

Original Research Article

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## Assessing Human Ecological Factors Affecting Visual Spatial Intelligence of Young Adolescents

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### ABSTRACT

#### Keywords

Multiple intelligence, Level, Mahendergarh district, Parental involvement and other human ecological factors

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Visually- spatially intelligent persons are recognized as “picture smart”. Such people are good at remembering images, faces, and fine details. They are able to visualize objects from different angles and also have good spatial judgment and reasoning. The present study was conducted with the aim of assessing type and existing level of Multiple Intelligences among young urban adolescent girls and to delineate the human ecological factors affecting Multiple Intelligences. For this, 100 respondents in the age group of 12-14 years from urban area of Mahendergarh district of Haryana state were selected. The results elucidates that urban respondents were in above average level in visual spatial, intrapersonal and existential intelligence. Family size, parental education, residence location, father’s occupation, relationship with the peers and cultural settings were observed to be significantly associated with Multiple Intelligences of the respondents’. Therefore, it may be suggested that as intelligence is independent of living habitat of the children so, parents should support their children in their education by making necessary provisions needed to enhance their learning.

### Introduction

In view of the inadequacy of the perception of a general unitary intelligence that cuts across all areas of human abilities to explain human performance, many psychologists and educators now consider that each individual, with his or her explicit strengths and weaknesses, can be conceptualized as having multiple talents (Gardner, 2006). Gardner proposed the theory of multiple intelligences and challenged previous beliefs about what it means to be smart. Gardner characterized

intelligence as “bio-psychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture”. Gardner also argues that intelligence is not some static reality fixed at birth and measured by standardized testing. Instead, Gardner claims that all human beings have multiple intelligences. These Multiple Intelligences can be nurtured and strengthened or even can be weakened by ignorance. There are a total of nine intelligences:

**Verbal-Linguistic Intelligence (word smart):** It includes well-developed verbal skills and sensitivity to the sounds, meanings and rhythms of words.

**Mathematical-Logical Intelligence (number smart):** The ability to think conceptually and abstractly, and the capacity to discern logical or numerical patterns.

**Musical Intelligence (musical/rhythmic smart):** The ability to produce and appreciate rhythm, pitch and timbre.

**Visual-Spatial Intelligence (picture smart):** It involves the capacity to think in images and pictures, to visualize accurately and abstractly.

**Bodily-Kinesthetic Intelligence (movement smart):** The ability to control one's body movements and to handle objects skillfully.

**Interpersonal Intelligence (people smart):** The competence to detect and respond appropriately to the moods, motivations and desires of others.

**Intrapersonal Intelligence (self smart):** The capability to be self-aware and in tune with inner feelings, values, beliefs and thinking processes.

**Naturalist Intelligence (flora and fauna smart):** The ability to recognize and categorize plants, animals and other objects in nature.

**Existential Intelligence (cosmic smart):** The sensitivity and capacity to tackle deep questions about human existence, such as the meaning of life, why we die and how we got here.

While all people possess some level of all intelligences, most will experience more dominant intelligences which impact the way they learn and perceive the world around them. People intelligence profiles vary from one another. That is to say, there are no two people having the literal proportion and mixture of intelligences. Thus, if we can

determine the intelligence areas of an individual by multiple intelligence theory, it may be possible to reach more people and make them be aware of themselves and be satisfied with their own existence.

Agarwal and Suraksha (2017) organized a study with the rationale to investigate differences between male and female students with reference to different dimensions of Multiple Intelligence. The research findings revealed that female students possess more linguistic, spatial, musical, interpersonal, intrapersonal and existential intelligence than male students.

Gupta (2016) carried out study entitled "Effect of Family Variables on Multiple Intelligences of Secondary School Students of Gujarat State" to find out the individual potential of young adolescents in terms of their intelligences and the effect of family related factors on their intelligences. It was recorded that some of the family and environment related variables such as working status of parents, parents' qualification, joint family and nuclear family staying with and without siblings affect the intelligences of learner positively and some do not have any effect as given.

To study the level of human ecological variables with Multiple Intelligences of the urban adolescents.

To assess the association of human ecological variables with visual spatial intelligence of the young adolescents.

## **Materials and Methods**

The present study was organized in Haryana state. Multi stage sampling procedure was tracked to have the representative sample. Out of total backward districts of Haryana state

one was selected randomly. For rural sample, one block was chosen at random from the selected district. From selected block one village having Government High/Senior Secondary Schools and Private High/Senior Secondary Schools was taken purposively. Similarly, for urban sample, one Government High/Senior Secondary Schools and Private High/Senior Secondary School was taken randomly from the selected city.

### **Selection of respondents**

A list of girl students in the age group of 12-14 years was procured from both the selected schools of each area. A sample of 200 young adolescent girls was taken randomly from the list of selected schools of rural and urban areas. Out of 200 adolescent girls, 100 from urban and 100 from rural areas were selected randomly. This sample of 100 adolescent girls constituted of 50 girls each from Government and Private Schools.

### **Instrument of the study**

The primary data was collected by using questionnaire-cum-interview schedule developed by Kaur, 2006. The tool consisted of nine subscales namely, linguistic, logical mathematical, bodily kinesthetic, visual spatial, interpersonal, intrapersonal, naturalistic and existential intelligences. This tool was selected as it is reliable, its retest reliability coefficients for nine components

were in the range of 0.63 to 0.86 and for interobserver reliability coefficients it was ranging from 0.61 to 0.90. Tool is also valid as its content validity ratio was ranging from 0.2 to 0.8 and its cross validity was ranging from 0.02 to 3.49. Scoring pattern used for visual spatial intelligences is given in Table 1.

### **Results and Discussion**

Table 2 displayed the information regarding association of various human ecological variables with visual spatial intelligence of the respondents. It can be concluded from the table that the family size of the respondents was significantly associated with the visual spatial intelligence whereas other microsystem variables had no significant association with visual spatial intelligence of the respondents.

Figure 1 exhibited existing level of Multiple Intelligence of urban respondents. Urban respondents were having an above average level in three domains i.e. visual spatial (54 per cent), intrapersonal (40 per cent) and existential intelligences (50 per cent). Average level of intelligences were favored in four intelligences namely, linguistic (44 per cent), logical mathematical (50 per cent), musical (52 per cent) followed by naturalistic intelligence (43 per cent). A below average level was observed only for interpersonal intelligence (72 per cent) among urban adolescents.

**Table.1** Scoring pattern used for visual spatial intelligences

Visual spatial Intelligence	Code/Scoring Pattern
<b>Above average (18 and above)</b>	1
<b>Average (13-17)</b>	2
<b>Below average (12 and below)</b>	3

**Table.2** Association of various human ecological variables with visual spatial intelligence

N=200

Sr. No.	Variables	Above Average	Average	Below Average	Chi square value
		F (%)	F (%)	F (%)	
1.	<b>Age</b>				
	12-13 years	95 (47.5)	64 (32.0)	11 (5.5)	2.37
	13+ years	16 (8.0)	14 (7.0)	-	
2.	<b>Family type</b>				
	Nuclear	63 (31.5)	41 (20.5)	5 (2.5)	2.20
	Joint	48 (24.0)	36 (18.0)	6 (3.0)	
	Extended	-	-	1 (0.5)	
3.	<b>Family size</b>				
	Small (up to 4 members)	64 (32.0)	29 (14.5)	5 (2.5)	9.40*
	Medium (5-6 members)	37 (18.5)	39 (19.5)	6 (3.0)	
	Large (more than 6 members)	10 (5.0)	10 (5.0)	-	
4.	<b>Mothers' education</b>				
	Illiterate	52 (26.0)	38 (19.0)	8 (4.0)	5.61
	Primary to middle	45 (22.5)	25 (12.5)	3 (1.5)	
	Graduate/PG	14 (7.0)	15 (7.5)	-	
5.	<b>Fathers' education</b>				
	Illiterate	40 (20.0)	25 (12.5)	2 (1.5)	8.55
	Primary to middle	53 (26.5)	33 (16.5)	9 (4.5)	
	Graduate/PG	18 (9.0)	20 (10.0)	-	
6.	<b>Family income per month (Rs.)</b>				
	Up to 5000	57 (28.5)	34 (17.0)	6 (3.0)	2.02
	5900-10000	33 (16.5)	26 (13.0)	4 (2.0)	
	More than10000	21 (10.5)	18 (9.0)	1 (0.5)	

\*Significant at 0.05

**Note:** Figures in the parentheses indicate percentage

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**Figure.1** Level of Multiple Intelligence of urban respondents

n=100

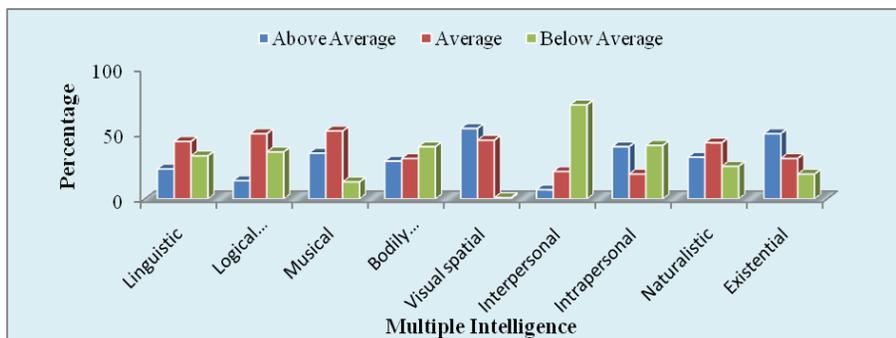


Figure 1 exhibited existing level of Multiple Intelligence of urban respondents. Urban respondents were having an above average level in three domains i.e. visual spatial (54 per cent), intrapersonal (40 per cent) and existential intelligences (50 per cent). Average level of intelligences were favored in four intelligences namely, linguistic (44 per cent), logical mathematical (50 per cent), musical (52 per cent) followed by naturalistic intelligence (43 per cent). A below average level was observed only for interpersonal intelligence (72 per cent) among urban adolescents.

Research elucidated that urban respondents were having an above average level in three domains i.e. visual spatial, intrapersonal and existential intelligences. Average levels of Multiple Intelligence were observed in four intelligences namely, linguistic, logical mathematical, musical followed by naturalistic intelligence. A below average level was observed only for interpersonal intelligence among urban adolescents. Kaur and Chhikara (2008) revealed that greater part of the respondents was having average levels of intelligence for all the eight gears of Gardner's multiple intelligence. Additional, the study revealed that boys of eighth grade rated themselves advanced on visual- spatial Intelligence as compared to girls of the similar grade. In ninth grade momentous gender differences were observed for musical, logical-mathematical, bodily- kinesthetic and naturalist intelligences. It was also found that in ninth grade girls took minor lead whereas boys were ahead of girls in eighth grade. Further results of the study implied that the family size of the respondents was significantly associated with the visual spatial intelligence whereas other microsystem variables had no significant association with visual spatial intelligence of the respondents. Thangapappa *et al.*, (2014) concluded that family status, parents' qualification, parents'

occupation and annual income of parents' have remarkable significant relationship with visual spatial intelligence of the respondents.

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