited by human beings. Gardner suggests that each individual manifests varying levels of these different intelligences and thus each person has a unique "cognitive profile." The theory was first laid out in Gardner's 1983 book, Frames of Mind: The Theory of Multiple Intelligences. And has been further refined in subsequent years. The theo1y was proposed in the context of debates about the concept of intelligence and whether methods which claim to measure intelligence (or aspects thereof) are truly scientific. The the01y suggests that, rather than relying on a uniform curriculum, schools should offer 11individual-centered education", with curriculum tailored to the needs of each child. His criteria of intelligence describe something as an independent kind.

Multiple Intelligences is a way of understanding the intellect. Howard Gardner originally identified and labelled seven different kinds of intelligences, although he recently added an eighth. There has even been some consideration of a ninth intelligence - existential intelligence. The eight intelligences according to Gardner are: Musical Intelligence, Bodily-Kinaesthetic Intelligence, Logical-Mathematical Intelligence, Linguistic Intelligence, Spatial Intelligence, Interpersonal Intelligence, Intrapersonal Intelligence and Naturalist Intelligence.

The theory has been widely criticized in the psychology and educational theory communities. The most common criticisms argue that Gardner's theory is based on his own intuition rather than empirical data and that the intelligences are just other names for talents or personality types. Despite these criticisms, the theory has enjoyed a great deal of success amongst educators over the past twenty years. There are several schools which espouse MI as pedagogy and many individual teachers who incorporate some or all of the theory into their methodology. Many books and educational materials exist which explain the theory and how it may be applied to the classroom.

Bodily-Kinaesthetic Learners

Bodily-Kinaesthetic area has to do with movement and doing. In this category, people are generally adopted at physical activities such as sports or dance and often prefer activities

which utilize movement. They may enjoy acting or performing and in general they are good at building and making things. They often learn best by physically doing something, rather than reading or hearing about it. Those with strong bodily-kinaesthetic intelligence seem to use what might be termed muscle memory; i.e., they remember things through their body, rather than through words (verbal memory) or images (visual memory). It requires the skills and dexterity for fine motor movements such as those required for dancing, athletics, surgery, craft making and computer engineering, etc. These learners like to create and move around. Get them involved with gathe1ing and organizing physical materials, keyboarding, acting out roles, or manipulating objects. They would like to nm the can1era, operate the mouse, or take the pictures. Careers suit with this intelligence include athletes, dancers, actors, surgeons, comedians, builders, soldiers and artisans.

ICT based Education for Bodily-Kinaesthetic Learners

These "body smart" people learn best through physical activity such as dance, hands-on tasks, constructing models and any kind of movement. They are able to manipulate and control objects, as well as express their ideas through movement. Give these learners a video camera and let them record their movement such as a wood working activity or a skit. Add other intelligences such as taking still pictures and Writing about the steps in the process. ICT based education can be provided for Bodily/Kinaesthetic Leamer by teaching and making the learners in doing assignments through animation in Adobe Flash; Browsing Virtual Field Trip; Using and creating other construction kit projects through Logo and Robotics; Making Video production through skits, dances, sports, role playing and demonstrations and allowing to operate Digital still and video cameras in video-shooting skits, plays, role playing and demonstrations.

Interpersonal Learners

Interpersonal area has to do with interaction with others. People in this category are usually extroverts and are characterized by their sensitivity to others' moods, feelings, temperaments and motivations and their ability to cooperate in order to work as part of a group. They communicate effectively and empathize easily with others and may be either leaders or followers. They typically learn best by working with others and often enjoy discussion and debate. They are good at rallying the group together and getting discussions going. They are good at teaching other members of the group and coordinating activities. In a group project,

they are good at peer editing Careers suit those with this intelligence include politicians, managers, teachers, social workers and diplomats.

ICT based Education for Interpersonal Learners

These "social smart" people learn best through interaction with other people through discussions, cooperative work, or social activities. They are able to create synergy in a room by being aware of the feelings and motives of others. ICT based education can be provided for Interpersonal Learners in group projects and Peer tutoring; Making peers through Blogs, Email projects, Chat Forums and discussions; Video and teleconferencing, Web quests with collaborative elements; Video recording - sharing with others through skits, debates and role plays; Word processing through chain writing, group editing, peer writing, brainstorming and also Collaborative computer software or games and Group presentations of their work.

Verbal-Linguistic Learners

Verbal-Linguistic area has to do with words, spoken or written. People with verbal-linguistic intelligence display a facility with words and languages. They are typically good at reading, writing, telling stories and memorizing words and dates. They tend to learn best by reading, taking notes, listening to lectures and via discussion and debate. They are also frequently skilled at explaining, teaching and oration or persuasive speaking. Those with verbal-linguistic intelligence learn foreign languages very easily as they have high verbal memory and recall and an ability to understand and manipulate syntax and structure. They enjoy being the secretary, taking notes and using the word processor. They would enjoy organizing the group's text and putting the project together. They enjoy the researching, listening, reading and writing aspects of a research project. Careers suit to this intelligence include writers, lawyers, philosophers,joumalists, politicians and teachers.

ICT based Education for Verbal-Linguistic Learners

These "word smart" people learn best through language including speaking, writing, reading and listening. They are able to verbally or in writing explain, convince and express themselves. They enjoy writing and creating with words. They would also enjoy e-books, interactive books on CD-ROM and other text-based software. ICT based education can be provided for Verbal/Linguistic Learners by Writing a video script ; Voice annotation in word processing; Giving comments and assignment submission through word processing ; Story-creations and verse writing and utilizing different word processing software; Referring

electronic reference tools - encyclopaedia dictionaries; Discussing and debating through email, discussion lists and forums; Sharing a poem myth, legend, news article through web development tools; Recording oral histories and interviews through audio recorders and digitizers and also speaking, debating, dramatizing, Reading and interpreting web information.

Logical-Mathematical Learners

Logical-Mathematical area has to do with logic, abstractions, inductive and deductive reasoning and numbers. This intelligence naturally excel in mathematics, chess, compute1 programming and other logical or numerical activities, a more accurate definition places emphasis less on traditional mathematical ability and more reasoning capabilities, abstract pattern recognition, scientific thinking and investigation and the ability to perform complex calculations. They enjoy collecting data, conducting experiments and solving problems. Creating spreadsheets, databases, charts and other data organization and calculation projects would be their contribution to a group. They enjoy problem solving, measuring, sequencing, predicting, experimenting, classifying and data collection aspects of a research project. Careers suit with this intelligence include scientists, mathematicians, engineers, doctors and economists.

ICT based education for Logical/Mathematical Learner

These "number smart" people learn best through numbers, reasoning and problem solving. They are able to create and manipulate visuals and create mental pictures from many perspectives. They like to weigh, measure, calculate and organize data. Give learners opportunities to create ot manipulate data they find on the Internet. Provide them with a video camera to record their scientific experiment. Get them to use other intelligences in their sharing of data such as making an analogy 01 debating an issue through Organizational tools (databases, calendars); Calculation tools (spreadsheets); Online calculation tools and utilities; Science and Mathematics software like Spreadsheets, Statistics and Graphing calculators; Strategy, logic and critical thinking software; Desktop presentation (PowerPoint) for showing results and also Computer-aided design - for problem solving.

Naturalistic Learners

Naturalistic area has to do with nature, nurturing and relating infom1ation to one's natural surroundings. This is the eighth and newest of the intelligences, added to the theory in 1999 and is not as widely accepted as the 01iginal seven. This type of intelligence was not part of Gardner's original theory of Multiple Intelligences. Those with it are said to have greater sensitivity to nature and their place within it, the ability to nurture and grow things and greater ease in caring for, taming and interacting with animals. They may also be able to discern changes in weather or similar fluctuations in their natural surroundings. They are also good at recognizing and classifying different species. "Naturalists" learn best when the subject involves collecting and analyzing, or is closely related to something prominent in nature; they also don't enjoy learning unfamiliar or seemingly useless subjects with little or no connections to nature. It is advised that naturalistic learners would learn more through being outside or in a kinaesthetic way. They could enjoy field trips that involve observation and recording the world around them Careers suit with this intelligence include scientists, naturalists, conservationists, gardeners and fanners.

ICT based education for Naturalist Learner

These "nature" people learn best through the interactions with the environment including outdoor activities, field trips and involvement with plants and animals. They sec the subtle meanings and patterns in nature and the world around them. They are able to adapt. ICT based education can be provided for Naturalist Learner by recording the natural world through Audio and video cameras; Recording natural world, field trips through Digital cameras and reporting it through Word processing - journaling the information and also studying the micro organism through use microscopes.

Intrapersonal Learners

Intrapersonal area has to do with introspective and self-reflective capacities. Those who are strongest in this intelligence are typically introverts and prefer to work alone. They are usually highly self-aware and capable of understanding their own emotions, goals and motivations. They often have an affinity for thought-based pursuits such as philosophy. They learn best when allowed to concentrate on the subject by themselves. There is often a high level of perfectionism associated with this intelligence. They are good at setting_ and pursuing goals

and assessing work. They are good at working independently toward a group goal. Careers suit with this intelligence include philosophers, psychologists, theologians, writers and scientists.

ICT based education for Intrapersonal Learner

These "self smart" people learn best through metacognitive practices such as getting in touch with their feelings and self motivation. They are able to concentrate and be mindful. Provide tools to help learners "think about their thinking" through writing, diagramming, or recording ideas. ICT based education can be provided for Intrapersona1 Learner through computer-based journaling and Internet research- self paced software; Writing diaries and journals through Word processing; Video projects by record personal ideas and making them to create Multimedia portfolios and Blogs.

Spatial Learners

Spatial area has to do with vision and spatial judgment. People with strong visual-spatial intelligence are typically very good at visualizing and mentally manipulating objects. They have a strong visual memory and are often artistically inclined. Those with visual-spatial intelligence also generally have a very good sense of direction and may also have ve1y good hand-eye coordination, although this is normally seen as a characteristic of the bodily-kinaesthetic intelligence. They would enjoy illustrating the project, identifying the visuals, color-coding the presentation and creating that story board for the project. They enjoy identifying project visuals and visualizing aspects of, research project. Careers suit with this intelligence include artists, engineers and architects.

ICT based education for Visual/Spatial Learner

These "picture smart" people learn best visually and tend to organize their thinking spatially They like to think and create pictures. They are also drawn to information that is presented in a visual form. Encourage learners to combine visual elements such as editing photographs or enhancing line drawings. Encourage them to add other intelligences such as written or oral descriptions 01 discussions. Ask them to make visual metaphors and stories. ICT based education can be provided for Visual/Spatial Leamer through photo sharing websites and editing and modifying the pictures 01 websites through imaging software - Fireworks; Photoshop, Paint, Illustrator and CorelDraw Designing the websites with visual organizers or use colour; Assigning to do scrap booking, photo albums and slide shows: oral history projects and also assigning to do computer-generated charts. graphs and tables.

Musical Learners

Musical area has to do with rhythm, music and hearing. Those who have a high level o1 musical-rhythmic intelligence display greater sensitivity to sounds, rhythms, tones and music. The) normally have good pitch and may even have absolute pitch and are able to sing, play musical instruments and compose music. Since there is a strong aural component to this intelligence, those who are st1·ongest in it may learn best via lecture. In addition, they will often use songs or rhythms tc learn and memorize information and may work best with music playing in the background. The) like to choose and compose music for multimedia presentations. They like to see and hear patterns, so they may be good at sequencing a presentation. They are good listeners, so ask them to look fo1 things that might be missing after watching a Careers suit with this intelligence include instrumentalists, singers, conductors, disc-jockeys and composers.

ICT based education for Musical/Rhythmic Learner

These "music smart" people learn best through sounds including listening and making sounds such as songs, rhythms, patterns and other types of auditory expression. They are able to use inductive and deductive reasoning and identify relationships in data. Provide learners with audic and video recorders to capture their musical expressions. Ask them to choose appropriate music tc go with a slide show, artwork, or poem. Create and record hand-made instruments. Add othe1 intelligences such as drawing patterns of music or writing about music and sounds. JCT based education can be provided for Musical/Rhythmic Learner to express their audio notation in word processors and creating music sharing sites; editing music through music composition software: Preparing DVDs and CD-audios, Interactive books with audio elements and also video and audio recording the digitize singing and musical instruments.

Existential Learners

Existential area is the capacity to raise and reflect on philosophical questions about life, death and ultimate realities and meets most of the criteria with the exception of identifiable areas of the brain that specialize. Moral capacities were excluded because they are normative rather than descriptive. Anew intelligence is existentialist. These "wondering" people learn best through seeing the "big picture" of human existence by asking philosophical questions about the world.

ICT based education for Existentialist Learner

ICT based education can be provided for Existentialist Leamer by providing ICT tool like Email, chat, teleconferencing and other interactive communication tools to help learners address their questions.

Conclusion

For every new innovation, there will be an anticipated outcome and the better one will exist till its end. If we take evolution theory, it says that better and good one will exists as ever last one. So this new theme of intelligence in the field of education also exists because of its adaptability towards the interest of its learner. There is no doubt technology collaborated multiple intelligence will rocks out the future education.

REFERENCE

- Gardner, Howard. (1983) "Frames of Mind: The Theory of Multiple Intelligences." New York: Basic Books.
- Gardner, Howard. (1993) "Multiple Intelligences: The Theory into Practice." New York: Basic Books.
- Gardner, Howard. (1999) "Intelligence Reframed: Multiple Intelligences for the 21st Century." New York: Basic Books.
- Gardner, Howard. (1998) "A Reply to Perry D. Klein's 'Multiplying the problems of intelligence by eight'" Canadian Journal of Education, 23(l), 96-102.
- Gardner, Howard and Seana Moran. (2006). the science of Multiple Intelligences theo1y: A response to Lynn Waterhouse. Educational Psychologist, Volume 41, Issue 4, Fall 2006,pp. 227-232.
- Gardner, H. (2004) Changing minds: The art and science of changing our own and other people's minds. Boston: Harvard Business School Press, p. 196.
- http://edweb.gsn.org/edref.mi.intro.html
- http://en.wikipedia.org/wiki/Theory_of_multiple_intelligences