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Assessment of multiple intelligence among school going boys: A comparative study

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Abstract
A person can be most successful in a profession when the same is according to his or her abilities and interest. The different domains and disciplines valued by different cultures exert a tremendous influence over how one's intelligences develop, and to what extent they are mobilized. Focus these days is on designing educational experiences for students that demonstrate and explore how they are smart in the synergistic environment of a community of learners. The present study was escorted with the aim of assessing the cultural differences in multiple intelligence among school going boys i.e. in both rural and urban areas as well as government and private schools. For this, 100 boys in age group of 6-8 years from urban areas of Fatehabad district of Haryana state were selected. The data were collected with the help of standardized multiple intelligence tool and a questionnaire for human ecological factors by Dabas, R. 2000. The data showed significant differences in the mean scores of boys from private and government schools of urban area (Fatehabad) for linguistic intelligence ($z = 4.62$), logical-mathematical intelligence ($z = 9.61$) and intrapersonal intelligence ($z = 3.79$). Area wise comparison showed significant differences in mean scores for linguistic intelligence ($z=6.01$), logical-mathematical intelligence ($z=6.52$), intrapersonal intelligence ($z =8.81$) naturalistic intelligence ($z = 3.49$) and existential intelligence ($z = 4.56$).

Keywords: multiple intelligence levels, human ecological systems, cultural settings and school boys

Introduction
The best known and by far the most influential theory as set out by Gardner, in 1983 [2] is 'multiple intelligence'. He defined multiple intelligence as a set of talents, abilities or mental skills that every individual holds to a greater or lesser extent. Gardner identified nine different kinds of intelligence. Teachers are faced with the challenge of teaching students with a wide range of abilities. VanSciver (2005) [7] stated, "Teachers are now dealing with a level of academic diversity in their classrooms unheard of just a decade ago". In a single classroom, students' learning abilities may range from above grade level to below grade level. The teacher must find ways to adapt lesson plans to meet the learning abilities of students, while also accommodating the needs of the other students in the class. Therefore, teaching students with a wide range of abilities requires teachers to be innovative in how learning opportunities are offered.

One solution to this challenge is to implement differentiated instruction in the classroom. Differentiated instruction accommodates the diverse learning needs of the students by varying the methods and materials used to teach each concept. McBride (2004) [6] stated that "Differentiated instruction is vital to affecting positive change in student performance, because the one-strategy-fits-all approach doesn't work in a real classroom". As a way to differentiate instruction, a teacher may implement the theory of multiple intelligences (MI), which was developed by Howard Gardner in the early 1980s and states that each person has several distinct intelligences correlating with a specific part of the brain. Gardner (1983) [2] originally identified seven categories of intelligences: linguistic, logical-mathematical, spatial, bodily-kinaesthetic, musical, intrapersonal, and interpersonal. After continued research, Gardner added the naturalistic intelligence to his theory, and continues to research the existence of an existential intelligence. Utilizing the MI theory, teachers can differentiate learning activities to accommodate each of the intelligences in the classroom. This means students will have targeted learning experiences, resulting in higher levels of achievement.

Objective
▪ To assess type and existing level of multiple intelligence of school going boys (6-8 years).

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- To study the cultural differences in the government and private schools.

Materials and Methods
- The study was conducted at Fatehabad district of Haryana. For urban sample city area was taken and for rural sample Bhattu village was selected randomly.
- A list of students who were in the age group of 6-8 years, studying in first and second class was procured from all the selected schools. From the prepared list hundred boys equally representing all the schools i.e. 50 boys from Government and 50 boys from Private School were selected randomly for the present investigation.
- The Multiple Intelligence Tool developed by Dabas, R 2000 was used to assess the multiple intelligence of respondents. The tool comprised the sections: Linguistic intelligence, Logical-mathematical intelligence, Musical intelligence, Spatial intelligence. Bodily-kinesthetic intelligence, Interpersonal intelligence, Intrapersonal intelligence, Naturalistic intelligence, Existential intelligence.

Results and Discussion
Table 1: A total number of 200 respondents in the age range of 6-8 years were included in this study. The data presented showed that 50 per cent of rural and 50 per cent of urban boys were taken for the present study. Regarding the type of family, nuclear families (54%) outnumbered the joint families (31.50%) and extended families (14.50%). Interpretation of data revealed that most of the families (63.50%) had only one or two siblings whereas 36.50 per cent of families had more than two siblings. It was interesting to note that 39 per cent of backward caste respondents were present in the sample while the number of general caste and Scheduled caste people constituted 34.50 per cent and 26.5 per cent respectively. Occupation of most of the fathers (60%) was business, followed by service class (20.5%) and farmers (19.50%). Data further portrayed that most of the respondents (45%) belonged to high income group, middle income group and low income group 45 per cent, 28 per cent and 27 percent respectively.

Table 1: Personal and socio- economic profile of respondents

Sr. No.	Human Ecological Variables	Rural (n=100) Frequency	Urban (n=100) Frequency	Total (N=200) Frequency (%)
1	**Age**			
	6 -7 years	57	19	76(38.0)
	7$^+$-8 years	43	81	124(62.0)
2	**Type of family**			
	Nuclear	48	60	108(54.0)
	Joint	55	28	63(31.5)
	Extended	17	12	32(16.0)
3	**No. of siblings**			
	1-2	69	58	127(63.5)
	3-4	31	42	73(36.5)
4	**Caste**			
	Scheduled Caste	32	21	53(26.5)
	Backward Caste	39	39	78(39.0)
	General	29	40	69(34.5)
5	**Fathers' occupation**			
	Service	11	30	41(20.5)
	Business/private work	50	70	120(60.0)
	Farming	39	0	39(19.5)
6	**Mothers' Occupation**			
	Service	7	17	24(12.0)
	Business	6	11	17(8.5)
	Home makers	87	72	159(79.5)
7	**Family income (per month)**			
	Low (< ₹10900)	32	22	54(27.0)
	Medium (₹10901- ₹20000)	42	14	56(28.0)
	High (> ₹20000)	26	64	90(45.0)

Area wise comparison of respondents for multiple intelligence
To see the difference between rural and urban respondents for different aspects of multiple intelligence, z-test of significance was applied. Results given in the table showed the average performance of 200 respondents on the various components of multiple intelligence. Data portray the area wise distribution of the respondents. Table revealed that both areas i.e. rural and urban almost similar trend for the components of multiple intelligence.

Results revealed that boys in urban area did better for all the components of multiple intelligence i.e. linguistic, logical-mathematical, musical, bodily kinaesthetic, spatial, naturalistic and existential as compared to the boys from rural area who were better in interpersonal and intrapersonal components. Table showed that cultural settings were reported significantly different on linguistic (z=6.01), logical-mathematical (z=6.52), intrapersonal (z=8.81), naturalistic (z=3.49) and existential component (z=4.56). Calculated 'z' ratio for the other components of multiple intelligence were non-significant.

Table 2: Area wise comparison of respondents for multiple intelligence N=200

Sr. No.	Components	Rural Mean ± SD	Urban Mean ± SD	Total Mean ± SD	'z' value
1.	Linguistic intelligence	27.83 ± 3.74	30.68 ± 2.89	29.25 ± 3.63	6.01*
2.	Logical-mathematical intelligence	25.61 ± 2.86	28.72 ± 3.80	27.16 ± 3.70	6.52*
3.	Musical intelligence	20.34 ± 2.24	20.80 ± 2.14	20.57 ± 2.19	1.48
4.	Bodily-kinaesthetic intelligence	30.55 ± 6.74	30.68 ± 7.18	30.61 ± 6.94	0.35
5.	Spatial intelligence	34.50 ± 7.21	35.12 ± 7.23	34.81 ± 7.21	0.10
6.	Interpersonal intelligence	38.58 ± 6.11	38.11 ± 5.98	38.34 ± 6.03	0.66
7.	Intrapersonal intelligence	21.25 ± 2.00	20.12 ± 3.20	20.68 ± 2.72	8.81*
8.	Naturalistic intelligence	48.59 ± 4.84	49.92± 5.52	49.25 ± 5.22	3.49*
9.	Existential intelligence	42.14 ± 5.55	46.46±3.29	44.30 ± 5.04	4.56*

*Significant at 5% level of significance

Fig 1: Area wise comparison of respondents for multiple intelligence

Table 3: School wise comparison of urban respondents for multiple intelligence N=100

Sr. No.	Components	Government school Mean ± SD	Private School Mean ± SD	'z' value
1.	Linguistic intelligence	29.46 ± 2.82	31.90 ± 2.44	4.62*
2.	Logical-mathematical intelligence	26.08 ± 3.13	31.36 ± 2.30	9.61*
3.	Musical intelligence	21.00 ± 2.24	20.60 ± 2.03	0.93
4.	Bodily-kinaesthetic intelligence	34.40 ± 7.72	34.20 ± 7.50	0.13
5.	Spatial intelligence	37.56 ± 7.60	38.88 ± 7.84	0.85
6.	Interpersonal intelligence	44.76 ± 6.77	44.58 ± 6.35	0.13
7.	Intrapersonal intelligence	24.98 ± 1.90	23.46 ± 2.10	3.79*
8.	Naturalistic intelligence	53.88 ± 3.45	54.36 ± 3.46	0.69
9.	Existential intelligence	46.62 ± 3.38	47.60 ± 2.80	1.57

*Significant at 5% level of significance

School wise comparison of urban respondents for multiple intelligence

Table 3 depicts that private schools in urban area had better results as compared to government schools on linguistic, logical-mathematical, spatial and existential aspects whereas government schools had better results on musical, bodily kinesthetic, interpersonal, intrapersonal and naturalistic aspects. Table revealed that linguistic (z=4.62), logical-mathematical (z=9.61), intrapersonal (z=3.79) were recorded as significantly different. Calculated 'z' ratio for the other components of multiple intelligence were non-significant for private and government school.
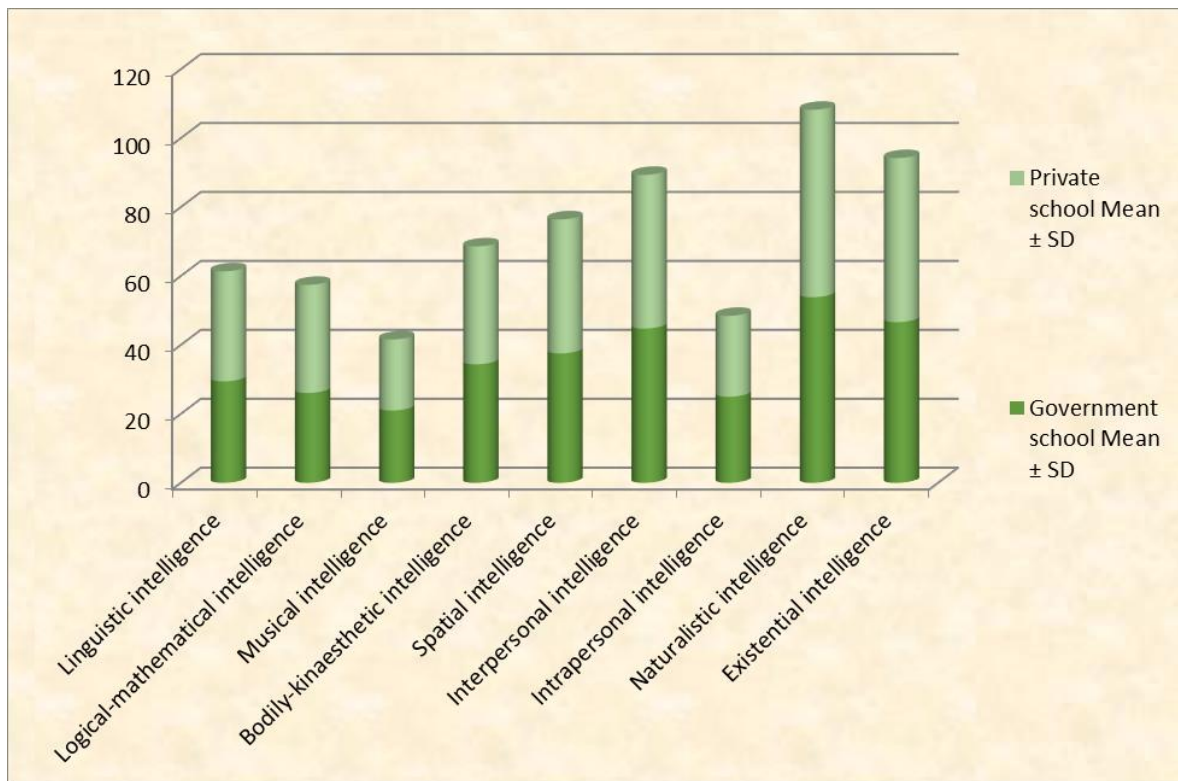
Fig 2: School wise comparison of urban respondents for multiple intelligence

School wise comparison of rural respondents for multiple intelligence

Results in table 4 revealed that private schools in rural area had better results as compared to government schools on various aspects of multiple intelligence i.e. linguistic, musical, spatial, intrapersonal, natural and existential aspects whereas government schools had better results on logical-mathematical, bodily kinaesthetic and interpersonal aspects. Significant differences were observed in linguistic (z=5.65), musical (z=3.27), and natural intelligence (z=3.11) of rural boys across schools. Calculated 'z' ratio for the other components of multiple intelligence were non-significant.

Table 4: School wise comparison of rural respondents for multiple intelligence N=100

| Sr. No.	Components	Government school Mean ± SD	Private school Mean ± SD	'z' value
1.	Linguistic intelligence	25.98 ± 3.47	29.68 ± 3.05	5.65*
2.	Logical-mathematical intelligence	25.82 ± 2.53	25.40 ± 3.16	0.73
3.	Musical intelligence	19.64 ± 2.03	21.04 ± 2.24	3.27*
4.	Bodily-kinaesthetic intelligence	34.02 ± 7.59	33.84 ± 7.32	0.12
5.	Spatial intelligence	37.44 ± 7.88	38.76 ± 8.08	0.82
6.	Interpersonal intelligence	44.32 ± 6.33	43.82 ± 6.26	0.39
7.	Intrapersonal intelligence	21.58 ± 1.53	22.18 ± 1.57	1.92
8.	Naturalistic intelligence	50.82 ± 4.54	53.48 ± 3.98	3.11*
9.	Existential intelligence	44.48 ± 4.23	45.40 ± 2.74	1.28

*Significant at 5% level of significance
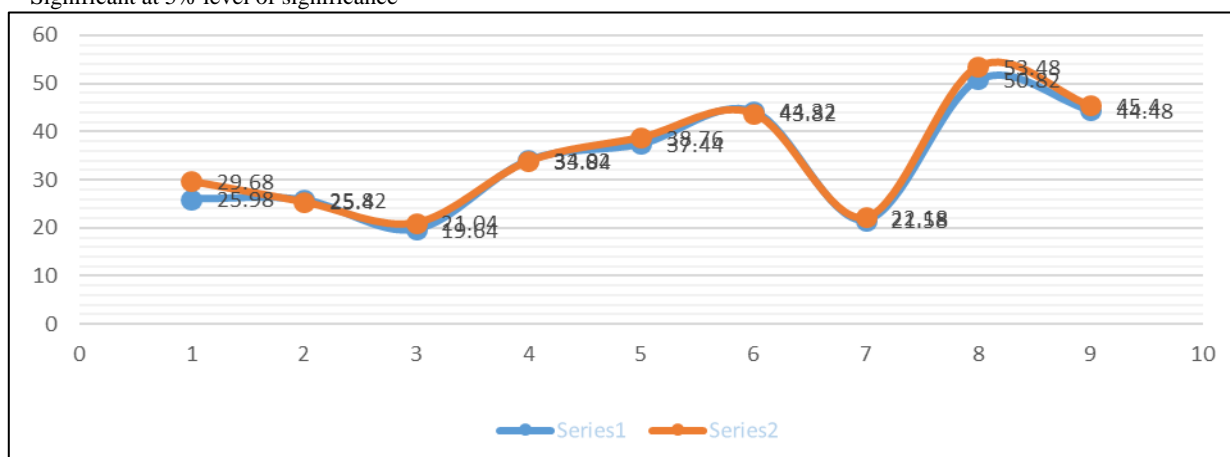
Fig 3: School wise comparison of rural respondents for multiple intelligence

Conclusion

Results revealed that the respondents were of 7-8 years' age group from rural and urban areas and majority of the respondents belonged to nuclear and medium sized families. Most of them were belonging to BC caste. It was also found that most of the children were having more than two siblings. Mothers were mainly involved in own work, whereas fathers were mainly involved in business and farming. It was observed that most of the respondents belonged to high income families i.e. more than 20,000 per month with residence located in developing area. The area wise comparison of mean scores and standard deviation revealed differences in linguistic, logical-mathematical, intrapersonal, naturalistic and existential components of intelligence. The school wise comparison of urban boys showed that linguistic, logical mathematical and intrapersonal were found to be significantly different whereas comparison.

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