



ASSESSMENT OF OPPORTUNITIES AVAILABLE TO SCHOOL CHILDREN FOR THE DEVELOPMENT OF DIVERGENT THINKING ABILITY

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ABSTRACT

Divergent thinking skills are very important in solving problems and generating novel ideas. In today's context, divergent thinking skills can help children develop novel solutions to everyday problems including those relating to their mental health and well-being. Home environment has been found to be critical factor for development of divergent thinking skills. The present research was carried out to assess the home environment of sampled school age children from J&K State of India to look for opportunities available to them for the development of divergent thinking ability. The sample unit for the present study comprised 200 homes of selected children who were categorized as High Performer (100) and Low Performer (100) on the basis of their performance on Divergent Production Ability Test (DPAT) in Phase I of the study. A self devised rating Scale was used to assess home environment of selected children to look for opportunities available to them for the development of divergent thinking ability. The categories covered in the rating scale are as follows: (i) Material available at home i.e. reference material like magazines, books, newspaper, clay, musical instruments, paints, play things etc. (ii) activities conducted at home like excursions, story telling, dramatic play, paper folding, imaginative play, reproduction of artwork etc. The results of the study revealed that there was difference in the material available and used by children for performing activities at home (Group wise). Statistically, significant difference was observed among HP and LP children with regard to availability of unstructured material, educational material, electronic goods, natural material, musical instruments and play material. When compared across gender, it was found that there was significant difference between boys and girls with respect to overall availability of unstructured material at their homes whereas insignificant difference was seen on overall availability of other materials. The difference was also statistically significant among boys and girls with regard to activities related to technology, unstructured material, natural material, educational material and visual art activities except excursion activities performed by them. The study has implications for children, parents, teachers and professionals in the field of child development and can be used to provide inputs for enhancement of creative thinking skills among children.

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INTRODUCTION

Home environment is a measure of the quality and quantity of social, emotional and cognitive support that has been available to the child within the home (Mishra, 1986). Home is the first laboratory of learning (Rimm, 1994). Home environment and their immediate surroundings in every sense are total environments that bring together physical, social and organizational components. For most children, interior of the home and its immediate surroundings are the first environments they experience throughout their early years. Within the home, children also have their early interactions with the members of their family and availability & quality of

resources for learning and playing largely determine the nature of these interactions (Sylva, Melhuish, Sammons, Siraj-Blatchford, and Taggart, 1999; Melhuish, Sylva, Sammons, Siraj-Blatchford, and Taggart, 2001; Iltus, 2006; Harris and Goodall, 2007). According to Bresler *et al* (2002), children learn both through their interactions with materials and through dialogue and activity that is shared with parents, teachers, and other children. Mackinnon (1962) indicated that a highly creative person comes from a special kind of home environment which facilitates the emergence of creative thinking. Murphy, Rowe, Ramani, and Silverman (2014) also believed that children begin to acquire the ability to process information and to discern between alternatives at a very young age through interactions and experiences with others in their homes and communities. Gardner (as cited in Perlmutter & Kaufman, 1991) believed that exposing children to different

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materials at home will create problem solving skills and therefore will help children find their strengths, passions and interests. A study was conducted by Mehrotra and Sawers (1989) to assess the influence of home environment on the development of original thinking. Multidimensional Stimulus Fluency Measure and the Home observation for measurement of the Environment were used with 66 Indian Preschool students. The results indicated that high scores of students' creative thinking especially original thinking reflected a structured home environment and directive type of parent-child interaction that were thought to adversely impact the free flow of thought and expressiveness in young children. Lew and Cho (2013), carried out a study to determine the relationship among creativity, intrinsic/extrinsic motivation and creative home environment. The results of the study were: First, there were significant positive relationships between the intrinsic motivation and the creative personality of the young children but there were no statistically significant relations between the intrinsic/extrinsic motivation and the creative thinking ability. Second, the intrinsic-high/extrinsic-high motivation group was higher than any other types of motivation groups in creative personality. Third, there were significant relationships between the creative thinking ability and creative personality with the creative home environment. Researchers like Berk (2013), studied children's developmental level. Berk stated that, in Piagetian theory, children's ability increases in cognitive stages as they learn to process information. Berk also cited Siegler's model of strategy choice, which highlighted children's experimentation and use of different mental strategies that are the results in differences in children's cognitive ability.

Review of literature in the related areas revealed a paucity of research studies in the area of opportunities available at home for children for development of divergent thinking in Indian context. Not many studies on this aspect has been undertaken at the National, State and District Level. There is no such study available for Jammu district of Jammu and Kashmir State of India. The study has theoretical and practical implication for children, parents, teachers and professionals in the field of Child Development. The data will provide new insights about this important aspect of thinking. Keeping this as background, the present study was designed to assess the home environment to look for opportunities available to selected children (6 - 9 years) of Jammu district (Jammu and Kashmir). Further, it aimed to relate the development of divergent thinking abilities across gender with the home environment.

Objectives for the study

The present research was undertaken to

1. Assess the home environment of selected children to look for opportunities available to children for the development of divergent thinking ability.
2. To relate the development of divergent thinking abilities across gender with the home environment.

RESEARCH METHODOLOGY

The sample unit for the present study comprised 200 homes of selected children who were categorized as HP (High Performer, n=100) and LP (Low Performer, n=100) on the basis of their performance on Divergent Production Ability Test (DPAT) devised by K. N Sharma (2006) in Phase I of the study. The battery of Divergent Production Abilities contains

six tests for measurement of the eight abilities which are Word Production Test (Word Fluency), Uses of Things Test (Ideational Fluency as well as spontaneous Flexibility), Similarities Test (Associational Fluency), and Sentence Construction Test (Expressional Fluency), Titles Test (Adaptive Flexibility as well as Originality), Sentence Completion Test (Elaboration). To collect the information from the parents, the researcher first visited the schools and explained the purpose of the study to the school authorities. With the help of teachers, home address of sample children was taken to approach the parents. A Self devised rating Scale was used to assess home environment of Selected children to look for opportunities available to them for the development of divergent thinking ability. The categories covered in the rating Scale are as follows: (i) Material available at home i.e. reference material like magazines, books, newspaper, clay, musical instruments, paints, play things etc. (ii) activities conducted at home like Excursions, story telling, dramatic play, paper folding, imaginative play, reproduction of artwork etc. The data was collected by visiting homes of selected sample children and the rating scale was filled by the researcher on the basis of her observation. Observation was conducted to look for the opportunities available at home for the child. The investigator observed whether different activities like play, clay modeling, brain storming, story telling conducted at home. The researcher talked to the children and their parents if the child participates in fares, exhibition, excursions, picnics etc. Investigator also observed the material available like play equipments, unstructured material, Educational material, musical instruments, natural material, electronic goods etc. On an average, it took one and half hour to complete the rating scale. Hindi language was used for giving instruction and interacting with parents during the administration of tool. The entire data collection was completed within a period of six months. The data obtained were subjected to both qualitative and quantitative analysis.

RESULTS AND DISCUSSION

Background Information of sample children and their parents

A total of 200 school going children in the age group of 6-9 years who were grouped as HP (High Performer) and LP (Low Performer) on the basis of their performance on the Divergent Production Ability test were included as respondents. 200 parents (100 fathers and 100 mothers) of sample children were also selected. All the parents belonged to middle-income group. The majority of the parents were in the age group of 36-40 years and most of them were educated up to graduation level. A large number of fathers were government employees and working in private sectors while most of the mothers were homemakers.

Opportunities available to sample children

Different opportunities in the form of material and activities available at homes of sample children were assessed through self devised home rating scale.

Table 1 Mean and Standard Deviation scores for availability of Unstructured Material

Material	HP (n=100)				LP (n=100)				Overall Total (n=200)			
	B (n=50)	G (n=50)	T (n=100)	t	B (n=50)	G (n=50)	T (n=100)	t	B (n=50)	G (n=50)	T (n=100)	t
	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)
Home dough	.880 ±.32	.900 ±.30	.890 ±.31	0.31 (0.75)	.760 ±.43	.620 ±.49	.690 ±.46	1.51 (0.13)	.820 ±.38	.760 ±.42	.790 ±.40	1.03 (0.30)
Clay	.600 ±.49	.760 ±.43	.680 ±.46	1.72* (0.88)	.220 ±.41	.120 ±.32	.170 ±.37	1.33 (0.18)	.410 ±.49	.440 ±.49	.425 ±.49	0.42 (0.67)
Cello tape	.860 ±.35	.880 ±.32	.870 ±.33	0.29 (0.76)	.560 ±.50	.800 ±.40	.680 ±.46	2.63* (0.01)	.710 ±.45	.840 ±.36	.775 ±.41	2.21* (0.02)
Tapes	.960 ±.19	1.00 ±.00	.980 ±.14	1.42 (0.15)	.620 ±.49	.820 ±.38	.720 ±.45	2.26* (0.02)	.790 ±.40	.910 ±.28	.850 ±.35	2.39* (0.01)
Glue	1.00 ±.00	.980 ±.38	.990 ±.10	1.00 (0.32)	.720 ±.45	.860 ±.35	.790 ±.40	1.72* (0.08)	.860 ±.34	.920 ±.27	.890 ±.31	1.35 (0.17)
Boxes	.940 ±.23	.820 ±.38	.880 ±.32	1.86* (0.06)	.800 ±.40	.680 ±.47	.740 ±.44	1.36 (0.17)	.870 ±.33	.750 ±.43	.810 ±.39	2.17* (0.03)
Threads	.640 ±.48	.700 ±.46	.670 ±.47	0.63 (0.52)	.260 ±.44	.480 ±.50	.370 ±.48	2.31* (0.02)	.450 ±.50	.590 ±.49	.520 ±.50	1.99* (0.04)
Plastic lids	.580 ±.49	.720 ±.45	.610 ±.51	1.46 (0.14)	.360 ±.48	.520 ±.50	.440 ±.49	1.61 (0.10)	.470 ±.50	.620 ±.48	.545 ±.49	2.14* (0.03)
Pancases	.600 ±.49	.640 ±.48	.650 ±.55	0.40 (0.68)	.320 ±.47	.460 ±.50	.390 ±.49	1.43 (0.15)	.460 ±.50	.550 ±.50	.500 ±.50	1.27 (0.20)

Table value=1.64; df for HP=99; df for LP=99; *Significant at 0.05; ** highly significant

It is evident from table 1 that in HP group, there were gender differences on two unstructured materials (clay and boxes). Girls had higher mean scores on the availability of all the unstructured material except glue and boxes than boys. Among LP group, gender differences were also seen on the availability of several unstructured material like cello tape, tapes, glue and threads in the homes of children. Overall, when compared across gender, significant difference was also observed in terms of availability of unstructured material i.e. cello tape, tape, boxes, threads and plastic lids in the homes of children between the homes of HP and LP group children.

Data in table 2 indicates mean and standard deviation scores on availability of educational material. In both the groups (HP and LP children), gender difference was seen on the availability of story books in the homes of children. Girls had higher mean scores on all the educational material available than boys except in the case of story books. Mean scores of girls was lower than boys on this aspect. No, statistically significant difference was seen gender wise in terms of availability of magazines and newspapers.

Table 2 Mean and Standard Deviation scores on availability of educational material

Material	HP (n=100)				LP (n=100)				Overall Total (n=200)			
	B (n=50)	G (n=50)	T (n=100)	t	B (n=50)	G (n=50)	T (n=100)	t	B (n=50)	G (n=50)	T (n=100)	t
	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)
Magazines	.860 ±.35	.900 ±.30	.880 ±.32	0.61 (0.54)	.440 ±.50	.500 ±.50	.470 ±.50	0.59 (0.55)	.650 ±.47	.700 ±.46	.670 ±.46	0.75 (0.45)
Newspaper	.980 ±.14	1.00 ±.30	.990 ±.10	1.00 (0.32)	.860 ±.35	.780 ±.41	.820 ±.38	1.03 (0.30)	.920 ±.27	.890 ±.31	.905 ±.29	0.14 (0.47)
Story books	.720 ±.45	.540 ±.50	.630 ±.48	1.87* (0.06)	.240 ±.43	.040 ±.43	.140 ±.34	2.97* (0.00)	.480 ±.50	.290 ±.45	.385 ±.48	2.80* (0.00)
Reading books	1.00 ±.00	1.00 ±.00	1.00 ±.00	-	1.00 ±.00	1.00 ±.00	1.00 ±.00	-	1.00 ±.00	1.00 ±.00	1.00 ±.00	-

Table value=1.64; df for HP=99; df for LP=99 ; *Significant at 0.05

Table 3 Mean and Standard Deviation scores on availability of musical instruments

Material	HP (n=100)				LP (n=100)				Overall Total (n=200)			
	B (n=50)	G (n=50)	T (n=100)	t	B (n=50)	G (n=50)	T (n=100)	t	B (n=50)	G (n=50)	T (n=100)	t
	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)
Percussion instruments	.740 ±.44	.600 ±.49	.670 ±.47	1.49 (0.13)	.380 ±.49	.360 ±.48	.370 ±.48	0.20 (0.83)	.560 ±.49	.480 ±.50	.520 ±.50	1.13 (0.26)
Piano	.180 ±.38	.200 ±.40	.190 ±.39	0.25 (0.80)	.060 ±.23	.100 ±.30	.080 ±.27	0.73 (0.46)	.120 ±.32	.150 ±.35	.135 ±.34	0.61 (0.53)
Xylophone	.060 ±.23	.040 ±.19	.050 ±.21	0.45 (0.65)	.000 ±.00	.000 ±.00	.000 ±.00	-	.030 ±.17	.020 ±.14	.025 ±.15	0.45 (0.65)

Table value=1.64; df for HP=99; df for LP=99; Insignificant

From the above table 3, it was indicated that there were no gender differences seen on availability of musical instruments across HP and LP children. No xylophones were available in homes of LP children.

Statistically, insignificant differences were observed between boys and girls with respect to availability of musical instruments. It was also seen that HP children had high access to musical instruments than LP children.

Table 5 reveals that television was found in the homes of all HP and LP children. In both the groups (HP and LP children), insignificant gender differences were observed. It was also seen that HP children had high accessibility of electronic goods at their homes than LP children. Overall, insignificant difference was seen among boys and girls with respect to availability of electronic goods.

Table 4 Mean and Standard Deviation scores on availability of Natural material

Material	HP (n=100)				LP (n=100)				Overall Total (n=200)			
	B (n=50)	G (n=50)	T (n=100)	t	B (n=50)	G (n=50)	T (n=100)	t	B (n=50)	G (n=50)	T (n=100)	t
	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)
Leaves	.660 ±.47	.800 ±.40	.730 ±.49	1.58 (0.11)	.660 ±.47	.540 ±.50	.600 ±.49	1.33 (1.83)	.660 ±.47	.670 ±.47	.665 ±.47	0.14 (0.88)
Shells	.360 ±.48	.280 ±.45	.320 ±.46	0.85 (0.39)	.300 ±.46	.280 ±.45	.290 ±.45	0.21 (0.82)	.330 ±.47	.280 ±.45	.305 ±.46	0.76 (0.44)
Barks	.380 ±.49	.300 ±.50	.340 ±.49	0.80 (0.42)	.080 ±.27	.220 ±.41	.150 ±.35	2.18* (0.05)	.230 ±.42	.260 ±.46	.245 ±.44	0.47 (0.63)
Stones	.480 ±.50	.440 ±.50	.460 ±.50	0.39 (0.69)	.360 ±.48	.440 ±.54	.400 ±.51	0.77 (0.43)	.420 ±.49	.440 ±.51	.430 ±.50	0.27 (0.78)
Seeds	.540 ±.50	.460 ±.50	.500 ±.50	0.79 (0.42)	.400 ±.49	.340 ±.47	.370 ±.48	0.61 (0.53)	.470 ±.50	.390 ±.49	.430 ±.49	0.99 (0.32)

Table value=1.64; df for HP=99; df for LP=99 ; *Significant at 0.05

Table 4 reveals that in HP group, no gender difference was observed on availability of natural material in the homes of children. Boys show high mean values than girls in terms of material available (shells, bark, stones, seeds). This could probably be due to the reason that boys may be going out to collect and use these materials more than the girls. Among LP children, gender differences were seen on one natural material (barks). Overall, insignificant difference was seen among HP and LP children with respect to the availability of all the natural material.

Table 6 shows mean and standard deviation scores for activities related to usage of technology. It was depicted from the findings that HP children were involved in listening music activity more with mean value (1.65±.67) than LP children. When compared across gender, it was found that boys watched cartoons on television more with mean value (1.50±.74) whereas girls were more involved in listening music activity (1.68±.61) than boys.

Table 5 Mean and Standard Deviation scores on availability of electronic goods

Material	HP (n=100)				LP (n=100)				Overall Total (n=200)			
	B (n=50)	G (n=50)	T (n=100)	t	B (n=50)	G (n=50)	T (n=100)	t	B (n=50)	G (n=50)	T (n=100)	t
	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)
Personal computer	.540 ±.50	.440 ±.50	.490 ±.50	0.99 (0.32)	.080 ±.27	.160 ±.37	.120 ±.32	1.22 (0.22)	.310 ±.46	.300 ±.46	.305 ±.46	0.15 (0.87)
Television	1.00 ±.00	1.00 ±.00	1.00 ±.00	-	1.00 ±.00	1.00 ±.00	1.00 ±.00	-	1.00 ±.00	1.00 ±.00	1.00 ±.00	-
CD	.720 ±.45	.780 ±.41	.750 ±.43	0.68 (0.49)	.420 ±.49	.440 ±.50	.430 ±.49	0.20 (0.84)	.570 ±.49	.610 ±.49	.590 ±.49	0.57 (0.56)
DVD	.640 ±.48	.540 ±.50	.590 ±.50	1.01 (0.31)	.260 ±.44	.380 ±.48	.320 ±.46	1.28 (0.20)	.450 ±.50	.460 ±.50	.455 ±.50	0.14 (0.88)

Table value=1.64; df for HP=99; df for LP=99 ; Insignificant difference

Table 6 Mean and Standard deviation scores for activities related to usage of Technology

Activities	HP (n=100)				LP (n=100)				Overall Total (n=200)			
	B (n=50)	G (n=50)	T (n=100)	t	B (n=50)	G (n=50)	T (n=100)	t	B (n=50)	G (n=50)	T (n=100)	t
	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)
Watching cartoons	1.72 ±.49	1.36 ±.82	1.54 ±.70	2.63* (0.01)	1.28 ±.88	1.04 ±.96	1.16 ±.92	1.29 (0.19)	1.50 ±.74	1.20 ±.91	1.35 ±.84	2.55* (0.01)
Listening music	1.66 ±.68	1.64 ±.66	1.65 ±.67	0.14 (0.88)	1.24 ±.89	1.72 ±.57	1.48 ±.78	3.19* (0.00)	1.45 ±.82	1.68 ±.61	1.56 ±.73	2.23* (0.02)
Playing videogame	1.32 ±.81	.680 ±.91	1.00 ±.92	3.68* (0.00)	.840 ±.99	.340 ±.65	.590 ±.87	2.95* (0.00)	1.08 ±.93	.510 ±.81	.795 ±.92	4.59* (0.00)

Table value=1.64; df for HP=99; df for LP=99 ; *Significant at 0.05; ** highly significant

Overall, it was seen that a large number of children (1.56±.73) engaged more in listening music on cell phones, television and on computers. Overall, statistically, significant difference was also observed on all the activities related to usage of technology by children.

also significant among children with regard to usage of water, mud, sand and paper folding activities.

Tables 7 Mean and Standard deviation scores of excursion activities by sample children

Activities	HP (n=100)				LP (n=100)				Overall Total (n=200)			
	B (n=50)	G (n=50)	T (n=100)	t	B (n=50)	G (n=50)	T (n=100)	t	B (n=50)	G (n=50)	T (n=100)	t
	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)
Visit to Art galleries	.640 ±.94	.600 ±.75	.620 ±.85	0.25 (0.88)	.240 ±.55	.200 ±.49	.220 ±.52	0.38 (0.70)	.440 ±.79	.400 ±.66	.420 ±.73	0.45 (0.65)
Visiting Museum	1.30 ±.78	1.12 ±.91	1.21 ±.85	1.13 (0.26)	.400 ±.67	.640 ±.80	.520 ±.88	1.61 (0.10)	.850 ±.85	.880 ±.89	.865 ±.87	0.25 (0.79)
Visiting zoo	1.58 ±.70	1.50 ±.73	1.54 ±.71	0.59 (0.55)	.700 ±.90	.640 ±.74	.670 ±.82	.360 (0.72)	1.14 ±.92	1.07 ±.85	1.10 ±.88	0.66 (0.50)
Visiting other places	1.80 ±.57	1.94 ±.31	1.87 ±.46	1.47 (0.14)	1.78 ±.46	2.00 ±.00	1.89 ±.34	3.31* (0.00)	1.79 ±.51	1.97 ±.22	1.88 ±.40	3.10* (0.00)

Table value=1.64; df for HP=99; df for LP=99 ; *Significant at 0.05; ** highly significant

Data in table 7 reveals that HP boys had higher mean scores on all the excursion activities than HP girls. In case of LP children, it was seen that boys had high mean scores on visiting art galleries and zoo activity whereas girls visited museum and other places like parks, temple and relative house etc more than boys. Overall, it was also observed that mean scores of boys in all the excursion activities except visiting museum and other places were high than girls. Insignificant difference was found in all the excursion activities. The difference was significant on visiting other places by sample children which is indicated by a significant t value (t=3.10).

It was indicated from table 9 that a large number of HP children with high mean value (1.85±.35) draw pictures themselves more than LP children (1.52±.50) without any assistance. Regarding gender, it was depicted that boys performance in all the visual art activities were better than girls except in painting activity where girls had higher mean score(1.28±.85) than boys (1.05±.50). Overall, it was seen that children were highly involved in drawing picture activity with mean value (1.68±.46) and less engaged in drawing via postcard activity (.340±.69).

Table 8 Mean and Standard deviation scores for activities related to usage of unstructured material

Activities	HP (n=100)				LP (n=100)				Overall Total (n=200)			
	B (n=50)	G (n=50)	T (n=100)	t	B (n=50)	G (n=50)	T (n=100)	t	B (n=50)	G (n=50)	T (n=100)	t
	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)	Mean ±S.D	Mean ±S.D	Mean ±S.D	(p)
Play with clay	1.08 ±.96	1.26 ±.89	1.17 ±.93	0.96 (0.33)	.280 ±.92	.480 ±.86	.380 ±.74	1.34 (0.18)	.680 ±.89	.870 ±.96	.775 ±.93	1.44 (0.15)
Play with wood	1.50 ±.54	1.44 ±.67	1.47 ±.61	0.48 (0.62)	1.30 ±.70	1.32 ±.71	1.31 ±.70	0.14 (0.88)	1.40 ±.63	1.38 ±.69	1.39 ±.66	0.21 (0.83)
Play with water	1.56 ±.54	1.54 ±.57	1.55 ±.55	0.17 (0.85)	1.80 ±.53	1.46 ±.73	1.63 ±.66	2.61* (0.00)	1.62 ±.61	1.50 ±.65	1.59 ±.61	2.10* (0.03)
Play with mud and sand	1.32 ±.84	1.48 ±.67	1.40 ±.76	1.04 (0.29)	1.48 ±.73	1.72 ±.57	1.61 ±.64	1.70* (0.09)	1.41 ±.77	1.60 ±.63	1.50 ±.71	1.88* (0.06)
Paper folding	1.48 ±.70	1.72 ±.53	1.60 ±.63	1.91* (0.05)	1.32 ±.81	1.60 ±.67	1.46 ±.75	1.87* (0.06)	1.40 ±.76	1.66 ±.60	1.53 ±.70	2.6* (0.00)
Paper cutting using scissors	1.16 ±.73	1.32 ±.74	1.24 ±.74	1.08 (0.28)	.880 ±.84	1.00 ±.83	.940 ±.83	0.71 (0.47)	1.02 ±.80	1.16 ±.80	1.09 ±.80	1.23 (0.21)

Table value=1.64; df for HP=99; df for LP=99 ; *Significant at 0.05; ** highly significant

Table 8 depicts mean and standard deviation scores for usage of unstructured material by children. It was revealed from the findings that HP children performed paper folding activities more with mean value (1.60±.63) whereas LP children played with water more (1.63±.66) than HP children. When compared across gender, it was seen that boys used water for playing with mean value (1.62±.61) while girls engaged more in paper folding activities as they made different things like fan, boat dolls, aeroplane, ball, wheel etc by using paper (1.66±.60). Overall, it was also observed that children used water with high mean value (1.59±.61) for playing whereas clay was least used by the children in playing (.775±.93). The difference was

Statistically significant difference among boys and girls were observed on all visual art activities except drawing picture without aid and photography activity.

Table 10 shows mean and standard deviation scores on availability of play material. Toys were available in all the homes of sample children. It was seen that HP boys played with blocks with more mean value (.780±.41) than girls (.640±.48) whereas girls played with puppets (.460±.50) more than boys (.400±.49). In case of LP children, boys had high mean value scores than girls. Statistically, insignificant difference was observed among children with respect to availability of play material.

Tables 9 Mean and Standard deviation scores for performing visual arts activities by children

Activities	HP (n=100)				LP (n=100)				Overall Total (n=200)			
	B	G	T	t	B	G	T	t	B	G	T	t
	(n=50) Mean ±S.D	(n=50) Mean ±S.D	(n=100) Mean ±S.D	(p)	(n=50) Mean ±S.D	(n=50) Mean ±S.D	(n=100) Mean ±S.D	(p)	(n=50) Mean ±S.D	(n=50) Mean ±S.D	(n=100) Mean ±S.D	(p)
Drawing pictures	1.80 ±.40	1.90 ±.30	1.85 ±.35	1.40 (0.16)	1.60 ±.49	1.44 ±.50	1.52 ±.50	1.60 (0.11)	1.70 ±.46	1.67 ±.47	1.68 ±.46	0.45 (0.65)
Drawing via art poster	1.04 ±1.0	.520 ±.61	.780 ±.87	3.11* (0.00)	.440 ±.83	.220 ±.61	.330 ±.73	1.49 (0.13)	.740 ±.97	.370 ±.63	.555 ±.83	3.19* (0.00)
Drawing via postcard	.600 ±.92	.380 ±.56	.490 ±.77	1.43 (0.15)	.240 ±.65	.120 ±.47	.190 ±.58	1.20 (0.23)	.430 ±.81	.250 ±.53	.340 ±.69	1.83* (0.68)
Drawing via calender	1.06 ±.99	.660 ±.62	.860 ±.85	2.40* (0.01)	.680 ±.95	.360 ±.77	.520 ±.88	1.83* (0.06)	.870 ±.99	.510 ±.71	.690 ±.88	2.94* (0.00)
Painting	1.36 ±.82	1.66 ±.65	1.51 ±.75	2.00* (0.04)	.740 ±.77	.900 ±.86	.820 ±.76	0.97 (0.33)	1.05 ±.50	1.28 ±.85	1.16 ±.86	1.90* (0.05)
Photography	1.32 ±.89	.800 ±.96	1.06 ±.96	2.79* (0.00)	.680 ±.76	.840 ±.93	.760 ±.85	0.93 (0.35)	1.00 ±.88	.820 ±.94	.910 ±.91	1.38 (0.16)

Table value=1.64; df for HP=99; df for LP=99 ; *Significant at 0.05; ** highly significant

Table 10 Mean and Standard Deviation scores on availability of play material

Material	HP (n=100)				LP (n=100)				Overall Total (n=200)			
	B	G	T	t	B	G	T	t	B	G	T	t
	(n=50) Mean ±S.D	(n=50) Mean ±S.D	(n=100) Mean ±S.D	(p)	(n=50) Mean ±S.D	(n=50) Mean ±S.D	(n=100) Mean ±S.D	(p)	(n=50) Mean ±S.D	(n=50) Mean ±S.D	(n=100) Mean ±S.D	(p)
Toys	1.00 ±.00	1.00 ±.00	1.00 ±.00	-	1.00 ±.00	1.00 ±.00	1.00 ±.00	-	1.00 ±.00	1.00 ±.00	1.00 ±.00	-
Blocks	.780 ±.41	.640 ±.48	.710 ±.45	1.54 (0.12)	.220 ±.41	.260 ±.44	.240 ±.42	0.46 (0.64)	.502 ±.05	.450 ±.50	.475 ±.30	0.70 (0.48)
Puppets	.400 ±.49	.460 ±.50	.430 ±.49	0.60 (0.54)	.160 ±.37	.180 ±.38	1.70 ±.37	0.26 (0.79)	.290 ±.45	.320 ±.46	.300 ±.45	0.61 (0.53)

Table value=1.64; df for HP=99; df for LP=99; Insignificant differences

CONCLUSION

On the basis of the results it was seen that there was difference in the material available and used by children for performing activities at home (Group wise). Statistically, significant difference was observed among HP and LP children with regard to availability of unstructured material, educational material, electronic goods, natural material, musical instruments and play material. When compared across gender, it was found that there was significant difference between boys and girls with respect to overall availability of unstructured material at their homes whereas insignificant difference was seen on overall availability of other material. The difference was also statistically significant among boys and girls with regard to activities related to technology, unstructured material, natural material, educational material and visual art activities except excursion activities performed by them. The present study has theoretical implications in providing research data base for development of DT skills in a specific context for use at national and international levels. Study of grade wise and gender differences as also opportunities for development of DT skills assumes importance at the time when nation is in the process of enhancing the skill data base through all means.

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