

Howard Gardener's Theory of Multiple Intelligence: A Place for Bodily Kinesthetic Intelligence in Holistic Curriculum

Peter Lepcha is an Assistant Professor in the Department of English and Campus Co-ordinator of the day session, Salesian College Siliguri Campus. He has been the Editorial Assistant for Salesian Journal of Humanities and Social Sciences. He has participated and presented papers in national and international seminars and conferences. His areas of interests are translation literature, romantic literature and Christian theology.

Priya Topno is an Assistant Professor in the Department of Education, North Bengal St. Xavier's College, Rajganj. She has participated and presented papers in national seminars and conferences. Her areas of interest are educational guidance & counselling, educational psychology and sociological foundations of education.

Abstract

Intelligence is one of the endowments that every individual is born with. It plays a key role in learning as well as it is an indicator of a person's achievement in various areas of life. Educational researches have since long unearthed that intelligence is not monarchic, unitary or only of one type. Howard Gardner, a professor of Harvard University has propounded Multiple Intelligence theory wherein there are as many as eight types of intelligences. This article takes a cue from the multiplicity of intelligence types especially Bodily-kinesthetic intelligence which involves sports, games, performing arts and other activities of that nature and explores the possibilities of its accommodation in the curriculum with due/appropriate weightage and its assessment through Achievement Tests/Academic exams of the schools, colleges and universities in the formative and summative evaluation of the pupils.

Keywords: Intelligence, Bodily Kinesthetic, Multiplicity, Holistic Approach, Individual Difference.

Introduction

The word intelligence forms a part of our ordinary stock of words which we use every day. It is generally used in day to day conversation to indicate the quality of an individual's performance in various activities. The Concise Oxford Dictionary informs us that the term intelligence means 'intellect' and 'understanding'. Intelligence of an individual is generally guessed from the way a person appears to understand a fact or a group of facts, and the manner in which he responds to those facts.¹We may note that it is always some activity that is judged as intelligent or otherwise. Hence, the aspects of practical success and failure do play an important role in judging one's intelligence. In the field of education too, the term intelligence finds a fairly comprehensive use but it has been defined and explained relatively in a number of ways by educationists and educational psychologists. David Wechsler defined it as, "... the aggregate or

¹ Cf Srinibas Bhattacharya, *Psychological Foundation of Education*, New Delhi, Atlantic Publishers & Distributors, 2008.

global capacity of an individual to act purposefully, to think rationally, and to deal effectively with his (her) environment." After a long research for a suitable definition of intelligence, it has been established that it is the general ability which is manifested at various levels.² The complex nature of intelligence makes it very difficult to be defined.

Defining Intelligence

The search for the meaning of the word 'intelligence' goes back to Aristotle who tried to distinguish the emotional and moral functions from the cognitive and intellectual functions of our mind. Since then the structure of the mind has been questioned and the structural theories viewed and reviewed. Various attempts to define intelligence have been made from different angles namely the biological, the psychological and the operational.

Charles Darwin and Herbert Spenser made the biological approach and pointed out the complexity of the higher brain centres and their bearing on the behaviour. According to this school of thought, intelligence has been regarded as an inherent capacity for profiting by experience, adaptation to environment and ability to learn. Some of the Psychologists who adhere to this concept of intelligence define it in the following manner: According to William Stern, "[i]ntelligence is a general capacity of an individual consciously to adjust his thinking to new requirements. It is the general mental adaptability to new problems and conditions of life."³ Similarly, "[i]ntelligence is the ability to adapt to one's surroundings", according to Jean Piaget.⁴

The biological conception in its original form refers to the modifiability of behavior with increasing flexibility, which our intelligence tests can hardly measure. Moreover, a follow up study might give rise to a skeptical view of this approach because adaptation to the physical and social environment does not always indicate high intelligence or vice versa. Thus, the term needs to be defined from various other angles, in order to explain the complexity of our behavior in relation to environment. Psychologists interpret that our mind is composed of a number of major faculties, viz. knowing, feeling and willing. This faculty school went on extending their domain and included gradually various other powers of mind. Going by this school of thought other psychologists came to define intelligence still differently. As for E. L. Thorndike it is "the power of good responses from the point of view of truth or fact."⁵ For Lewis Madison Terman, "[a]n individual is intelligent in the proportion that she is able to carry on abstract thinking."⁶ For, Woodworth and Marquis, "[i]ntelligence means intellect put to use. It is the use of intellectual abilities for handling a situation or accomplishing any task."⁷

² *Ibid.*

³ Stern William, *The Psychological Methods of Testing Intelligence*, Warwick and York Inc., Baltimor, 1914, p.3.

⁴ J Piaget, *The Origins of Intelligence in Children*, New York, International Universities Press, 1952.

⁵ EL Thorndike, *Educational Psychology*, New York, Columbia University, 1914.

⁶ Terman, Lewis Madison and MA Merrill, *Measuring Intelligence*, Boston, Houghton, Mifflin, 1937.

⁷ RS Woodworth and DG Marquis, *Psychology*, New York, Henry Holt, 1948, p.33.

On the basis of the above observations it can be understood that intelligence as a concept gradually developed and the question arose as to whether intelligence can be treated as a unitary or a multiple faculty of the mind. As corollaries, other questions arose: Is intelligence inborn or innate? Is it inherited from our ancestors or is it partly or wholly dependent on upbringing and education? As a result, various theories on intelligence have been propounded which explore the multi-faceted nature and operations of intelligence.

Important Theories of Intelligence

At the very outset, the various theories of intelligence can be broadly classified into two categories as shown in the table below:⁸

Factor Theories	Cognitive Theories
Unitary Theory (Alfred Binet & Others)	Cattle & Horn's Theory
Multi Factor Theory (E L Thorndike)	Jenson's Theory of Mental Functioning
Two Factor Theory (Spearman)	Campion & Brown's Theory
Group factory (Thurstone)	Sternberg's Information Processing Theory
Sampling Theory (G H Thomson)	<i>Gardner's Theory of Multiple Intelligence</i>
Hierarchial Theory (Vernon)	
Model of Intellect Theory (Guilford)	

All the Theories explore some aspect or the other of intelligence. From the above mentioned theories, this paper concentrates on Gardner's Theory of Multiple Intelligence (1983) which is relatively a popular theory of intelligence. This paper takes its cue from the multiplicity of intelligence types, especially Bodily Kinesthetic Intelligence which involves sports, games, performing arts and other activities of that nature and explores the possibilities of its accommodation in the curriculum with due or appropriate weightage and it's assessment through achievement tests or academic tests/exams of the schools and universities in the formative and summative evaluation of the pupil.

Multiplicity of Intelligence types

Gardner revolutionised the construct that the intelligence can consist of a few factors, endowments of special ability when he proposed the Theory of Multiple Intelligence in his famous book *Frames of Mind*. He submitted that there are nine types of intelligences that are available in the human population. Critiquing the undue importance given to the mathematical or linguistic intelligence, he says, "The importance attached to the number is not entirely inappropriate: after all, the score on an intelligence test does predict one's ability to handle school subjects, though it foretells little of success in later life."⁹

⁸ *Ibid.*, pp. 280 - 291.

⁹ Howard Gardner, *Frames of Mind: Theory of Multiple Intelligences*, New York, Basic Books, 2011, p. 3. (Henceforth Gardner).

Bodily Kinesthetic Intelligence and Educational Relevance

Bodily Kinesthetic Intelligence is characterised by the ability to use one's body in highly differentiated and skilled ways, for expressive as well as goal-directed purposes which requires for fine motor movements of one's fingers and hands and those that exploit gross motor movements of the body.¹⁰ Norman Kingsley Mailer, Pulitzer Prize winning novelist writes:

There are languages other than words, language of symbols and languages of nature. There are languages of the body. And prize fighting is one of them. A prize-fighter ... speaks with a command of the body which is as detached, subtle, and comprehensive in its intelligence as any exercise of the mind. (S/he expresses) himself (herself) with wit, style, and an aesthetic flair for surprise when (s)he boxes with his (her) body. Boxing is a dialogue between bodies (it) is a rapid debate between two sets of intelligences.¹¹

Contextualising principles and practices of education in India, still one can observe the summative evaluation system giving importance to logical-mathematical intelligence and linguistic intelligence. Any given curriculum of Inter Collegiate (plus 2) or University level education has little or no place for imparting, testing/evaluating bodily kinesthetic intelligence for number of reasons. Firstly, diversification of curriculum takes place after completion of Matriculation (10th Standard).¹² Therefore, it is posited that the students who come to College/University, are students who have specialised interest in choosing streams. As educators in higher education, it is observed that there are considerable number of students who have high Bodily Kinesthetic intelligence and other category of intelligences, other than logical-mathematical intelligence and linguistic intelligence but they are not being able to qualify university examinations for reasons so obvious. There seems to be a systematic attempt to divorce the 'mental' and the 'physical'. Former Indian cricket player Sachin Ramesh Tendulkar is a living example for cricket lovers, who exhibited a superior form of bodily kinesthetic intelligence in batting for India with his right hand though he is a natural left hander. His ambidextrous genius has proved his forte i.e. his fine intelligence for cricketing. Similarly, footballers, dancers, acrobats, boxers, sprinters, artisans, musicians (such as drummers) exhibit high bodily kinesthetic intelligence. Brain consists of different zones that direct different activities of the body. Injuries to those specific zones of the left hemisphere that are dominant for motor activity can produce selective impairment. Neurologists speak of the apraxias, a set of related disorders at which though an individual is capable of understanding (which is the area of logical-mathematical and linguistic intelligence) and performing certain manual actions but are unable to do so.¹³ It is the same brain that has different zones and

¹⁰ Gardner, p. 218.

¹¹ B Lowe, *The Beauty of Sport: A Cross-Disciplinary Inquiry*, N J, Prentice-Hall, 1977, p. 255.

¹² BR Purkait, *Milestones in Modern Indian Education*, Kolkata, New Central Book Agency, 2002, p. 239, (Hereafter Purkait, Milestone).

¹³ Gardner, p. 225.

compartments that monitor such movements. The correct, appropriate, accurate and precise reaction to the stimuli is the bodily kinaesthetic intelligence.

Multiple Intelligence Test

A test to find out the specific intelligence among the Bachelor of Commerce Part II (Second Year) students of Salesian College Siliguri was administered in the month of August 2012. The sample chosen were those who failed in the University Examination but were good in sports and athletics. The sole purpose of the test was to establish that those who are good in sports and athletics but failed in the University Examination which tests mostly linguistic and logical-mathematical intelligence have higher bodily kinesthetic intelligence and the later needs to be given due importance by the universities, colleges and institutes of higher learning. The Multiple Intelligence Inventory for Adults by Thomas Armstrong was used to conduct the test which is given below:

Multiple Intelligences Inventory for Adults¹⁴

Instruction

Circle the statements that apply best to you.

1. Books are important to me.
2. I can easily compute numbers in my mind.
3. I often see clear visual images when I close my eyes.
4. I engage in at least one sport or physical activity on a regular basis.
5. I have a pleasant singing voice.
6. I am the sort of person that people come to for advice and counsel at work or in my neighbourhood.
7. I regularly spend time alone meditating, reflecting or thinking about important life questions.
8. I like to spend backpacking, hiking, or just walking in nature.
9. I belong to some volunteer organization related to nature and I am concerned about helping to save nature from further destruction.
10. I have attended counseling sessions or personal growth seminars to learn more about myself.
11. I prefer group sports like, badminton, volleyball to solo sports such as swimming and jogging.
12. I can tell when musical note is off-key.

¹⁴ Thomas Armstrong, *Multiple Intelligences in the Classroom*, Alexandria, USA, 2000, pp. 22 - 26.

13. I find it difficult to sit still for long periods of time.
14. I am sensitive to colour.
15. Mathematics and/ or Science were subjects were among my favourite subjects in schools.
16. I can hear words in my head before I read, speak, or write them down.
17. I get more out of listening to the radio or spoken-word cassette than I do from television or films.
18. I enjoy playing games or solving brainteasers that require logical thinking.
19. I frequently use camera or camcorder to record what I see around me.
20. I like to work with my hands at concrete activities such as sewing, weaving, carving, carpentry or model building.
21. I frequently listen to music on radio, compact discs, cell phone or i-pods.
22. When I have a problem, I am more likely to speak out to another person for help than attempt to work it out on my own.
23. I am able to respond to setbacks with resilience.
24. I thrive on having animals around the house.
25. I enjoy word games like Scrabble, Anagrams, or Password.
26. I like to set up little "what if" experiments (for example, "What will happen if I double the amount of water I give to my rose-bush each week?")
27. I enjoy jigsaw puzzle, mazes and other visual puzzles.
28. My best ideas often come to me when I am out for a long walk or a jog, or when I am engaging in some kind of physical activity.
29. I play musical instrument.
30. I have at least close friends.
31. I have a special hobby or interest that I keep pretty much to myself.
32. I am involved in a hobby that involves nature in some way (e.g. bird watching).
33. I have some special goals for my life that I think about in a regular basis.
34. I favour social pastimes such as game of bridge over individual recreations such as video games or solitaire.
35. My life would be poorer if there were no music.
36. I often like to spend my free time outdoors.
37. I have vivid dreams at night.
38. My mind searches for patterns, regularities, or logical sequences in things.

39. I enjoy entertaining myself or others with tongue twisters, non-sense rhymes, or puns.
40. Other people sometimes have to stop and ask me to explain the meaning of the words I use in my writing and speaking.
41. I am interested in new development in science.
42. I can generally find my way around unfamiliar territory.
43. I frequently use hand gestures or other forms of body language when conversing with someone.
44. I sometime catch myself walking down the street with television jingle or other tunes running through my mind.
45. I enjoy the challenge of teaching another person, or groups of people, what I know how to do.
46. I have a realistic view of my strengths and weaknesses.
47. I like to enroll myself in courses like botany, zoology.
48. I would prefer to spend a holiday alone in a cabin in the woods rather than at a fancy resort with lots of people around.
49. I consider myself a leader.
50. I can easily keep time to a piece of music.
51. I need to touch things in order to learn more about them.
52. I like drawing as well as to draw.
53. I believe that almost everything has a rational explanation.
54. English, social studies and history were easier for me in school than mathematics and science.
55. Learning to speak or read another language has been relatively easy for me.
56. I some time think in clear, abstract, wordless, imageless concepts.
57. Geometry was easier for me than algebra in school.
58. I enjoy daredevil amusement rides or similar thrilling physical experiences.
59. I know the tunes of many different songs or musical pieces.
60. I feel comfortable in the midst of crowd.
61. I consider myself to be strong willed or independent minded.
62. I am quite good at telling the difference between different trees, dogs, cats, flowers etc.
63. I like to read books and magazines, or watch television shows or movies on nature (e.g. National Geography).

64. I keep a personal diary or journal to record the events of my inner life.
65. I like to get involved in social activities connected with my work, church, or community.
66. If I hear a musical selection once or twice, I am usually able to sing it back fairly accurately.
67. I would describe myself as well co-ordinated.
68. I can comfortably imagine how something might if it were looked down on from directly above in a bird's-eye view.
69. I like finding logical flaws in things that people say and do at home and work.
70. My conversation includes frequent to a references to things that I have read or heard.
71. I have written something recently that I was particularly proud of or that earned me recognition from others.
72. I feel more comfortable when something has been measured, categorized, analysed, or quantified in some way.
73. I prefer looking at reading materials that is heavily illustrated.
74. I need to practise a new skill rather than simply reading about it or seeing a video that describes it.
75. I often make tapping sounds or sing little melodies while working, studying, or learning something new.
76. My friends always come to me for emotional support and advice.
77. I am happy spending time alone.
78. When on vacation, I prefer to go off to a natural setting like parks, rather than to a hotel.
79. I like to visit zoos.
80. I have a garden and enjoy working regularly in it.

Scoring

Now give one point to each of the circled statements.

CI	C2	C3	C4	C5	C6	C7	C8
1	2	3	4	5	6	7	8
16	15	14	13	12	11	10	9
17	18	19	20	21	22	23	14
25	26	27	28	29	30	31	32

39	38	37	36	35	34	33	47
40	41	42	43	44	45	46	62
54	53	52	51	50	49	48	63
55	56	57	58	59	60	61	78
70	69	68	67	66	65	64	79
71	72	73	74	75	76	77	80

Total

Interpretation

CI = Indicates your Linguistic strength.

C2 = It indicates your Logical-Mathematical strength.

C3 = It indicates your Spatial strength.

C4 = It indicates your Bodily-Kinesthetic strength.

C5 = It indicates your Musical strength.

C6 = It indicates your Inter-Personal strength.

C7 = It indicates your Intra-Personal strength.

C8 = It indicates your Naturalistic strength.

Findings of the Test

After the students circled their choices, they were tabulated in the score sheet given above. The highest point they received on C1 to C8 pointed their strength for that particular intelligence. The test results showed that the students who performed poorly

in the Commerce and Language subjects but had good sports and games interests in their records from the School and College performances, scored much higher in Bodily Kinesthetic intelligence.

Limitations of this Test

It must be noted that this was not an intelligence test such as the one which is administered to obtain Intelligence Quotient (IQ) of an individual. Only a standardised inventory of multiple intelligence has been used to find out individuals' strengths and particular intelligence type. This test is indicative and not clinical.

Educational Implications & Recommendations

University Grants Commission (UGC) has started the pilot project in the College level education to promote employability of the undergraduate students by launching Career Oriented Programmes (COP) and some of the subjects include Music, Computer Applications, Communicative English, Tourism & Travel Management etc.¹⁵ Therefore, another COP like Sports & Games¹⁶ can be started to cater to such students who have high Bodily Kinesthetic intelligence. It need be like B. PEd but Certificate, Diploma and Advanced Diploma can be awarded at the completion of one, two, three years of the course respectively.

For the educator, this test will also help to group the 'tactile learners' or 'doers' (as they are alternatively called) and change or adopt/adapt the strategy in teaching and assist them by catering to their individual differences.

Education for leisure is yet another issue about which modern educationists are concerned. Promotion of sports and games in the wholistic curriculum of the institutes of higher education can bridge this gap. Secondary Education Commission (Mudaliar Commission) 1952 - 1953 recommended to include education for leisure as one of the important principles of curriculum construction.¹⁷

Conclusion

When the debate and considerations are on in our country to overhaul undergraduate courses for four years instead of three to inculcate more of research and employability in the undergraduate programmes,¹⁸ multiple intelligence gives yet another reason to diversify and at the same time strengthen the wholistic curriculum of the undergraduate

¹⁵ Cf URL - www.ugc.ac.in (accessed on 15 November 2013).

¹⁶ As a result of the Seminar on 'Sports & Games: New Approaches to Wholistic Education' organised by Salesian College in August 2012 and the presentation of this paper in the said seminar in particular, Salesian College has introduced Sports Management' subject as one of the COPs from session 2013 - 2014.

¹⁷ BR Purkait, *Milestones in Modern Indian Education*, Kolkata, New Central Book Agency, 2002, p. 192.

¹⁸ Cf Ramaswamy, Ramakrishana, 'Science Education and Research in India', in *Economic & Political Weekly*, XLVIII, 42, Mumbai, Sameeksha Trust Publication, 2013.

programmes to cater to newer demands by the students and other stake holders of our education system. National Policy on Education (NPE) 1968 and 1986 recommended Physical & Health Education facilities through games and sports.¹⁹ A move by Colleges in such direction can surely shoulder a great responsibility in addressing the issues for which modern Indian education is witnessing. United Nations Educational, Scientific and Cultural Organization in its third International Conference of Ministers and Senior Officials Responsible for Physical Education and Sports recommended the promotion of physical education and sports and called it 'a fundamental and integral element of the right to education ...'²⁰ Therefore, it can be understood that the importance of recognition of multiplicity of intelligence among the college going individuals are the need of the hour. They may be doing a degree course prescribed by the university or autonomous college but the way the curriculum is constructed and realised among the pupils must be guided by the fact that multiplicity of intelligence operates among them and their individual differences must be catered as far as possible.

¹⁹ Cf BR Purkait, *Milestones, Op.Cit.*

²⁰ URL: www.unesco.org/education.