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Cognitive abilities of preschool children as per gender

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Abstract

Preschool period, which continues till the primary school, personify one of the most crucial periods of development. Not only the rapid brain development takes place during these preschool years, but also substructure for sound social-emotional, physical-motor, language and cognitive development can be set if due care is given during the preschool period. Cognitive processes develop in an orderly sequence and depend on maturation of brain and interaction with their environment. Further its outcome depends on the quality of children's experiences both inside and outside of the formal classroom because young children go through a series of psychosocial and neurological changes. The main purpose of the study was to investigate cognitive abilities of preschool children as per gender. The study was conducted in Hisar district of Haryana state. For selection of rural data four schools having preschool unit were selected and to draw urban sample five preschools were selected at random. From selected schools 240 pre-school children from the age group of four to five years were selected randomly. The sample consisted of equal number of preschool boys and preschool girls. Cognitive abilities of pre-school children were assessed by using Pandey's Cognitive Development Test for Pre-schoolers by Hema Pandey (1992). The collected data was classified and tabulated. For analysis of data frequency, percentages, mean, standard deviation and independent sample 'z' test were used. Results indicated that girls as well as boys majority of the preschool children had average level of cognitive abilities and preschool girls had better cognitive abilities as compared to preschool boys.

Keywords: Cognitive abilities, gender, preschool children

Introduction

Children are the first agenda of human resource development not only because young children are the most vulnerable, but also because the foundation for lifelong learning and human development is laid in these crucial early years. It is now globally acknowledged that investment in human resources development is a pre-requisite for economic development of any nation. (Evaluation study on ICDS, 2011) [3].

An early childhood year is an important period in the life of an individual. In this stage the child seeks to gain control over his environment. Children at this stage are intrinsically curious. They are motivated to learn. The learning environment is characterized by freedom, variety and enrichment. Restrictive environment is likely to stifle the motivation (Sinha, 2009) [7]. Cognition means knowing. It is the process of learning and understanding and it includes imagery, perception, thought, reasoning, reflection and problem solving. In other words, cognitive development is also termed as intellectual development. The child's cognitive growth during the first two years is based on sensory motor actions. Information about the surrounding is received by the child through the five senses and his inborn reflexes. The child gets attracted to variations in sound, movement, Colour in the environment. (Gupta, 2013) [4].

Methods and Materials

Research design

A 'Descriptive Research design' was followed to conduct the present study. Descriptive studies are a scientific method which involves observing and describing the behaviour of a subject without influencing it in any way. It gives better and deeper understanding of a phenomenon on the basis of an in depth study of the phenomenon.

Sample size

Separate list of boys and girls were prepared in the age of 4 to 5 years from all nine schools. 60 boys and 60 girls were selected from each location randomly. Total sample consisting of 240 pre-schoolers out of which 120 pre-schoolers from rural area and 120 pre-schoolers from urban area.

Selection of area

From Haryana state district Hisar was selected at random. From Hisar district, block-II was selected randomly. For selection of rural sample two villages namely Chaudhriwas and Gorchi were selected at random from the selected block. From each village two schools were selected randomly i.e. Asha primary school and Play school from village Gorchi, Adarsh senior secondary school and Asha middle school from village Chaudhriwas. Total four schools were selected at random. For selection of urban sample list of schools were prepared from Hisar city, from this list five schools were selected at random i.e. Little Wings school, Small Wonder school, Guru Jambheshwar school, Kids Heaven school and New Paramount High school. Total nine schools having preschool wings were selected at random from both locations i.e. urban and rural.

Tools used in study

Cognitive abilities of Pre-schoolers were assessed by using Pandey's Cognitive Development Test for Pre-schoolers by Hema Pandey (1992) [6].

Statistical analysis of data

Calculate statistical inference Frequency, percentages, mean, standard deviation and 'Z' test were computed.

Results and Discussion

Assessment of cognitive abilities of pre-school children as per gender

Table 1, presents data on distribution of respondents for their cognitive abilities sub aspects as per gender.

- 1. Conceptual skills:** As the table indicates that majority of pre-schoolboys, 55.00 per cent had average level of scores in conceptual skills while 27.50 per cent were above average and only 17.50 per cent were had below average level of conceptual skills. Further in preschool girls result showed that majority (64.17%) in average level of conceptual skills followed by 28.33 per cent had above average and 7.50 per cent had below average level of conceptual skills.
- 2. Information:** Regarding this aspect, table reveals that 15.00 per cent boys had below average level of information while majority (71.67 %) of boys had average level followed by 13.33 per cent preschool boys

had above average level of information. Where in the girls results indicate that majority (64.17 %) of girls had average level of information followed by 22.50 per cent preschool girls had above average level and 11.67 per cent had below average level of information.

- 3. Comprehension:** Further table showed that majority of preschool boys (45.84%) had average level of comprehension followed by the above average level (35.83%) and a very few (18.33%) had below average level of comprehension. While in the preschool girls majority (53.33%) had average level comprehension followed by above average level (30.83%) and below average level (15.84%) of comprehension.
- 4. Visual perception:** Regarding visual perception table discompose that in the boys majority (70.00%) had average visual perception followed by above average (18.33%) and below average (11.67%). Further in the girls majority (67.50%) had average visual perception followed by below average level (18.33%) and above average level (14.17%) of visual perception.
- 5. Memory:** With regard to memory majorities (52.50%) of boys had average level while 32.50 per cent had above average level followed by below average level (15.00%). Further in the girls majority (49.17%) had average memory where 35.00 per cent girls had above average level of memory followed by 15.84 per cent.
- 6. Object vocabulary:** In the boys table showed that majority (74.17%) had average category while 18.33 per cent children had below average category followed by children with above average category (7.05%) of object vocabulary. Further table reveals in the girls majority (70.00%) of children had average category while 20.00 per cent children had below average category followed by a very few (10.00%) children had above average category of object vocabulary.
- 7. Composite cognitive abilities:** Finally, in overall boys table disclosed that majority (50.00%) of children had average category followed by above average category (33.33%) and below average category (16.67%) in composite cognitive development. Further in girls majority (51.67%) of children had average level followed by above average level 34.16 per cent and below average level 14.17 per cent.

Table 1: Assessment of cognitive abilities of pre-school children as per gender

Cognitive abilities	Boys (n=120)	Girls (n=120)	Total (N=240)
Conceptual skills			
Below average (7 – 14)	21(17.50)	9(7.50)	30(12.50)
Average (14.5 – 21)	66(55.00)	77(64.17)	143(59.58)
Above average(21.5 – 28)	33(27.50)	34(28.33)	67(27.92)
Information			
Below average (0 – 3)	18(15.00)	14(11.67)	32(13.33)
Average (4 – 6)	86(71.67)	77(64.17)	163(67.91)
Above average (7 – 9)	16(13.33)	29(22.50)	45(18.76)
Comprehension			
Below average (1 – 2)	22(18.33)	19(15.84)	41(17.08)
Average (3 – 5)	55(45.84)	64(53.33)	119(49.59)
Above average(6 – 7)	43(35.83)	37(30.83)	80(33.33)
Visual perception			
Below average(1 – 2)	14(11.67)	22(18.33)	36(15.00)
Average (3 – 5)	84(70.00)	81(67.50)	165(68.75)
Above average(6 – 7)	22(18.33)	17(14.17)	39(16.25)
Memory			

Below average (1 – 3)	18(15.00)	19(15.84)	37(15.41)
Average (4 – 7)	63(52.50)	59(49.17)	122(50.83)
Above average (8 – 10)	39(32.50)	42(35.00)	81(33.76)
Object vocabulary			
Below average (1 – 2)	22(18.33)	24(20.00)	46(19.17)
Average (3 – 5)	89(74.17)	84(70.00)	173(72.08)
Above average(6 – 7)	9(7.50)	12(10.00)	21(8.75)
Composite cognitive abilities			
Below average (22 – 35)	20(16.67)	17(14.17)	37(15.42)
Average (35.5 – 48)	60(50.00)	62(51.67)	122(50.83)
Above average(48.5 – 61)	40(33.33)	41(34.16)	81(33.75)

Figures in parentheses denote percentages

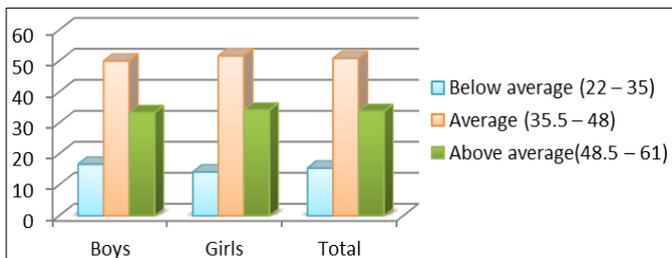


Fig 1: Cognitive abilities of pre-school children as per gender

Comparison of cognitive abilities across gender

Independent sample z-test was computed to examine whether there existed differences in cognitive abilities on the basis of gender of children. Composite cognitive abilities and different aspects of cognitive abilities were taken as dependent variables and gender of children was taken as independent variable. Results are presented in Table 2.

Statistically significant difference was observed in information ($z=2.29^*$) at 0.05 level of significance. Mean score reveals that pre-schooler girls ($M=5.42$) had better

information than pre-schooler boys ($M=5.00$).

Statistically significant difference was observed in visual perception ($z=2.19^*$) at 0.05 level of significance. Mean score depict that pre-schooler boys ($M=4.81$) were better visual perception than pre-schooler girls ($M=4.48$).

Significant difference was observed in object vocabulary ($z=3.63^{**}$) at 0.01 level of significance. Mean score showed that pre-schooler girls ($M=4.45$) had better object vocabulary than pre-schooler boys ($M=4.00$).

No significant differences were observed with rest of cognitive abilities aspects which includes conceptual skills, comprehension, memory and composite cognitive abilities against gender of pre-schoolers. The obtained results are in line with finding of the study by Chaudhary (2007)^[1] reported that urban boys were found to be intelligent with higher cognitive abilities than that of urban girls who were in concrete thinking. Joshi and Sharma (2003)^[5] found that there was significant difference in the cognitive development of boys and girls. Dhingra (2013)^[2] revealed that females (4-5 years) performed better on all dimensions of cognitive abilities as compared to males.

Table 2: Comparison of cognitive abilities across gender (N=240)

Cognitive abilities	Gender	Boys (n=120)	Girls (n=120)	Z- values
		Mean±SD	Mean±SD	
Conceptual skills		19.27±4.42	19.02±3.42	0.49
Information		5.00±1.44	5.42±1.40	2.29*
Comprehension		4.81±1.22	4.72±1.30	0.55
Visual perception		4.81±1.16	4.48±1.17	2.19*
Memory		6.62±1.93	6.67±1.70	0.21
Object vocabulary		4.00±0.94	4.45±0.98	3.63**
Composite cognitive abilities		44.51±11.11	44.76±9.97	0.18

*Significant at 0.05 level

Conclusion

At the end of the research it can be concluded that majority of the preschool children had average level of cognitive abilities followed by above average and below average level. The significant differences in mean values of cognitive abilities of pre-school girls and pre-school boys, pre-school girls had better cognitive abilities than pre-school boys.

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