



**EFFECT OF GRADED CREATIVE ACTIVITIES ON PRE WRITING SKILLS OF CHILDREN WITH LEARNING DISABILITY.**

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**ABSTRACT**

**AIM**

To find the effect of graded creative activities on pre-writing skills of children with learning disability.

**OBJECTIVES**

- To assess the pre- writing skills of children with learning disability.
- To assess visual perception, motor coordination, and visuo motor integration skills in learning disability children.
- To evaluate the effect of graded creative activities on pre- writing skills of children with learning disability.

**Methodology**

A total of 30 subjects were taken in this study. The subjects were selected from Occupational Therapy Foundation and Sri Sarvavidhya multi speciality therapy centre Erode. Samples were selected based on selection criteria of this study. All selected samples were assessed before and after intervention with Beery Visual Motor integration Scale and assessment of Reading-Writing Skills For Pre-Primary School Children. All 30 samples were selected through convenient sampling method then they were randomly assigned in to control and experimental group, each group have 15 samples. Experimental group under went 16 sessions of graded craft activities along with conventional occupational therap. Whereas control group received only conventional occupational therapy. Each session was 1 hour duration, 3 sessions in a week.

**Results**

Statistically significant is present (t-value of berry VMI, visual perception, motor coordination are 3.3003,2.1624,2.8014 respectively. “p”-values of berry VMI, visual perception, motor coordination are 0.0053,0.0484,0.0141 respectively) between pre and post test scores of experimental group. The mean value of pre and post test of experimental group are 14.7 and 20.2 respectively and “t” value is 10.741 and “p” value is less than 0.0001, which shows the significant changes in prewriting skills of experimental group.

## Conclusion

From the above results it is concluded that there is significant improvement on Visual motor integration and pre writing skills of learning disability children after graded creative activities.

**Key words :** Graded Creative activities, Pre writing skills, Visual motor integration, Learning disability.

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## INTRODUCTION

“**Learning disabilities**” is a generic term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning or mathematical abilities<sup>1</sup>. These disorders are intrinsic to the individual and presumed to be due to central nervous system dysfunction. A learning disability is an information processing deficit. Most researchers believe that it is neurologically based. There are many kinds of learning disabilities and they affect the way people receive, process, store, and respond to information. People with a learning disability often have average or above average intelligence, but the information they receive or the process is distorted<sup>2</sup>.

The prevalence of specific learning disabilities was 15.17% in sample children, where as 12.5 %, 11.2% and 10.5% had dysgraphia, dyslexia, and dyscalculia. Difficulty with basic reading and language skills are the most common learning disabilities. As many as 80% of students with learning disabilities have reading problems<sup>3</sup>.

Handwriting is a complex skill that develops over years of practice. Many children begin to draw and scribble on paper shortly after they are able to grasp a writing tool. As young children mature, they write intentionally meaningful messages, first with pictures and then with scribbles, letter-like forms, and strings of letters. children progressed through the following sequential stages of prewriting and handwriting ie. controlled scribbles;, discrete lines, dots, or symbols; straight line or circular uppercase letters; uppercase letters; and lowercase letters, numerals, and words<sup>4</sup>.

Pre writing is the first stage of the writing process typically followed by drafting, revision, Editing and publishing. Pre writing can consist of a combination of outlining diagramming story boarding, clustering<sup>5</sup>.

Visual motor integration is an important variable to a child’s handwriting skills, particularly when copying or transposing from printing material to cursive or manuscript writing. There are various factors like visual-perceptual, motor planning, motor memory, sequencing etc for handwriting performance but Sovik found visual-motor integration was the most significant predictor of handwriting performance<sup>6</sup>.

Many researchers have explained the importance of VMI in learning academic skills. Beery believes that before the child learns to write, the basic geometric shapes have to be mastered. It has been observed that as subject’s ability to copy the forms on the VMI increases, a concomitant increase in ability to copy letters accurately is

seen, which was supported by Weil in his study. Mati-zissi observed that there is a correlation between performance in written language and drawing or design copying tasks. Failure on visual-motor tests may be caused by underlying visual-cognitive deficits including visual discrimination, poor fine motor skills, inability to integrate visual – cognitive and motor processes, or combination of these abilities. Similarly visual cognitive tasks involving fine motor skills such as creative activities may also improve pre writing skills among children with learning disability.

### **Aim**

To find the effect of graded creative activity on pre-writing skills of children with Learning disability

### **Objectives**

- To assess the pre-writing skills of children with learning disability.
- To assess visual perception, motor coordination, and visuo motor integration skills in learning disability children.
- To evaluate the effect of graded creative activities on pre-writing skills of children with learning disability.

### **METHODOLOGY**

This study was conducted using quasi experimental research design. A total of 30 subjects were taken in this study. The subjects were selected from Occupational Therapy Foundation and Sri Sarvavidhya multi speciality therapy centre Erode. Selection criteria of the samples are: Children diagnosed by a developmental pediatrician as learning disability, age group between 6 to 7 years of age, both genders, children attending regular schools, with IQ range between 90-110. Children with associated medical conditions were excluded. All selected samples were assessed before and after intervention with Beery Visual Motor integration Scale and Writing Assessment Measure. All 30 samples were selected through convenient sampling method then they were randomly assigned in to control and experimental group, each group have 15 samples. Experimental group under went 16 sessions of graded craft activities along with conventional occupational therap. Whereas control group received only conventional occupational therapy. Each session was 1 hour duration, 3 sessions in a week. Initially craft activities were given, activities are graded in order to improve the complexity. Activities included in this research are Paper mat weaving , mosaic tiles, Trace the line activity, Shape identification activity, Maze activity, Connecting the number activities, Alphabets stamping activity, Picture tracing activity, Origami and doll making. Verbal instructions and manual guidance were given by the researcher wherever necessary. All activities are graded with simple to complex and semi structured to structured fashion. After intervention post test was conducted and scores are analyzed with “t” tests.

## DATA ANALYSIS AND INTERPRETATION

**Table:1 : Comparison Of VMI, Visual perception and motor coordination scores between control and experimental group in pre test.**

Factor	Group	Mean	SD	T-value	P-value
<b>BERRY VMI</b>	Control pre -test	6.73	1.79	0.5040	0.6182
	Experiment pre- test	7.70	1.83		
<b>Visual Perception</b>	Control pre- test	8.60	1.64	1.6974	0.1007
	Experimental pre -test	9.67	1.80		
<b>Motor Co Ordination</b>	Control pre -test	7.27	1.79	1.3709	0.1813
	Experimental pre- test	8.20	1.93		

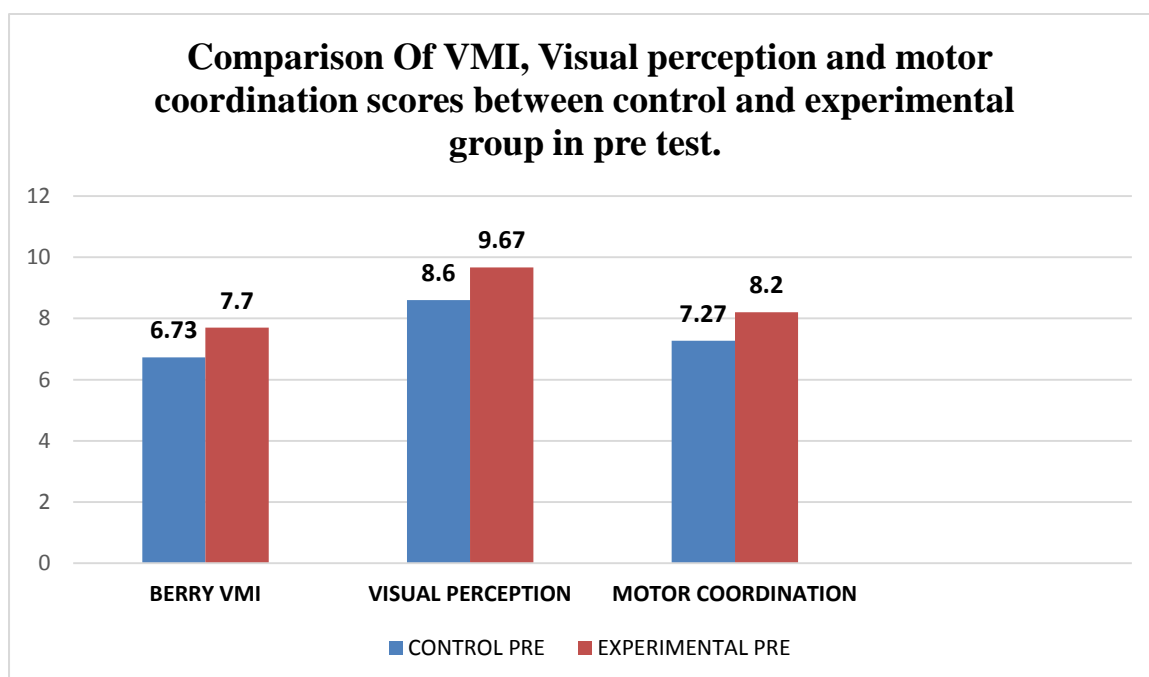


Table1 and Graph1: Unpaired t test shows the comparison of pre-test score between control and experimental group, mean value of berry VMI, visual perception, motor coordination. 6.73 and 7.70, 8.60 and 9.67, 7.27 and 8.20. Standard deviation values of berry VMI, visual perception, motor coordination, 1.79 and 1.83, 1.64 and 1.80, 1.79 and 1.93. respectively. t-value of berry VMI, visual perception, motor coordination is 0.5040, 1.6974, 1.3709. p-value of berry VMI, visual perception, motor coordination. 0.6182,0.1007,0.1813 respectively.

**TABLE:2 : Comparison Of VMI, Visual perception and motor coordination scores of control group between pre and post test.**

Factor	Group	Mean	SD	T-value	P-value
VMI	Control pre-test	6.73	1.79	1.9194	0.0755
	Control post-test	7.40	1.18		
Visual Perception	Control pre-test	8.60	1.64	0.7446	0.4688
	Control post-test	8.87	1.64		
Motor Co Ordination	Control pre-test	7.27	1.79	6.2048	0.0001
	Control post-test	8.00	1.69		

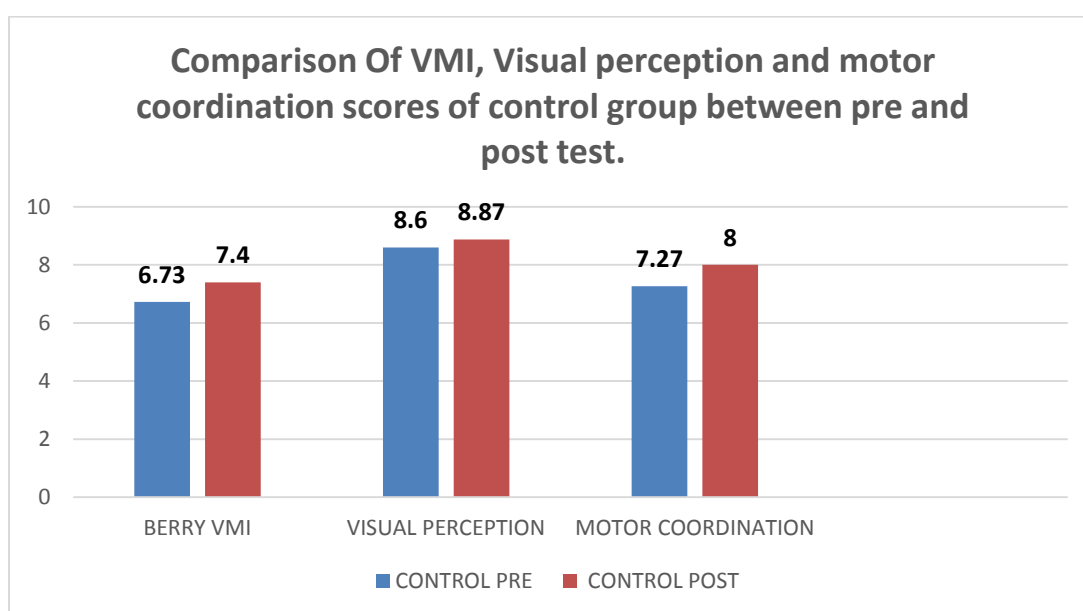


Table 2 and graph 2: Paired t test shows the comparison of pre-test and post-test scores of control group, mean value of berry VMI, visual perception, motor coordination. 6.73 and 7.40, 8.60 and 8.87, 7.27 and 8.00. Standard deviation values of berry VMI, visual perception, motor coordination. 1.79 and 1.18, 1.64 and 1.64, 1.79 and 1.69 respectively. t- value of berry VMI, visual perception, motor coordination. 1.9194, 0.7446, 6.2048. p-value of berry VMI, visual perception, motor coordination. 0.0755, 0.4688, 0.0001 respectively.

**Table 3 : Comparison Of VMI, Visual perception and motor coordination scores of Experimental group between pre and post test.**

Factor	Group	Mean	SD	t-value	P-value
VMI	Experimental Pre-test	7.07	1.83	3.3003	0.0053
	Experimental Post-test	5.80	2.34		

<b>VISUAL PERCEPTION</b>	Experimental Pre- test	9.67	1.80	2.1624	0.0484
	Experimental Post-test	10.53	1.96		
<b>MOTOR COORDINATION</b>	Experimental Pre-test	8.20	1.93	2.8014	0.0141
	Experimental Post-test	6.93	0.96		

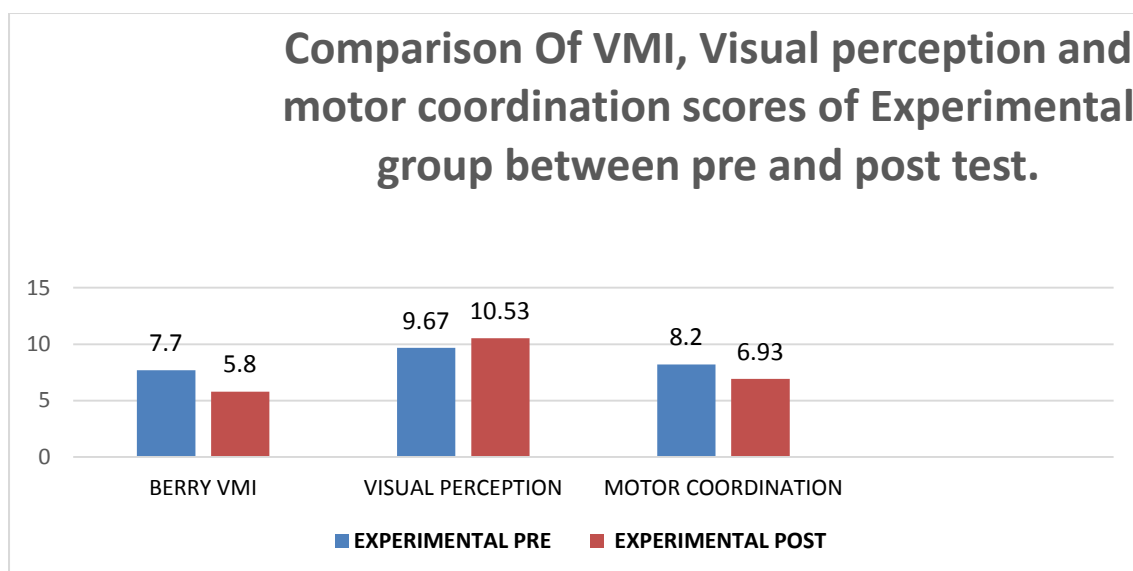


Table 3 and graph 3: Paired t test shows the comparison of pre-test and post of experimental group, mean value of berry VMI, visual perception, motor coordination. 7.07 and 5.80, 9.67 and 10.53, 8.20 and 6.93. standard deviation values of berry VMI, visual perception, motor coordination. 1.83 and 2.34, 1.80 and 1.96, 1.93 and 0.96 respectively. t-value of berry VMI, visual perception, motor coordination. 3.3003, 2.1624, 2.8014. p-value of berry VMI, visual perception, motor coordination. 0.0053, 0.0484, 0.0141 respectively.

**TABLE:4: Comparison Of VMI, Visual perception and motor coordination scores between control and experimental group in Post test.**

Factor	Group	Mean	SD	T-value	P-value
BERRY VMI	Control Post-test	7.40	1.18	2.3664	0.0251
	Experimental Post-test	5.80	2.34		
VISUAL PERCEPTION	CONTROL POST-TEST	8.87	1.64		

	EXPERIMENTAL POST-TEST	10.53	1.96	2.5254	0.0175
MOTOR COORDINATION	CONTROL POST-TEST	8.00	1.69	2.1246	0.0426
	EXPERIMENTAL POST-TEST	6.93	0.96		

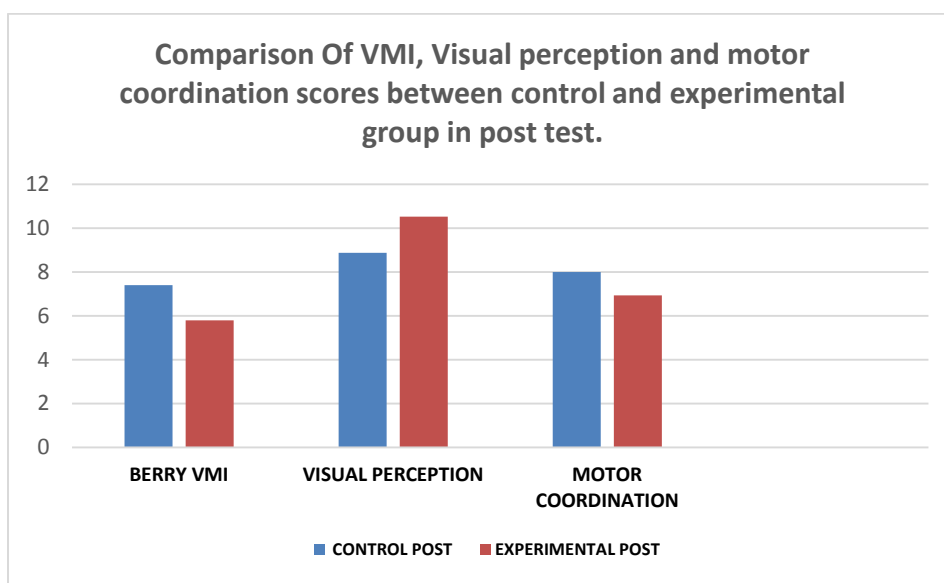


Table 4 and graph 4: Unpaired t test shows the comparison of post -test scores between control and experimental group, mean value of berry VMI, visual perception, motor coordination .7.40 and 5.80, 8.87 and 10.53, 8.00 and 6.93. standard deviation values of berry VMI, visual perception, motor coordination. 1.18 and 2.34 ,1.64 and 1.96 ,1.69 and 0.96 respectively. t- value of berry VMI, visual perception, motor coordination. 2.3664 ,2.5254,2.1246. p-value of berry VMI, visual perception, motor coordination .0.0251 ,0.0175,0.0426 respectively.

TABLE 5

**Comparison writing skills between control and experimental group in pretest**

Group	Test	Mean	S.D value	't' value	'P' value
Control Group	Pre test	13.9	2.05	0.917	0.367
Experimental Group	Pre test	14.7	2.32		

GRAPH 5

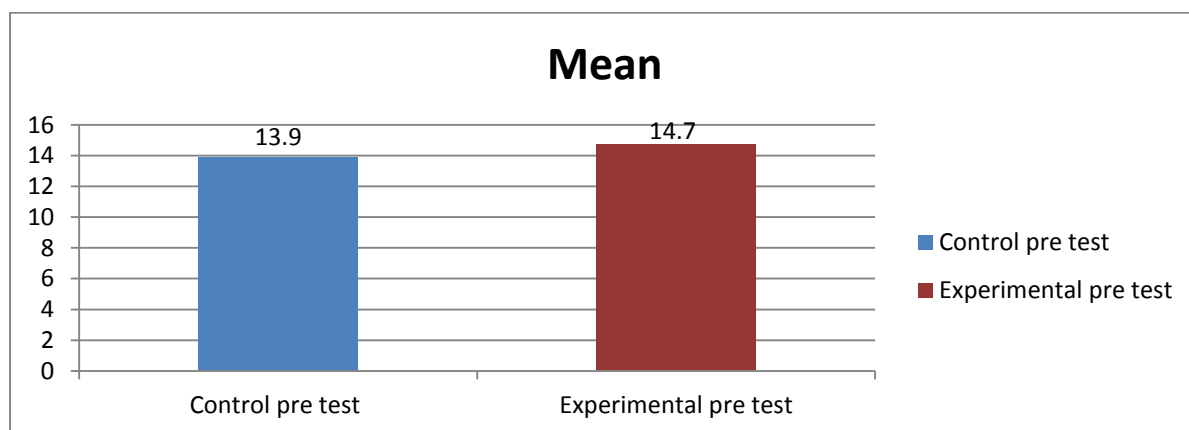
**Comparison of writing skills between control and experimental group in pretest**

Table 5 and Graph 5, shows the comparison of writing scores of control group and experimental group pre-test, Mean value of control group and experimental group are 13.9 and 14.7 respectively, and t value is 0.917 and 'p' value is 0.367, which shows it is not statistically significant.

**TABLE 6****Comparison of writing skills scores between control and experimental group in posttest**

Group	Test	Mean	S.D	't' value	'p' value
Control Group	Post test	14.2	2.04	5.960	<0.0001
Experimental Group	Post test	20.2	3.32		



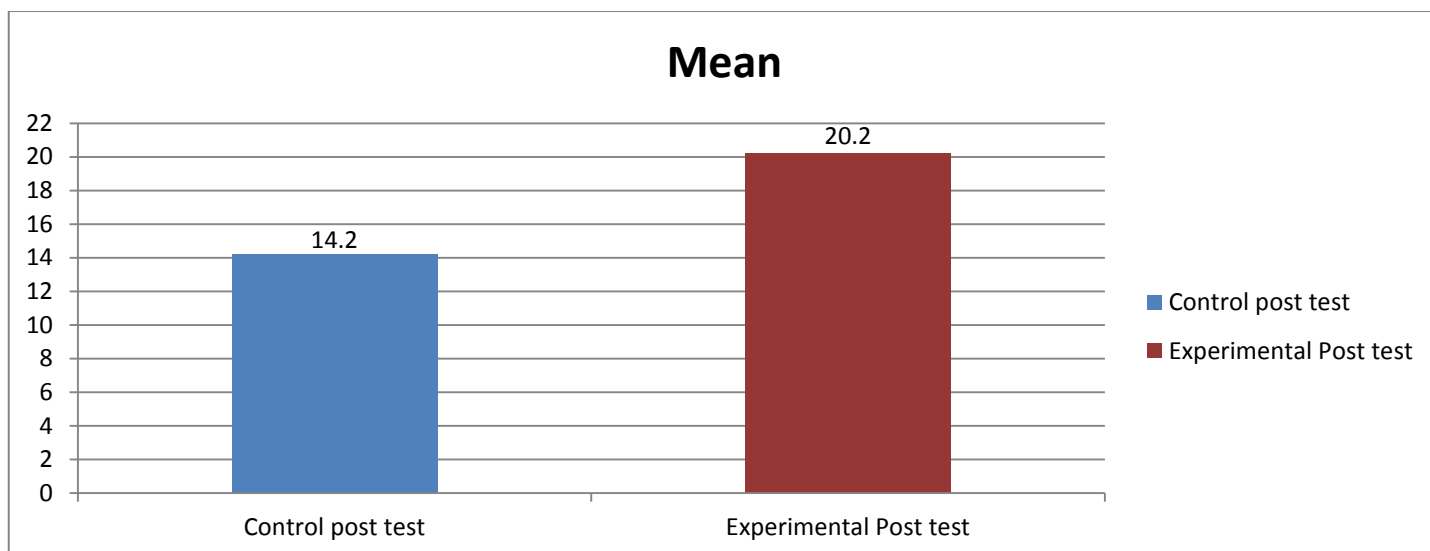
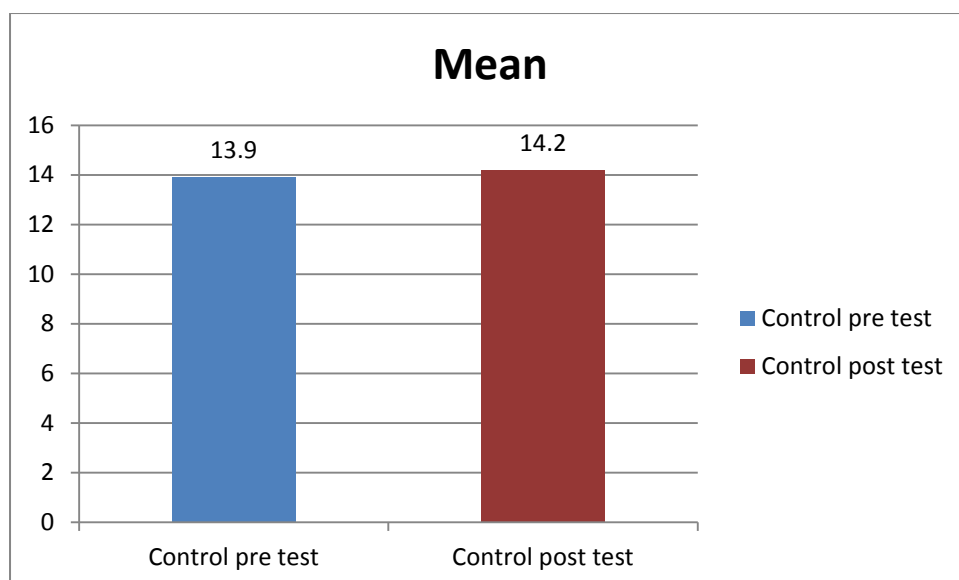
**GRAPH 6****Comparison writing skills scores between control and experimental group in post test**

Table 6 and Graph 6, shows the comparison of writing scores between control group and experimental group in post test. Mean value of post-test control group and post-test experimental group are 14.2 and 20.2 respectively, and the t value is 5.960 and p value is less than  $<0.0001$ . Therefore there is significant difference between pre-test and post-test of experimental groups.

**TABLE 7****Comparison of writing skills scores between pre-test and post-test in control group.**

Group	Test	Mean	S.D	't' value	'P' value
Control group	Pre test	13.9	2.05	1.468	0.164
	Post test	14.2	2.04		

**GRAPH 7**

**Comparison of writing skills score between pre-test and post-test in control group.**

Table 7 and Graph 7, shows the comparison of writing skills scores between pre-test and post-test of control group. Mean value of control group is 13.9 and 14.2 and t value is 1.468 and the p value is 0.164, which shows it is not statistically significant.

**TABLE 8**

**Comparison writing skills score between pre-test and post-test in Experimental group.**

Group	Test	Mean	S.D value	't' value	'p' value
Experimental group	Pre test	14.7	2.32	10.741	<0.0001
	Post test	20.2	3.32		

GRAPH 8

Comparison of writing skills score between pre-test and post-test in Experimental group.

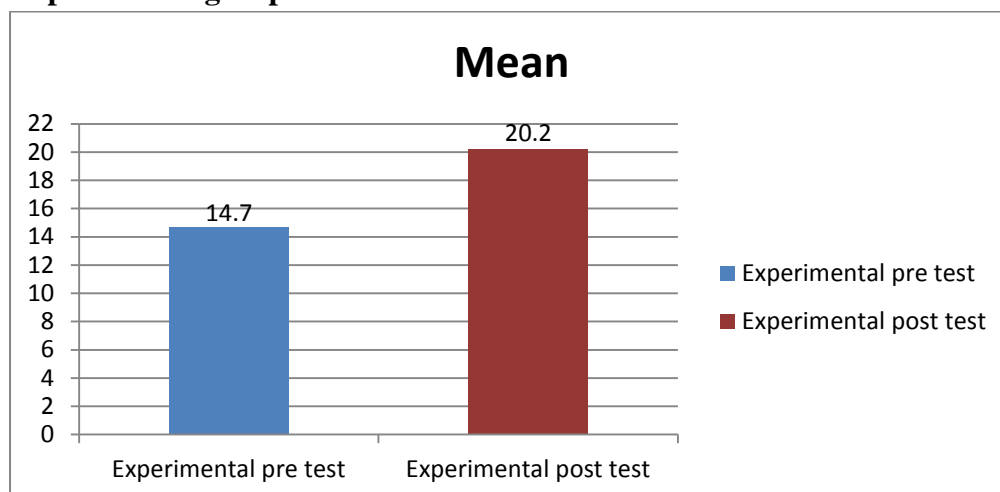


Table 8 and Graph 8, shows the comparison writing skills scores between pre and post test of experimental group. The mean value of pre and post test of control group are 14.7 and 20.2 respectively and t value is 10.741 and p value is less than 0.0001, which shows the result is statistically significant.

## DISCUSSION

The purpose of study was to find out the effect of graded creative activities on pre-writing among learning disability children. The finding of this study in many ways support much of the research, literature and specific theories which gave impetus to study. The finding offers evidence of growth in overall pre-writing ability as well as description of the specific type of activities in which these particular children engaged over the course of the study. There is evidence from this study, that a significant amount of change and growth can be effect through external intervention specifically in term of creating a creative activity of conducive to pre-writing.

The first specific objective of this study was to compare the mean Berry VMI scores of samples of pre-school children. The finding of Berry VMI, visual perceptual, motor co-ordination skill of pre-scholars. As observed from table 1 of p-value is 0.6182, 0.1007, 0.1813, the data collected was analyzed in term of mean, standard deviation of control pre and experimental pre group of the collecting the data assessment before giving the creative activities of the children. There is no significant difference between the control pre and experimental pre-test of VMI, VP, MC. It indicates the unanimity of the samples.

From table 2 of p-value 0.755, 0.4688, 0.0001, it was seen that both control pre and post-test were found of pre writing. There is no significant difference in pre and post values of control group in VMI, VP, and MC.

It was observed from Table 3 that there is a comparison of scores between pre and post-test of experimental group. This shows that there is extremely significant difference between pre-test values and post-test values of experimental group in VMI, VP, and MC. It indicates that graded creative activities along with conventional occupational therapy will provide significant improvements on Visual motor integration, visual perception and motor coordination functions among children with learning disabilities.

Also, it was observed from graph 4 that there is comparison of data score between control and experimental group on post test. Creative activities of Paper mat weaving, mosaic tiles, Trace the line activity, are the most effective in pre-writing skill developing scribbling, tracing, and drawing patterns<sup>8</sup>.

Thus, it can be inferred that graded creative activities, develops better pre-writing skills. Similarly other studies by various author concluded the same.

The result of our study was consistent by following authors Kelly Campbell<sup>5</sup> revealed that they found the capture the progression from scribble lines into shape, letters, first words to be predictive of the quality of pre-writing.

Table 5 and Graph 5, shows the comparison of reading and writing skills scores between control group and experimental group in pre-test. Mean value for control group and experimental group are 13.9 and 14.7 respectively, “t” value is 0.917 and ‘p’ value is 0.367, which shows it is not statistically significant. Both group were same before the intervention.

Table 6 and Graph 6, shows the comparison of reading and writing skills scores between control group and experimental group in post test. Mean value of control group and experimental group are 14.2 and 20.2 respectively, ‘t’ value is 5.960 and ‘p’ value is less than  $< 0.0001$ . it shows the significant difference between control and experimental group on reading and writing skills.

Table 7 and Graph 7, shows the comparison of reading and writing skills scores between pre-test and post-test of control group. Mean values of pre and post test values of control group are 13.9 and 14.2 and ‘t’ value is 1.468 and the ‘p’ value is 0.164, which is not statistically significant.

Table 8 and Graph 8, shows the comparison of reading and writing skills scores between pre and post-test of experimental group. The mean values of pre and post test of experimental group are 14.7 and 20.2 respectively and ‘t’ value is 10.741 and ‘p’ value is less than 0.0001, which results in an extremely statistically significant.

Various activities of the children from 6 to 7 years of age of developing the fine motor skills and visual-motor development. Graded creative activities such as Maze activity, Connecting the number activities<sup>9</sup>, Alphabets stamping activity, Picture tracing activity, Origami<sup>10</sup> will help and transfer the learning of shapes to formation of letter and numbers.

More over the graded creative activities in the age of 6-7 years will help in pre reading and pre-writing skills among learning disability children. Hence the researcher accepts the alternative hypothesis and reject null hypothesis.

### **LIMITATION AND RECOMMENDATION**

The sample size was small, with shorter duration and with confined age group of 6-7 years. Further study is recommended with larger sample size, different age group & comparison can be done based on gender and other variables.

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