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A comparative study of multiple intelligence among secondary class students of Jodhpur, city in context to gender

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Abstract
This study aimed to compare the multiple intelligence levels of secondary class students of Jodhpur City. To find a comparative statement, the investigator exanimated eight multiple intelligence given in Gardner's Theory. Sample taken were 65 boys' students and 47 girls students. Before applying MISAS Test, the students were properly introduced with types and meanings of multiple intelligence. Low, Moderate, and High groups were formed by using the formula (M±0.6745SD). Mean, SD,& t-test were calculated by analysis of data obtained.
The result reveals as follows: -

1. The majority of students (B+G) possess the average level of MI in total & component-wise.
2. As to comparison is concerned, boys & girls students possess a similar magnitude of the multiple intelligence (MI) except musical-rhythmic intelligence (MRI) & intrapersonal intelligence (Intrap.I.) where girls are excel to boys.
3. Mean value of the girls' students are more (excess) in comparison to boys students in total & all the components of multiple intelligence (MI) except logical-mathematical intelligence (LMI).
4. Girls found excel in music & self-reflective. Boys found better in logic-maths.

Keywords: multiple intelligence, Howard Gardner, gender, secondary class students, secondary& senior secondary schools

Introduction

Intelligence can be defined in terms of the general ability of a person. I.Q. (intelligent quotient) generally consist of verbal intelligence and logical-mathematical intelligence. I.Q. is predicting school and job performance and numerous life outcomes. Gardner proposes eight types of MI (abilities). They have a broader concept then ability and I.Q. In 2009 he suggested that existential and moral intelligence may also be worthy of inclusion. Howard Gardner said- "All human beings have multiple intelligence in varying amounts and these can work independently or together, they can be enhanced by using different learning styles". Gardner maintains that his theory should "empower learners," and not restrict them to one modality of learning. According to Gardner- intelligence is a bio-physiological potential to process information that can be activated in the cultural setting to solve problems or create products that are valued in a culture. A brief description of 8 multiple intelligence as follows: -

1. Verbal Linguistic Intelligence (VI) - "word-smart". This area involves good at reading, writing, telling stories, and memorizing words along with data.
2. Logical-Mathematical Intelligence (LMI) -"logic-math smart". This area involves good at logic, abstractions, reasoning, numbers, critical thinking, and capacity to understand the principles of some kind of casual system.
3. Visual-Spatial Intelligence (VSI) -"visual-spatial smart ". This area involves good at spatial judgment and the ability to visualize with the mind's eye.
4. Bodily-Kinesthetic Intelligence (BKI) -"physically smart". This area involves good at physical activities such as sport, dance, acting, making things, sense of timing, and goal of physical activity.
5. Musical-Rhythmic Intelligence (MRI) -"music smart ". This area involves the sensitivity of sounds, rhythms, tones, pitch, meter, melody or timbre, and overall music. They can sing, play musical instruments, and compose music smartly.
6. Interpersonal Intelligence (Interp.I) -"cooperative to others". This area involves sensitivity to other's moods, feelings, temperaments, motivations, and their ability to cooperate to work as a part of the group. They can communicate effectively, attract others, enjoys discussions and debate.
7. Intrapersonal Intelligence (Intrap.I) -"self-reflective".
8. This area involves introspective and self-reflective capacities. Having a deep understanding of self, one's strengths or weaknesses and predict own reactions or emotions. It makes one unique.
9. Naturalistic Intelligence (NI)- "good at flora and fauna". This area involves a good sense of nature and surroundings. Also sensitive to ethical and holistic understanding of the world and environment and humanity.

Use in School Education

Gardner MI theory argues that students will be better served by a broader vision of education where teachers use different, methodologies, exercises, and creativities to reach all students. So, this concept excels in all-round development students at the school level.
For statistical analysis, the investigator used Mean, SD, CR-value.

Statement of the problem

The title of study was worded as follows- A Comparative Study of Multiple Intelligence among Secondary Class Students of Jodhpur City in context to Gender.

Objectives of the study

The objectives of the present study were put under the following points-

1. To study the multiple intelligence of boys & girls of secondary class students of Jodhpur City.
2. To compare the multiple intelligence levels among boys& girls of secondary class students.

Hypothesis

It is pre and possible assumed result which is verified or denied by data. The hypothesis framed for present study in the following manner- "There exists no significant difference between the mean score of boys & girls secondary class students in respect to their multiple intelligence".

Sub Hypothesis

1. There exists no significant difference between the mean score of boys & girls secondary class students in respect to their verbal-linguistic intelligence (V.I.).
2. There exists no significant difference between the mean score of boys & girls secondary class students in respect to their logical-mathematical intelligence (L.M.I).
3. There exists no significant difference between the mean score of boys & girls secondary class students in respect to their visual-spatial intelligence (V.S.I.).
4. There exists no significant difference between the mean score of boys & girls secondary class students in respect to their bodily-kinesthetic intelligence (B.K.I.).
5. There exists no significant difference between the mean score of boys & girls secondary class students in respect to their musical-rhythmic intelligence (M.R.I.).
6. There exists no significant difference between the mean score of boys & girls secondary class students in respect to their interpersonal intelligence (Interp.I.).
7. There exists no significant difference between the mean score of boys & girls secondary class students in respect to their intrapersonal intelligence (Intrap,I.).
8. There exists no significant difference between the mean score of boys & girls secondary class students in respect to their naturalist intelligence (N.I.).

Variables included in the study

Two types of variables are taken in the present study-

1. Independent variables- boys & girls secondary class students.
2. Dependent variables- multiple intelligence of 8 types i.e.

- VI, VMI, VSI, BKI, MRI, INTERP.I, INTRAP.I, NI.

Importance of the study

The result of this study will facilitate the following concerning areas of educational field-

1. The results comes out from this study will help in the understanding of the educational background of boys & girls secondary class students.
2. The study will help to understand the similarities and differences if any in the level of MI of boys & girls secondary class students.
3. Level of MI & educational background understanding, both will help in students learning capacities and will facilitate teachers in the classroom.
4. Through MI test, students will know their specific area of intelligence and this will be very useful for their next study and make them confident.
5. Standardized MISAS tool (Translated from English to Hindi language, found Validity and Reliability) will be proved to be a useful tool in many educational aspects at school level.

Limitations and Delimitations of the study

These are as follows

1. The study was delimited to Hindi medium secondary class students of Govt. and Private secondary & senior secondary schools of Jodhpur City only.
2. Standardized MISAS tool (Translated from English to Hindi language, found Validity and Reliability) of multiple intelligence was used for data collection.
3. Students here refers to secondary class students.

Population and sampling

The population in the present study considered as the Hindi medium secondary class students of Govt. and Private secondary & senior secondary schools of Jodhpur City. A total of 112 students selected which included 65 boys students and 47 girls students.

Research method

For the present study, a descriptive survey method was used because it is suitable and effective to find out the current status of multiple intelligence of students in limited time framework.

Tool constructed

Various types of tools are used in researches. Most of those are in the English language. The samples of the present study are in Hindi medium. Therefore, the investigator made an attempt to construct and standardize the MISAS tool in Hindi language which is suitable for local settings. The tool finalization process was done under the guidance of expert opinion. The reliability of the tool was established by test re-test & split half method which was found 0.729 and 0.9025 respectively. The intrinsic validity of the tool was found 0.854. The tool consists of 117 items belong to 8 dimensions of multiple intelligence (MI).

Interpretation of data

The obtained data were analyzed for objective-1 & 2 respectively, are interpreted below-

Objective

1. To study the multiple intelligence of boys & girls of secondary class students of Jodhpur City.

To test the objective 1, data are classified in High, Moderate & Low group by using the formula- M±0.6745SD.

The details of the level of MI presented in Table no.1

Table 1: Details of classified groups of multiple intelligence.

Criteria	Category
M+0.6745 SD & above	High group
BetweenM+0.6745 SD to M–0.6745SD	Moderate(average)
M–0.6745SD&below	Low group

According to above criteria, the level of multiple intelligence of boys & girls of secondary class students are classified. The details of the classification are presented in Table no.2

Table 2: Level of MI of boys & girls of secondary class students.

MI	Group	N	High		Moderate(average)		Low	
			N	%	N	%	N	%
VI	Boys	65	18	27.69	28	43.07	19	29.23
	Girls	47	14	29.78	20	42.55	13	27.65
LMI	Boys	65	25	38.46	25	38.46	15	23.07
	Girls	47	10	21.27	25	53.19	12	25.53
VSI	Boys	65	13	20	36	55.38	16	24.61
	Girls	47	13	27.65	27	57.44	07	14.89
BKI	Boys	65	18	27.69	31	47.69	16	24.61
	Girls	47	11	23.40	26	55.31	10	21.27
MRI	Boys	65	12	18.46	30	46.15	23	35.38
	Girls	47	12	25.53	28	59.57	07	14.89
INTERP.I	Boys	65	18	27.69	32	49.23	15	23.07
	Girls	47	10	21.27	28	59.57	09	19.14
INTRAP.I	Boys	65	11	16.92	36	55.38	18	27.69
	Girls	47	17	36.17	22	46.80	08	17.02
NI	Boys	65	21	32.30	26	40.00	18	27.69
	Girls	47	13	27.65	27	57.44	07	14.89
TOTAL	Boys	65	21	32.30	27	41.53	17	26.15
	Girls	47	11	23.40	32	68.08	04	08.51

Where

- VI= verbal-linguistic intelligence
- LMI= logical-mathematical intelligence
- VSI= visual-spatial intelligence
- BKI= bodily-kinesthetic intelligence
- MRI= musical-rhythmic intelligence
- INTERP.I= interpersonal intelligence
- INTRAP.I= intrapersonal intelligence
- NI. = Naturalist intelligence
- MI= multiple intelligence

Data analysis

From the above Table no 2, it appears that the majority of students possess the average level of MI in total & component-wise.

1. Among the Highest level of score, it is clear that the highest % ie 38.46% of boys students possess logical-mathematical intelligence (LMI), whereas 36.17% of the girls students possess intrapersonal intelligence (Intrap.I).
2. Among the Average level of score, it is clear that the highest % ie 55.38% of boys students possess visual-spatial intelligence (VSI) & intrapersonal intelligence (Intrap.I) whereas 59.57% of the girls students possess musical-rhythmic intelligence (MRI) & interpersonal intelligence (Interp.I.)
3. Among the low level of the score, it is clear that the highest % ie 35.38% of boys students possess musical-rhythmic intelligence (MRI), whereas 27.65% of the girls students possess verbal-linguistic intelligence (VI.)

Objective 2

To compare the multiple intelligence levels of secondary class students., the following null hypothesis was formulated for this objective- "There exists no significant difference between the mean score of boys & girls secondary class students in respect to their multiple intelligence".

To test this null hypothesis, the Mean, SD, CR ratio was calculated as shown in the following Table no.3

Table 3: Details of the difference in level of MI in total and component-wise among the boys & girls secondary class students.

Hypothesis	MI	Students	N	Mean	SD	S_{ED}	C.R. ratio	Remark
1.1	VI	Boys	65	55.246	10.142	1.736	0.875	NS
		Girls	47	56.766	08.200			
1.2	LMI	Boys	65	65.061	10.992	1.867	0.602	NS
		Girls	47	63.936	08.744			
1.3	VSI	Boys	65	45.231	08.850	1.738	0.846	NS
		Girls	47	46.702	09.238			
1.4	BKI	Boys	65	40.154	07.084	1.266	0.382	NS
		Girls	47	40.638	06.248			
1.5	MRI	Boys	65	37.275	09.736	1.785	2.420	Significant
		Girls	47	41.596	09.011			
1.6	INTERP.I	Boys	65	59.600	11.229	1.874	0.304	NS
		Girls	47	60.170	08.594			
1.7	INTRAP.I	Boys	65	58.692	10.188	1.799	2.584	Significant
		Girls	47	63.340	08.780			
1.8	NI	Boys	65	52.323	09.977	1.686	0.843	NS
		Girls	47	53.745	07.849			
	TOTAL	Boys	65	413.585	66.102	10.660	1.389	NS
		Girls	47	428.388	46.205			

(For df =110, the table value=1.96 at 0.05 level)

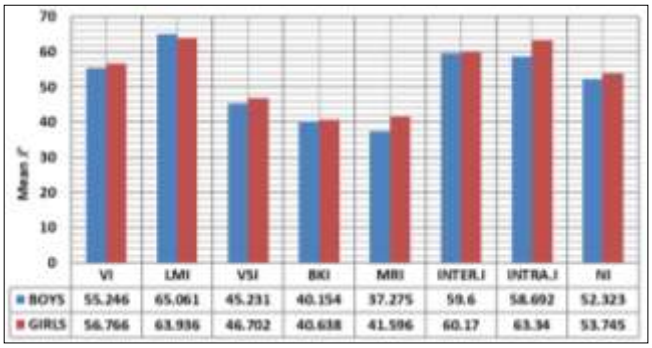
Data analysis

1. It appears from the above Table no.03 that the calculated CR ratio for the multiple intelligence (MI) in total and it's all the component-wise are less than table value except MRI & Intrap.I for df=110 at 0.01 level. That means girls have born intelligence in music & self-reflective as compare to boys.

This result reveals that there is no significant differences exists in the level of multiple intelligence (MI) in total and its all component-wise among boys & girls secondary class students except musical-rhythmic intelligence (MRI) & intrapersonal intelligence (Intrap.I.) where girls excel to boys.

Hence the above null hypothesis is partially accepted.

2. Obtained Mean value of the girls students are more (excess) in comparison to boys students in all the components of MI & in total except Logical-Mathematical Intelligence(LMI).This shows that girls are excel in multiple intelligence (MI) than boys except in logical-mathematical intelligence (LMI)where boys found better than girls. This means girls are generally found weak in math than boys.



Graph 1: Comparison between the Mean score of boys & girls secondary class students in concerning 8 dimensions of MI.

Conclusions

The present study was to find & compare the multiple intelligence levels of secondary class students. Data were collected through the survey research method. The outcomes of the study may be useful in the education field, gender consideration, improving the teaching-learning environment in the classroom, to know the specific intelligence of students, and teachers' good understanding for students.

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