Dominant Multiple Intelligences among Students of Medical and Health Sciences

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Abstract

Studies on Learner's Performance are now attributed to the dynamics of Teaching-Learning Process and not only on lack of motivation on the part of the learner as believed in the past. The major challenge for the Outcome Based Teaching (OBT) is that of selecting teaching methods that encourage all students with different cognitive abilities to achieve the goals of the curricula.

This study correlates intelligence with learning styles in students of Medical and Health Sciences disciplines to determine their preferred learning styles. The results will further guide medical teachers to facilitate methodologies to suit the preferred learning styles of students help them to cope in the transition from medical studies in their future professional life.

The Questionnaire based on Howard Gardner's MI models was administered to first year students of Medical and Health Sciences University of the years 2010-2011and 2011-2012 and was statistically analyzed.

The sample chosen for this survey consists of 234 students of first and second years of Medical and Health Sciences University of 2010-2012. The results were separately analyzed for each batch and then merged together to get cumulative results.

Key words: Multiple Intelligences, Outcome based teaching, learning styles, Individuate, pluralize, dominant intelligence

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INTRODUCTION

Throughout their existence on earth, human beings have shown immense curiosity and a spirit of inquiry; both have resulted in tremendous cognitive progress for humankind. The knowledge acquired about the world around and within individuals and communities has led to the triumph of intellectual pursuits. However, all aspects of progress in the unending quest for knowledge of the workings of the mind and brain have borne fruit only in the last hundred and odd years. Ever since the breakthrough in the study of intelligence by British psychologist Charles Spearman with his formulation of the 'G' or 'General Factor Intelligence' (Slavin, 2006), there have been concerted efforts by other psychologists and neuroscientists to understand intelligence.

Studies of intelligence conducted on learners in schools and universities until recently were predominantly based on behavioral observations rather than on empirical evidence (Ormond, 2006). The learning problems were relegated to attention deficiency or lack of motivation and inherent intelligence. The definition of intelligence itself operated within limited parameters. Now educationists and psychologists attribute this to the dynamics of the Teaching-Learning Process where the learner's inherent multiple capabilities determine the learning styles and outcomes of a course.

This process would be a healthy culmination of the interaction between the learner's resources characterized by biological determinants and the teachers' resources of understanding and processing them with integrated teaching-learning methodologies.

The UAE Ministry of Education, which oversees the quality of the medical curricula, emphasizes the physician's interpersonal skills and bedside manners simultaneously within the curricula rather than their learning these through a process of osmosis.

One study conducted in the US on medical student applicants focused on desirable personal and interpersonal skills. One of the four valuable outcomes of the study has been the suggestion that medical schools admit applicants who show desirable interpersonal skills (Carrothers, Gregory, & Gallagher, 2007).[2]

With the integrated frameworks of Problem Based Learning (PBL) and Team Based Learning (TBL) in medical colleges in the region, attempts have been made to expose a student to self-directed learning. The need in all higher educational institutions is for a major paradigm shift from teacher centered to learner-centered methodologies. With the knowledge of what the students are capable of doing it is easier for the teachers to orchestrate the teaching-learning process. A teacher becomes more of a facilitator than a 'lecturer' or 'professor.'

The major challenge for the Outcome Based Teaching (OBT) is that of selecting teaching methods that encourage all students with different cognitive abilities to receive and assimilate information and to use in future to synthesize and, finally, to achieve the goals the curricula has promised them to achieve (McKensie, 2009).

However, there is an immediate need for revising and rethinking medical curricula and methods of teaching-learning process, which also focuses on the students'

learning in a more individualized mode in rich learning contexts with conditions for good learning. Brain mapping of students who are already admitted to colleges would further help educators develop the rich teaching-learning contexts. These will progressively enhance their learning in both the classroom as well as the workplace learning contexts.

Multiple intelligences pluralize the traditional concept of intelligence. Howard Gardener, in defining intelligence as "the capacity to process a certain kind of information that originates in human biology and human psychology," (Gardner H. , Multiple Intelligence, 2006) delineates the role of intelligence as the ability to solve problems not just mathematical, but to approach a situation in which a goal is obtained.

The inflexibility and permanence of the traditional theories of intelligence - that intelligence is fixed and that it can be just the 'ability to answer items on tests of intelligence'- is questioned (Gardner H. , Frames of Mind, 1983)

From extensive evidence from various sources from developmental psychology to psychopathological evidences, from exceptional populations, data from cognitive psychology, psychometric studies and from various other tools of measuring intelligence, he divides intelligences into seven categories based on the biological and psychological bases.

AIMS AND OBJECTIVES

This study aims to correlate intelligence with learning styles in students of Medical and Health Sciences. This will help in determining their preferred learning styles. The results will further guide medical teachers to facilitate methodologies to suit the preferred learning styles of students. In addition, this will also help cope with the transitional period of medical and health sciences studies to their professional life. As the author and theorist himself reiterate in a personal message that "he was sure that you will find a range of intellectual profiles in your students, and it is worthwhile trying to 'individuate' and 'pluralize' your instructions" (Gardner H. , Multiple Intelligence, 2006).

METHODOLOGY

For better implementation of the curricula, the authors felt the need to measure the learning styles with Kolb's questionnaire in order to learn the dominant intelligences of the medical schools students across all colleges of the university.

Questionnaire based on Howard Gardner's MI models was administered to first year students of Medical and Health Sciences University of the years 2010-2011and 2011-2012. (See Appendix).

The sample was analyzed to determine the dominant intelligences and, consequently, their learning styles. A statistical analysis of the sample data was done. For this, the criteria and the interpretation were the following:
1. Inclusion Criteria: All students of medical and health sciences programs with only a maximum gap of one year between high school and college admission.

2. Exclusion Criteria:
    a. Repeaters from our university and other universities and transfer students, and
    b. Repeaters from other universities.
3. Interpretation: MI was considered dominant in our study if the percentage exceeds at least 50%. All MI scoring less than 50% were not included as a dominant MI and were considered to be in recession.

Dr. Howard Gardener critiques the notion of a single human intelligence in his theory of core operations in multiple intelligences in order to determine the learning styles of people (Gardner H. , Multiple Intelligences as a Partner in School Improvement, 1997). A core operation is a basic information processing mechanism in the brain through the synaptic neural pathways. Gardener asserts that each intelligence should have one or more core operations. As a neutrally based computational system, each intelligence is activated or triggered by certain kinds of internal or external information. He identifies nine intelligences of which our study focuses on seven required for the teaching-learning process for immediate use. Though the characteristics and criteria are typical to each intelligence, they are not isolated from each other. All human beings have these different intelligences. Intelligences work in concert (Veenema). The major assumption in the multiple intelligences theory is that although people may have a set of dominant intelligences, the others can be developed or honed through learning and practice. In the book, *Frames of Mind* Gardener strongly propounds that no two profiles of intelligence are the same (Gardner H. , Multiple Intelligence, 2006).

If there was one kind of intelligence there could have been one kind of assessment, one kind of curricula but, in reality, one student can learn better with hands on, another in a different way. Gardener demystifies the idea of the common intelligence.

Gardner initially formulated a list of seven intelligences that later included Natural Intelligence and Spiritual Intelligence. The first two have been typically valued in schools; the next three are usually associated with the arts; and the final two are what Gardner called 'personal intelligences'.
1. **Linguistic intelligence** involves sensitivity to spoken and written language, the ability to learn languages, and the capacity to use language effectively to express oneself rhetorically or poetically; and language as a means to remember information. It is empirically proved that a specific area of the brain called Broca's area is responsible for the production of grammatical sentences Writers, poets, lawyers and speakers are among those that Howard Gardner sees as having high linguistic intelligence.
2. **Logical-mathematical intelligence** consists of the capacity to analyze problems logically, carry out mathematical operations, and investigate issues scientifically. In Gardner's words, it entails the ability to detect patterns, reason deductively and think logically. This intelligence is most often associated with scientific and mathematical thinking with 'remarkably rapid' problem solving skills. "The linguistic areas in the frontal-temporal lobes are more important for logical deduction and the visual-spatial area in the Pareto-frontal lobes for numerical calculations."
3. **Musical intelligence** involves skills in the performance, composition, and appreciation of musical patterns. It encompasses the capacity to recognize and

compose musical pitches, tones, and rhythms. Certain functions are located in the right hemisphere of the brain, although musical skills are not as clearly localized in the brain as natural language are; there is evidence that amnesia, or a selective loss of musical ability, can also occur.

4. **Bodily-kinesthetic intelligence** entails the potential of using one's whole body or parts of the body to solve problems. It is the ability to use mental abilities to coordinate bodily movements. Control of body movements localized in the motor cortex with each hemisphere dominant or controlling bodily movements is ordinarily found in the left hemisphere. The existence of apraxia is evidence for bodily kinesthetic atrophy being present as a biological aspect of intelligence.

5. **Spatial intelligence** involves the potential to recognize and use the patterns of wide space and more confined areas. Evidence from brain research is clear and persuasive just as the middle region of the left cerebral cortex have….posterior regions of the right cerebral cortex prove most crucial for spatial processing.

6. **Interpersonal intelligence** builds on a core capacity to notice distinctions among others, in particular, contrast in their moods, temperaments, motivation and intentions. Educators, salespeople, religious and political leaders and counsellors all need a well-developed interpersonal intelligence. In more advanced forms, this intelligence permits a skilled adult to read the intentions and desires of others, even if they have been hidden.

7. **Intrapersonal intelligence** metacognitive skill this intrapersonal intelligence focuses on self-knowledge, self-regulation and self-control. This intelligence is more to do with happiness at being on one's own and mostly in touch with one's feelings and emotions. These individuals are more introspective in nature.

MEDICAL EDUCATION AND MULTIPLE INTELLIGENCES

The methods of teaching in medical education are most often traditional lectures, tutorials and private study. Until recently, the emphasis on medical education continued to be on the physicians' biomedical knowledge rather than their ability to relate to patients.

However, Medical education has evolved as a discipline in its own right. Research and professional expertise in teaching practices have taken precedence over mere classroom instruction. Continuous research in the raw materials, the students, is now a more urgent need, especially in the wake of a world where children are born in a very audio visually attractive world. This, in consequence, may deter them from learning when the world of learning is presented black and white or just drab and boring talk and chalk. 'Differentiated instruction' is critical and imperative in today's classroom instruction (Puchta Herbert and Mario Rinvolucri, 2007) because each student comes with varied learning needs. It caters to all the different learning styles of students. Although it might not cater to every learning style at every conceivable session, it optimizes the teaching-learning process through the constructive alignment of learning activities.

Preparation for practice in terms of expertise in content is now supplemented with communication skills, attitudinal and ethical issues, and interaction in

multicultural environment. Teamwork and evidence-based medicine have become part of the medical curriculum (Harvey Silver, 1997).

RESEARCH QUESTIONS:

In this study, we are trying to answer the following questions:
1. What is the percentage of Medical and Health Sciences students, who have opted for these programs, have similar or common dominant domains of intelligences typical to them?
2. What are the domains of intelligences that are required for Medical and Health Sciences students for effective learning?
3.

HYPOTHESIS: A common dominant intelligence is prevalent in the majority of students who have opted for medical and health sciences programs.

RESULTS: The sample chosen for this survey consists of 234 students of first and second years of Medical and Health Sciences University of 2010—2012. The age of the students ranged from 16 to 21 years, both male and female, but predominantly female.

The studies we conducted based on Howard Gardner's MI model and we divided the 234 students of the Medical and Health Sciences University for the years 2010-11 and 2011-2012 to two different samples. The results were separately analyzed for each sample and then merged together to get cumulative results. A cohort of 99 students of 2010 - 2011 taken as a first sample, and a cohort of 135 students of 2011-2012 taken as a second sample.

Data Collection Process:

The questionnaire of Multiple Intelligences with 70 statements with ten questions under each intelligence domain requiring the students to score from 1 to 4 being the least and 4 being the highest.(1 = Mostly Disagree, 2 = Slightly Disagree, 3 = Slightly Agree, 4 = Mostly Agree). Multiple Intelligences questionnaire based on Howard Gardner's MI Model (see the appendix) sent to the students using Google forms and their responses recorded. The questionnaire designed in such a way that all the questions must answered before accepting the submission of the response.
The results collated individually in each intelligence domain and statistically analyzed.

Data Analysis:

After closing the acceptance of the responses, the scores of each intelligence calculated for each student, then the average of each intelligence domain calculated based on the programs starting with MBBS, BDS, BPharm, and BSN program is presented in figures [1 - 4].

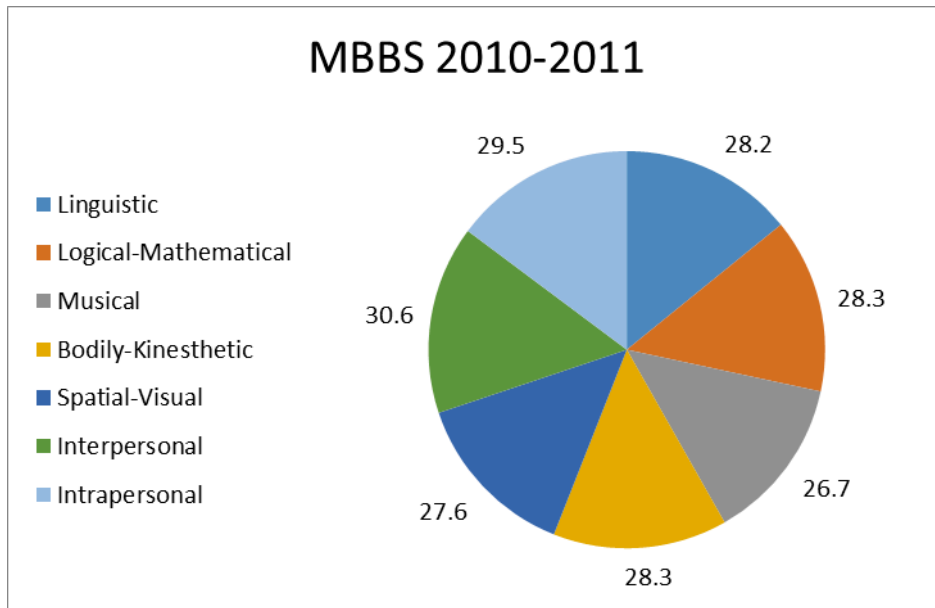AVERAGE SCORE IN EACH OF THE SEVEN DOMAINS OF Multiple INTELLIGENCE
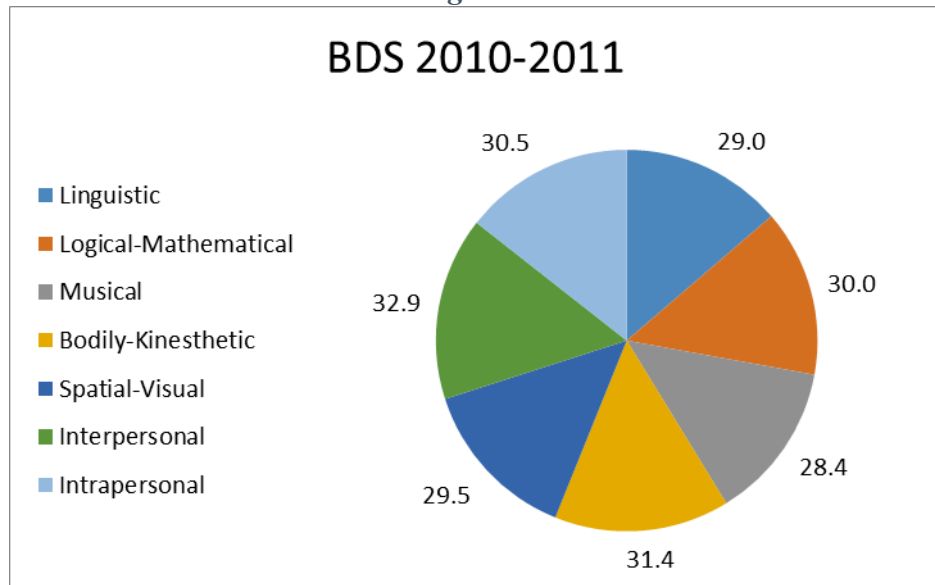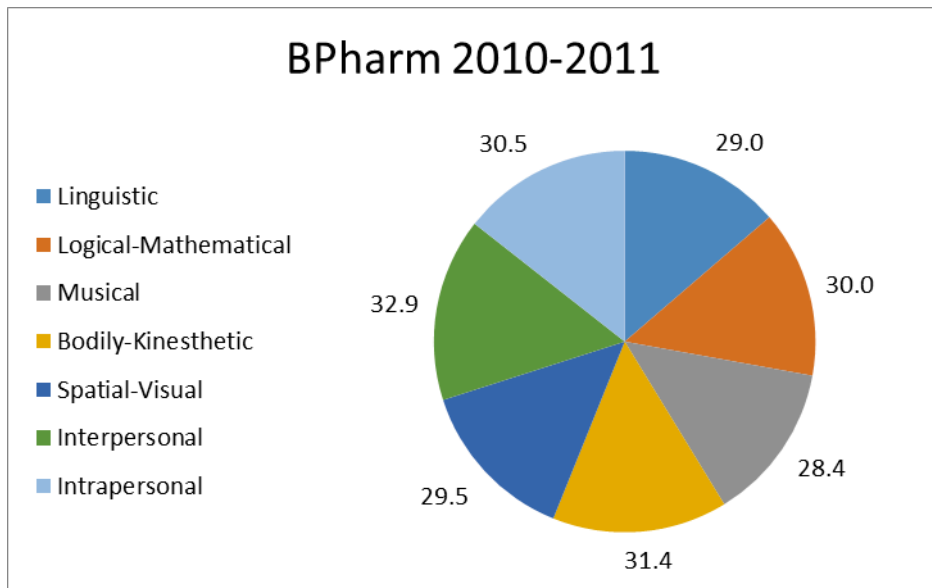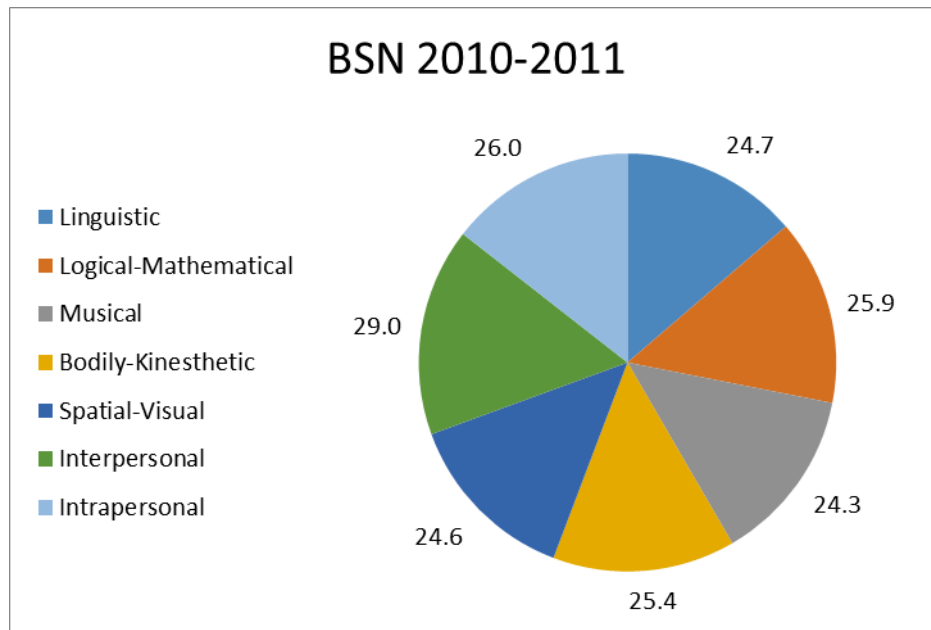

Figure 1

Figure 2

Figure 3

Figure 4

Table 1 shows the average score of each intelligence domain for the student in each program of 2010-2011 samples.

AVERAGE SCORE IN EACH OF THE SEVEN DOMAINS OF Multiple
INTELLIGENCE for 2010-2011 sample

Table 1

#	DOMAINS OF MULTIPLE INTELLIGENCE	MBBS (53 students)	BDS (14 students)	B PHARM (24 students)	BSN (8 students)
1.	LINGUISTIC	28.2	29.0	29.0	24.7
2.	LOGICAL	28.3	30.0	30.0	25.9
3.	MUSICAL	26.7	28.4	28.4	24.3
4.	BODILY KINESTHETIC	28.3	31.4	31.4	25.4
5.	VISUAL SPATIAL	27.6	29.5	29.5	24.6
6.	INTERPERSONAL	30.6	32.9	32.9	29.0
7.	INTRAPERSONAL	29.5	30.5	30.5	26.0

The same process is applied on the 2011-2012 students sample, and the figures
[5 − 8] show the average score of each intelligence domain for MBBS, BDS, BPharm,
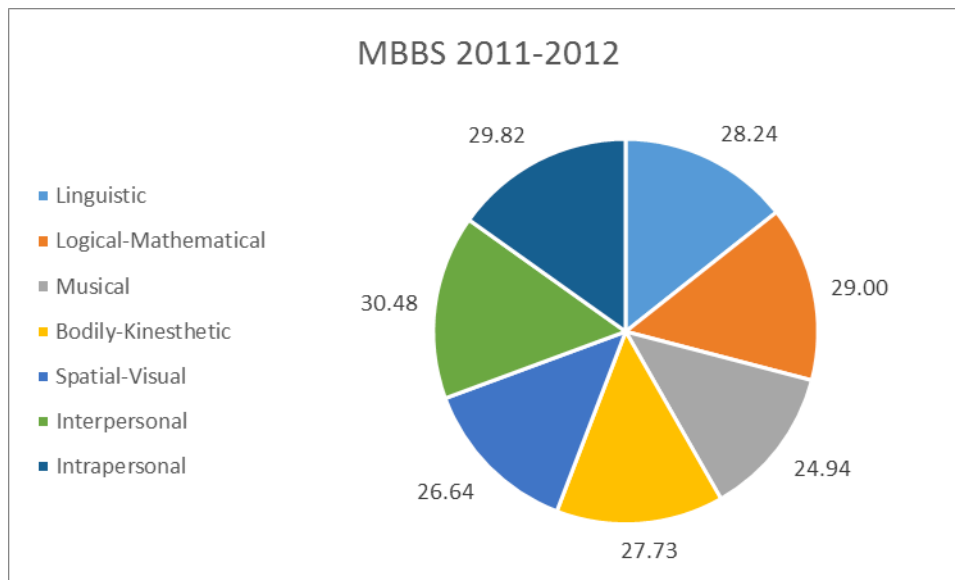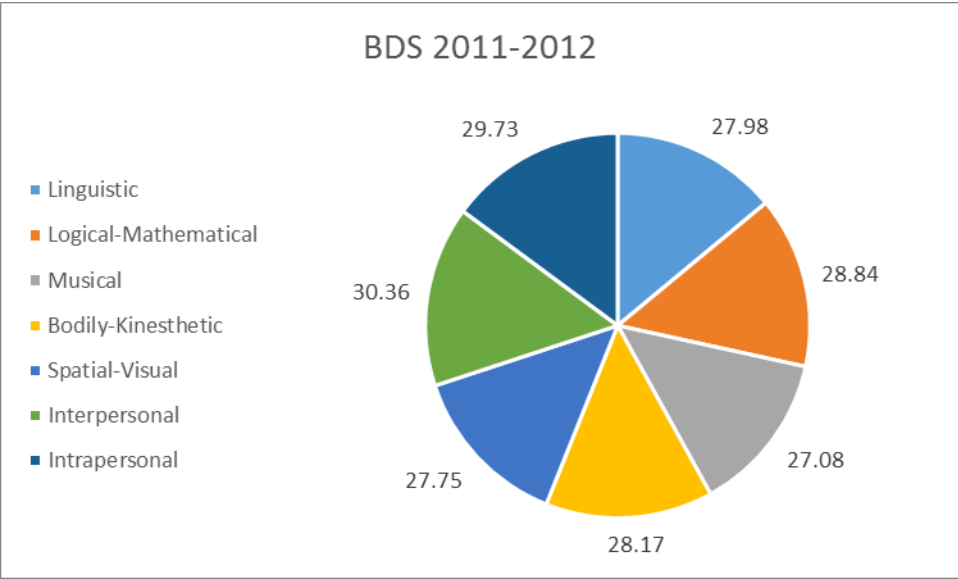and BSN program students.

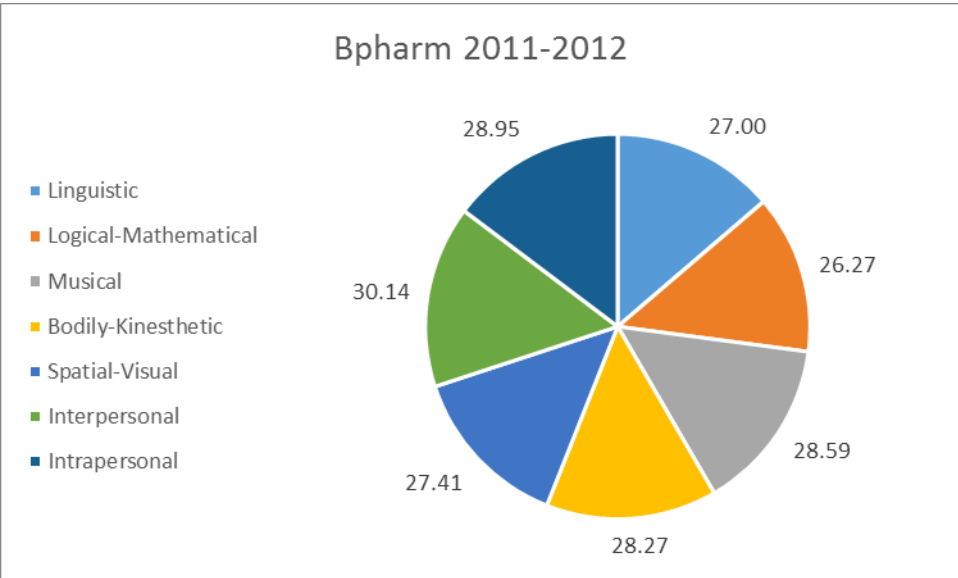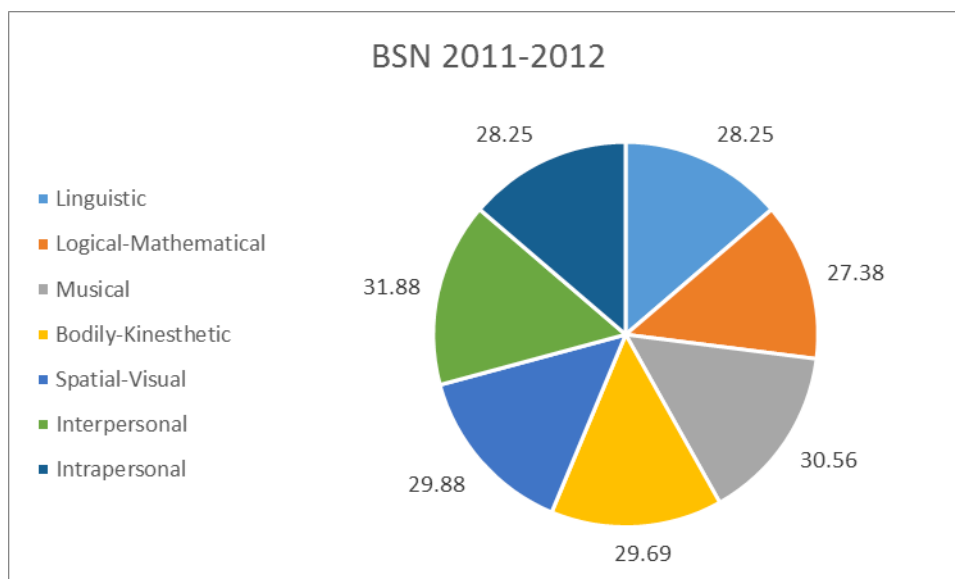***Figure 3***

Figure 4

Figure 5

Figure 6

Table 2 shows the average score of each intelligence domain for the accumulated student in each college of 2011-2012 samples.

AVERAGE SCORE IN EACH OF THE SEVEN DOMAINS OF Multiple
INTELLIGENCE for 2011-2012 samples

Table 2

Sl.no	DOMAINS OF MULTIPLE INTELLIGENCE	MBBS (33 students)	BDS (64 students)	B PHARM (22 students)	BSN (16 students)
1.	LINGUISTIC	28.24	27.98	27.00	28.25
2.	LOGICAL	29.00	28.84	26.27	27.38
3.	MUSICAL	24.94	27.08	28.59	30.56
4.	BODILY KINESTHETIC	27.73	28.17	28.27	29.69
5.	VISUAL SPATIAL	26.64	27.75	27.41	29.88
6.	INTERPERSONAL	30.48	30.36	30.14	31.88
7.	INTRAPERSONAL	29.82	29.73	28.95	28.25

Table 3 shows the overall average score of each intelligence domain for the accumulated students in each sample after placing them in descending order based on the large sample size.

Table 3

Overall results			
Sl.no	DOMAINS OF MULTIPLE INTELLIGENCE	2010-2011 (125 students)	2011-2012 (99 students)

6.	INTERPERSONAL	30.39	30.53
7.	INTRAPERSONAL	29.15	29.45
4.	BODILY KINESTHETIC	28.25	28.26
2.	LOGICAL	27.95	28.29
5.	VISUAL SPATIAL	27.83	27.67
3.	MUSICAL	27.82	27.21
1.	LINGUISTIC	27.7	27.92

From table 3, we can find that the top intelligence domain is interpersonal in both the samples, the second intelligence domain is intrapersonal, bodily kinesthetic intelligence domain comes third, logical intelligence domain fourth followed by visual spatial, musical and linguistic intelligence at fifth, sixth and seventh respectively.

Table 4 shows the average score of each intelligence domain for the MBBS students in each sample after listing them in descending order based on the large sample size.

Table 4

MBBS			
Sl.no	DOMAINS OF MULTIPLE INTELLIGENCE	2010-2011 (54 students)	2011-2012 (33 students)
6.	INTERPERSONAL	30.59	30.48
7.	INTRAPERSONAL	29.48	29.82
2.	LOGICAL	28.31	29.00
4.	BODILY KINESTHETIC	28.30	27.73
1.	LINGUISTIC	28.22	28.24
5.	VISUAL SPATIAL	27.61	26.64
3.	MUSICAL	26.74	24.94

In table 4 only MBBS students are observed independently in both samples. We find that the intelligence domain orders differ from the overall order of intelligence. The first three intelligence domains are Interpersonal, Intrapersonal and Logical followed by Bodily kinesthetic, Linguistic, Visual Spatial, and Musical respectively.

Table 5 displays the average score of each intelligence domain for the BDS students in each sample after putting them in descending order based on the large sample size.

Table 5

Sl.no	DOMAINS OF MULTIPLE INTELLIGENCE	2010-2011 (14 students)	2011-2012 (64 students)
	BDS		
6.	INTERPERSONAL	32.93	30.36
7.	INTRAPERSONAL	30.50	29.73
2.	LOGICAL	30.00	28.84
4.	BODILY KINESTHETIC	31.43	28.17
1.	LINGUISTIC	29.00	27.98
5.	VISUAL SPATIAL	29.50	27.75
3.	MUSICAL	28.36	27.08

In table 5, we have only BDS students in both samples. We find that the intelligence domain orders differ from the overall order of intelligence. The top two intelligence domains in sequence are interpersonal and intrapersonal in both samples of BDS students. This is followed by Logical, Bodily Kinesthetic, Linguistic, Visual Spatial, and Musical Intelligences respectively.

Table 6 shows the average score of each intelligence domain for the BPharm students in each sample after ordering them in descending order based on the large sample size.

Table 6

Sl.no	DOMAINS OF MULTIPLE INTELLIGENCE	2010-2011 (24 students)	2011-2012 (22 students)
	Bpharm		
6.	INTERPERSONAL	31.46	30.14
7.	INTRAPERSONAL	30.38	28.95
3.	MUSICAL	29.63	28.59
2.	LOGICAL	27.71	26.27
4.	BODILY KINESTHETIC	27.71	28.27
5.	VISUAL SPATIAL	27.71	27.41
1.	LINGUISTIC	26.71	27.00

Table 6 shows BPharm students in both samples. We find that the intelligence domain orders differ from the overall order of intelligence. The top intelligence domain is interpersonal in both samples of BPharm students, the second intelligence domain is

Intrapersonal, Musical Intelligence comes third, followed by Logical, Bodily Kinesthetic, Visual Spatial, and Linguistic intelligence respectively.

When we come to Table 7 showing the average score of each intelligence domain for the BSN students in each sample after ordering them in descending order based on the large sample size we found a slight deviation from the norm.

Table 7

		BSN	
Sl.no	DOMAINS OF MULTIPLE INTELLIGENCE	2010-2011 (8 students)	2011-2012 (16 students)
6.	INTERPERSONAL	29.00	31.88
3.	MUSICAL	24.33	30.56
5.	VISUAL SPATIAL	24.56	29.88
4.	BODILY KINESTHETIC	25.44	29.69
1.	LINGUISTIC	24.67	28.25
7.	INTRAPERSONAL	26.00	28.25
2.	LOGICAL	25.89	27.38

We find that the intelligence domain orders differ from the overall order of intelligence. The top intelligence domain is Interpersonal in both samples of BSN students, However, the second intelligence domain is Musical. Visual Spatial Intelligence domain comes third followed by Bodily Kinesthetic intelligence. These are followed by Linguistic, Intrapersonal, and Logical intelligence.

Table 8 shows a program wise complete view of the Multiple Intelligence domains of the students in each program in both of the samples.

Table 8

	MBBS (86 students)	BDS (78 students)	Bpharm (46 students)	BSN (24 students)
1	INTERPERSONAL	INTERPERSONAL	INTERPERSONAL	INTERPERSONAL
2	INTRAPERSONAL	INTRAPERSONAL	BODILY KINESTHETIC	BODILY KINESTHETIC
3	LOGICAL	BODILY KINESTHETIC	INTRAPERSONAL	MUSICAL
4	LINGUISTIC	LOGICAL	MUSICAL	VISUAL SPATIAL
5	BODILY KINESTHETIC	VISUAL SPATIAL	VISUAL SPATIAL	INTRAPERSONAL
6	VISUAL SPATIAL	LINGUISTIC	LOGICAL	LOGICAL
7	MUSICAL	MUSICAL	LINGUISTIC	LINGUISTIC

CONCLUSIONS:

The analysis of the data gives us the conclusion that the **Interpersonal** Intelligence is the topmost common dominant intelligence among medical and health sciences.

MBBS and BDS share Intrapersonal Intelligence as the second domain whereas BPharm and BSN share Bodily Kinesthetic.

Interestingly, the third domain is Logical, Bodily Kinesthetic, Intrapersonal and Musical for MBBS, BDS, Bpharm and BSN respectively.

In fourth domain too each discipline shows a different Intelligence; MBBS (Linguistic), BDS (Logical), BPharm(Musical)and BSN (Visual Spatial)

Furthermore, Visual spatial is shared as the fifth Intelligence domain by BDS and BPharm while MBBS shows Bodily Kinesthetic and BSN shows Intrapersonal.

In the sixth domain MBBS shows Visual Spatial , BDS Linguistic , Bpharm and BSN share Logical Intelligence.

Remarkably, Musical Intelligence is shared by MBBS and BDS while Linguistic is shared by BPharm and BSN.

These results will help us in suggesting the preferred learning style for medical and health sciences students in general and designing and delivering courses for each individual program as required.

Future research work:

The authors envisage that learning styles can be enhanced through methodologies in order to facilitate medical and health education through multisensory learning according to the proven studies (Tracy, 1995). As Howard Gardener suggests in a personal note to the authors of the possibilities to "Individuate" (presenting materials to each student in a way that he/she can best acquire the material)an "Pluralize' means that you present important concepts, practices, etc. in multiple ways (Gardner H. , The Disciplined Mind: Beyond Facts And Standardized Tests, 1999). The scope for teachers to develop creative methodologies to include all learning capabilities and styles in classroom environments are immense (Gardner H. , The Unschooled Mind: How children think and how schools should teach, 1991) . There are already efforts to design exercises for students based on the theory of multiple intelligences (Biggs, 2007).

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Appendix

Multiple Intelligences Test - based on Howard Gardner's MI Model		

Score the statements: 1 = Mostly Disagree, 2 = Slightly Disagree, 3 = Slightly Agree, 4 = Mostly Agree

Alternatively for speed, and if easier for young people - tick the box if the statement is more true for you than not.

Score or tick the statements in the white-out boxes only	Score	
I like to learn more about myself		1
I can play a musical instrument		2
I find it easiest to solve problems when I am doing something physical		3
I often have a song or piece of music in my head		4
I find budgeting and managing my money easy		5
I find it easy to make up stories		6
I have always been physically well co-ordinated		7
When talking to someone, I tend to listen to the words they use not just what they mean		8
I enjoy crosswords, word searches or other word puzzles		9
I don't like ambiguity, I like things to be clear		10
I enjoy logic puzzles such as 'sudoku'		11
I like to meditate		12
Music is very important to me		13
I am a convincing liar		14
I play a sport or dance		15
I am very interested in psychometrics (personality testing) and IQ tests		16
People behaving irrationally annoy me		17
I find that the music that appeals to me is often based on how I feel emotionally		18
I am a very social person and like being with other people		19
I like to be systematic and thorough		20

Statement	#
I find graphs and charts easy to understand	21
I can throw things well - darts, skimming pebbles, frisbees, etc	22
I find it easy to remember quotes or phrases	23
I can always recognise places that I have been before, even when I was very young	24
I enjoy a wide variety of musical styles	25
When I am concentrating I tend to doodle	26
I could manipulate people if I choose to	27
I can predict my feelings and behaviours in certain situations fairly accurately	28
I find mental arithmetic easy	29
I can identify most sounds without seeing what causes them	30
At school one of my favourite subjects is / was English	31
I like to think through a problem carefully, considering all the consequences	32
I enjoy debates and discussions	33
I love adrenaline sports and scary rides	34
I enjoy individual sports best	35
I care about how those around me feel	36
My house is full of pictures and photographs	37
I enjoy and am good at making things - I'm good with my hands	38
I like having music on in the background	39
I find it easy to remember telephone numbers	40
I set myself goals and plans for the future	41
I am a very tactile person	42
I can tell easily whether someone likes me or dislikes me	43
I can easily imagine how an object would look from another perspective	44
I never use instructions for flat-pack furniture	45
I find it easy to talk to new people	46
To learn something new, I need to just get on and try it	47
I often see clear images when I close my eyes	48
I don't use my fingers when I count	49
I often talk to myself – out loud or in my head	50
At school I loved / love music lessons	51
When I am abroad, I find it easy to pick up the basics of another language	52

Statement	No.
I find ball games easy and enjoyable	53
My favourite subject at school is / was maths	54
I always know how I am feeling	55
I am realistic about my strengths and weaknesses	56
I keep a diary	57
I am very aware of other people's body language	58
My favourite subject at school was / is art	59
I find pleasure in reading	60
I can read a map easily	61
It upsets me to see someone cry and not be able to help	62
I am good at solving disputes between others	63
I have always dreamed of being a musician or singer	64
I prefer team sports	65
Singing makes me feel happy	66
I never get lost when I am on my own in a new place	67
If I am learning how to do something, I like to see drawings and diagrams of how it works	68
I am happy spending time alone	69
My friends always come to me for emotional support and advice	70

Intelligence type	your totals	
Linguistic		
Logical-Mathematical		
Musical		
Bodily-Kinesthetic		
Spatial-Visual		
Interpersonal		
Intrapersonal		