CHAPTER IV

Results and Discussions

The investigations' goal was to find out more about, "Enhancement of Cognitive Abilities among Learning Disabled". Learning disabilities are common among majority of the children. Prevalence of Learning Disability, types of deficits of scholastic skills were reported to be 3-10 percent among student's population. In another study, The prevalence of Specific Learning Disability was observed to be 13% among students in elementary school from Rural India. Arun et al. (2003) conducted study in Chandigarh and found out 1.58% in the age range of twelve to eighteen years students in school had a distinct learning difficulty. Mayeset al. (2000) showed that a disorder of written expression was almost as common as reading and arithmetic difficulties. A birth cohort of school aged children depending on the population, Katusic et.al (2001) discovered that written expression disorder was nearly as common as reading difficulty. In orthographic skills, boys were twice as likely as girls to have problems with written expression. This could explain why children have varying levels of writing ability. In India, 14 percent of school children suffer from dysgraphia, whereas 5.5 percent suffer from dyscalculia.

Thoppukaranam (Super Brain Yoga) was a classic and effective technique for recharging and energising the brain. It is based on subtle energy principles and the release of energy from certain pressure points in the ear. Grand Master Choa Kok Sui, a Scientist and Spiritual Yogi developed and standardised the approach. Students with disabilities such as attention deficit hyperactivity disorder/ attention deficit disorder, developmental and cognitive delays, Down Syndrome and various learning challenges were included in pilot research on the impact of Thoppukaranam (Super Brain Yoga) on school children. Academic and behavioural performance, visuomotor speed, eye-hand coordination, improved social skills and interaction. Thoppukaranam (Super Brain Yoga) can be practised by people of all ages and professions, including nurses, social workers and therapists. Thoppukaranam (Super Brain Yoga) can help people improve their memory, mental clarity, managing stress, problem-solving skills, creativity and learning new skills. Therefore, the present study explored the Enhancement of Cognitive Abilities among Learning Disabled.

From Various zones of Coimbatore city, two schools were selected for the study. The students from class III to V were selected to serve as the sample. Sixty students were selected and administered with Case Study Schedule, Raven's Coloured Progressive Matrices, Few tests were selected from Delis Kaplan Executive Function system was used to assess their cognitive abilities. Further the participants were also split into two groups. Group I consisted of participants who participated in the intervention (Experimental Group). Group II consisted of participants who did not participate in the intervention (Waitlist Control Group). The data collected from the participants for the Before, After and Follow-up Phases were subjected to statistical analysis. The findings are presented in the sections below:

Section I shows the outcomes of the Percentage analysis of the Demographic Data such as Education, Birth Order, Family Type and Place of Living.

Section II presents the results of the Descriptive Statistics, Repeated Measures ANOVA, Post hoc Pairwise comparison during Before, After and Follow-up phases to find out the Efficacy of the Intervention and Enhancement of Cognitive Abilities in Raven's Coloured Progressive Matrices.

Section III presents the results of the Descriptive Statistics, Repeated Measures ANOVA, Post hoc Pairwise comparison during Before, After and Follow-up phases to find out the Efficacy of the Intervention and Enhancement of Cognitive Abilities in Delis Kaplan Executive Function System.

Section - I

This section shows the result of the Percentage level of the Demographic Data such as Education, Birth Order, Family Type and Place of Living.

Table-1

Demographic Variables of the Learning Disabled N=60

Variables		Number	Percentage
Age	8	17	28
	9	25	42
	10	18	30
Education	III	18	30
	IV	22	36
	V	20	34
Gender	Girls	30	50
	Boys	30	50
Family Type	Nuclear	39	65
	Joint	21	35
Place of Living	Rural	43	72
	Urban	17	28

Percentages are rounded off

Majority of the participants (42%) were 9 years old, 30% were 10 years old and 28% were 8 years; 30% were pursuing in 3rd standard, 36% were in 4th standard and 34% were from v standard; majority (65%) were belonged to Nuclear Family and 35% belonged to Joint Family; preponderance (72%) were from Rural background and 28% were from Urban.

Section - II

Raven's coloured progressive matrices (RCPM)

This Section presents the Descriptive Statistics, Repeated Measures of ANOVA, Post hoc Pairwise comparison during Before, After and Follow-up phases to find out the Efficacy of the Intervention and for the enhancement of Cognitive Abilities among the Participants in RCPM.

Table - 2

Mean and Standard Deviation of Raven's Coloured Progressive Matrices among the Experimental Group in Before, After and Follow-up Phases

Group	Intervention	Mean	Standard Deviation
Experimental Group	**Before**	15.30	2.91
	After	16.97	3.57
	Follow-up	18.43	3.63

Table 2 shows the Mean and Standard Deviation score of Raven's Coloured Progressive Matrices among Learning Disabled Students during Before, After and Follow-up Phases. The results indicated that the level of Intelligence was slightly improved in After and Follow-up Phases. Klingberg, Forssberg and Westerberg (2010) conducted a research on Training of Working Memory in Children with Attention Deficit Hyperactivity Disorder followed a new effect of training, which was examined using a Double Blind Placebo Controlled Design using a training Paradigm with Intensive and Adaptive Training of Working Memory Tasks which significantly improved non trained visuo spatial memory working task based on their performance. Similarly, for children with cerebral palsy raven's-coloured progressive matrices were used as a cognitive functioning in by Pueyo et al. (2008). About thirty members with severe motor impaired cerebral palsy, range of speech impairments, visual perceptual, verbal, retrieval skills and cognitive skills which is related to the frontal lobe were assessed. The performance of raven's coloured progressive matrices was linked to verbal memory, visual tasks and visuoperceptual tasks but not with the frontal functions. Ravens Coloured Progressive Matrices were best predicted by receptive vocabulary and visuo spatial measurements. Thomas and Venkatesh (2017) compared the effects on Attentional Control and Working Memory. The selected participants were randomly assigned to Thoppukaranam (Super Brain Yoga) and Simple Squats Groups. This shown that Thoppukaranam, "Super Brain Yoga" improved both Working Memory and Attention Control components of cognition.

Table 3

Mean and Standard Deviation of Raven's Coloured Progressive Matrices among the Waitlist Control Group in Before, After and Follow-up Phases

Group	Phases	Mean	Standard Deviation
Waitlist Control Group	**Before**	15.57	3.21
	After	15.53	3.23
	Follow-up	15.53	3.23

Table 3 presents the Mean and Standard Deviation of Raven's Coloured Progressive Matrices among the Waitlist Control Group in Before, After and Follow-up Phases and there were not many changes in it.

Table 4

Repeated Measures ANOVA for Raven's Coloured Progressive Matrices among the Experimental and Waitlist Control Group in Before, After and Follow-up Phases

Source		Sum of Squares	df	Mean Square	F
Phases	**Sphericity Assumed**	69.689	2	34.84	30.41**
	Greenhouse Geisser	69.689	1.96	36.671	30.41**
	Huynh Feldt	69.689	2.00	34.844	30.41**
	Lower Bound	69.689	2	69.681	30.41**
Phases X Groups	**Sphericity Assumed**	0.20	2	0.10	0.92N. S
	Greenhouse Geisser	0.20	1.90	0.10	0.90N. S
	Huynh Feldt	0.20	2.00	0.10	0.92N. S
	Lower Bound	0.20	1.00	0.20	0.77N. S

**** = Significant at 0.01 Level** **NS= Not Significant**

Table 4 shows the results of Measures ANOVA for Raven's Coloured Progressive Matrices among the Experimental and Waitlist Control Group in Before, After and Follow-up Phases. It clearly shows that there was a significant difference among the experimental group compared to the Waitlist control group and the intervention was very effective. Raven's Coloured Progressive Matrices was

administered to the forty-eight down syndrome children and 48 typical children, using the transformed item difficulties method, a statistical approach designed to detect differential item functioning between groups with intellectual disability of undifferentiated children. It was concluded that Raven's Coloured Progressive Matrices can be utilised in comparative studies with a high level of confidence. Mehra and Das (2020) discussed Thoppukaranam (Super Brain Yoga) was a technique that could be safely introduced into one's lifestyle starting at a young age and continued until death. This exercise, which is an age-old elixir for energising the brain, which has numerous benefits when performed on a daily basis. Intelligence, creativity and overall performance of an individual can all benefit from optimal brain functioning.

Table 5

Pairwise Comparisons for Raven's Coloured Progressive Matrices among the Experimental Group in Before, After and Follow-up Phases

Phases (I)	Phases(J)	Mean Difference (I-J)	Standard Error
Before	After	-1.00*	0.12
	Follow-up	-1.60*	0.22
After	Before	1.00*	0.12
	Follow-up	-0.60*	0.21
Follow-up	Before	1.60*	0.22
	After	0.60*	0.21

*** = Significant at 0.05 Level**

Table 5 shows the Pairwise Comparison for Raven's Coloured Progressive Matrices. It clearly indicates that there was a significant difference between Before, After and Follow-up phases among the Experimental Group in Intelligence. Mehra and Nanda (2021) conducted the cognitive accomplishment of Thoppukaranam (Super Brain Yoga) to 90 girl students in the age range of fifteen to nineteen years were chosen from a variety of institutionsof Bhubaneshwar had the understanding of practicing Yoga. An online Mizen Meta Memory and Meta ConcentrationTEST was administered to evaluate the effectiveness of Thoppukaranam (Super Brain Yoga) in improving the ability to concentrate and memory of the subjects. Findings showed that Thoppukaranam (Super Brain Yoga) increased focus and memory performance,

indicating an independent and dependent association between Thoppukaranam (super brain yoga) and cognitive abilities.

Table 6

Pairwise Comparisons for Raven's Coloured Progressive Matrices among the Waitlist Control Group in Before, After and Follow-up Phases

Phases (I)	Phases(J)	Mean Difference (I-J)	Standard Error
Before	**After**	0.03 NS	0.03
	Follow-up	0.03 NS	0.03
After	**Before**	-0.03 NS	0.03
	Follow-up	0.00 NS	0.00
Follow-up	**Before**	-0.03 NS	0.03
	After	0.00 NS	0.00

NS = Not Significant

Table 6 Shows the Pairwise Comparison of Raven's Coloured Progressive Matrices among the Waitlist Control group in Before, After and Follow-up Phases and it clearly indicated that there was no significant difference.

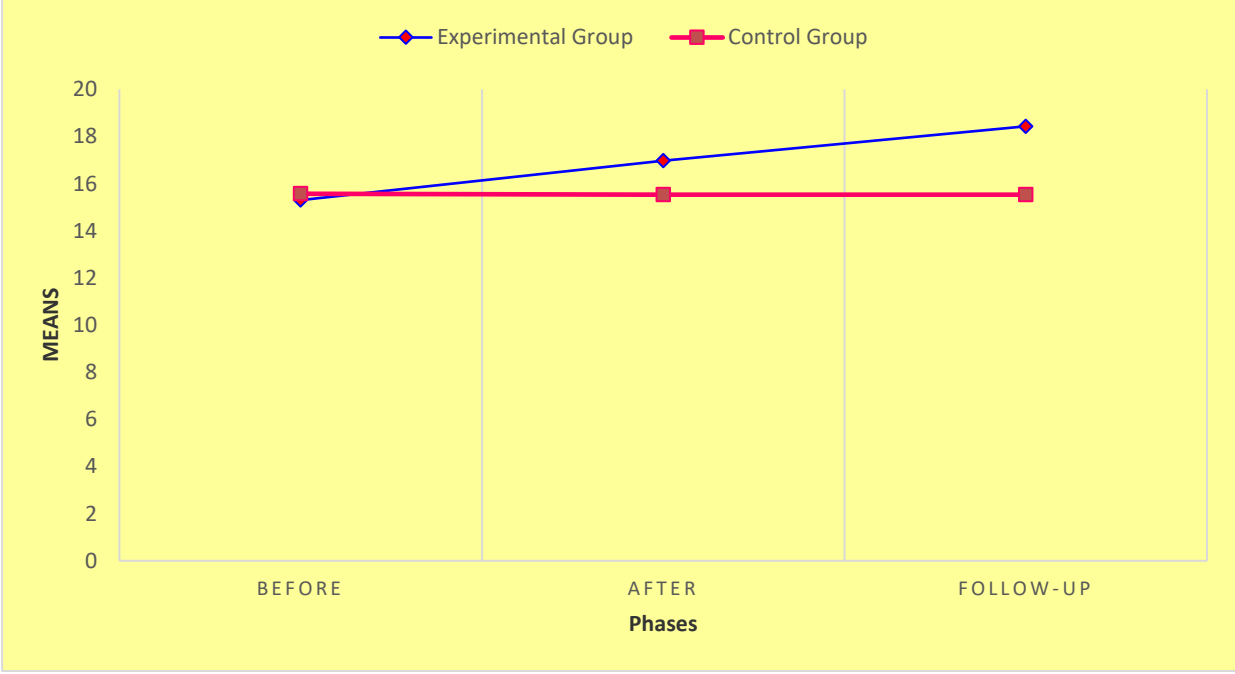

Figure 1. Raven's Coloured Progressive Matrices among Experimental and Waitlist Control Group during Before, After and Follow-up Phases

Figure 1 shows the difference between Before, After and Follow-up Phases in Raven's Coloured Progressive Matrices among Experimental and Waitlist Control Group. The Graph depicts that the participants from Experimental Group showed a difference compared to Waitlist Control Group. Therefore, the intervention enhanced the Cognitive abilities among the participants. Hence the Alternative Hypothesis 1, **"There will be significant difference between Before, After and Follow-up phases in Raven's Coloured Progressive Matrices among the Learning Disabled Children in the Experimental Group"** is accepted and Hypothesis 2, **"There will be significant difference between Before, After and Follow-up phases in Raven's Coloured Progressive Matrices among the Learning Disabled Children in the Waitlist Control Group"** is rejected.

Section-III

DELIS KAPLAN EXECUTIVE FUNCTION SYSTEM -Delis Kaplan Executive Function System

This Section presents, "The results of the Descriptive Statistics, Repeated Measures ANOVA, Post hoc Pairwise comparison during Before, After and Follow-up phases to find out the Efficacy of the Thoppukaranam and enhancement of cognitive abilities in Delis Kaplan Executive Function System"

Table 7

Mean and Standard Deviation of Visual Scanning in Trial Making Test among the Experimental Group in Before, After and Follow-up Phases

Group	Intervention	Mean	Standard Deviation
Experimental Group	**Before**	11.07	2.40
	After	12.77	1.75
	Follow-up	13.10	1.95

Table 7 Shows the Mean and Standard Deviation of Visual Scanning in Delis Kaplan Executive Function System trial making test among the Experimental Group in Before, After and Follow-up Phases. Everatt, Bradshaw and Hibbard (1998) compared Dyslexics and Non Dyslexics, Vernier Acuity and Orientation Acuity Tasks

were used to assess their abilities. The severe difficulty dyslexics performed poorly in task on motion coherence. This information was in line with earlier research suggesting that dyslexics had problems with the Magnocallular visual pathway. Sadati and Bazargard (2020) analyzed that 70% Autism Spectrum Disorder Children had low or very low level of Intelligence Quotient and had poor balance. They conducted a study among 20 elementary school boys from Besharat in Tehran, the data was collected using Wechsler Intelligence scale for children and They were made to perform Thoppukaranam (Super Brain Yoga) and 12 weeks of Yoga. Results indicated that it would be advisable to practice Thoppukaranam (Super Brain Yoga) exercises for improving educational achievement for Slow paced children.

Table 8

Mean and Standard Deviation of Visual Scanning in Trial Making Test among the Waitlist Control Group in Before, After and Follow-up Phases

Group	Intervention	Mean	Standard Deviation
Waitlist Control Group	**Before**	11.17	1.34
	After	11.97	1.32
	Follow-up	11.80	1.06

Table 8 shows the Mean and Standard deviation of Visual Scanning of Trial Making test in Delis Kaplan Executive Function among the Waitlist Control Group in Before, After and Follow-up Phases. Before Intervention Mean Score was 11.17, After Intervention Mean Score was 11.97 and the Follow-up Mean Score was 11.80 respectively.

Table 9

Repeated Measures ANOVA for Visual Scanning in Trial Making Test among the Experimental and Waitlist Control group

Source		Sum of Squares	df	Mean Square	F
Phases	**Sphericity Assumed**	8.60	2	4.30	19.0**
	Greenhouse Geisser	8.60	1.36	6.34	19.0**
	Huynh Feldt	8.60	1.40	6.14	19.0**
	Lower Bound	8.60	1.00	8.60	19.0**
Phases X Interventions	**Sphericity Assumed**	1.40	2	0.70	3.1**
	Greenhouse Geisser	1.40	1.36	1.03	3.1**
	Huynh Feldt	1.40	1.40	1.00	3.1**
	Lower Bound	1.40	1.00	1.40	3.1**

**** = Significant at 0.01 level**

Table 9 shows the Repeated Measures ANOVA of Visual Scanning in Delis Kaplan Executive Function System Trial Making Test among Experimental, Waitlist Control Group. Visual Processing, also known as perceptual problems, is the inability to make sense of information received via the eyes. This is not the same as having vision or vision sharpness issues. Visual processing problems alter how the brain interprets and processes visual information. Results indicated that there was a statistical difference among the Experimental Group than the Waitlist Control Group. Aniruddha, Santakumari and Saroja (2020) investigated the effect Thoppukaranam (Super Brain Yoga) among 184 students in the age range of 11 to 13 years on their concentration. D2 test of Attention were used to assess total numbers of characters, numbers of characters omitted, the number of errors, before and after Thoppukaranam (Super Brain Yoga) to assess their concentration. Results showed that the neural basis of concentration lies between the Frontal and Parietal Association areas. When Thoppukaranam (Super Brain Yoga) was practiced it is thought that, strengthening of

synapses occurs due to firing rates of neurons within attention networks which resulted in high level of improved concentration and little visual pathway.

Table 10

Pairwise Comparisons for Visual Scanning in Trial Making Test among the Experimental Group in Before, After and Follow-up Phases

Phases(I)	Phases(J)	Mean Difference(I-J)	Standard Error
Before	**After**	-0.75*	0.23
	Follow-up	-0.83*	0.19
After	**Before**	0.75*	0.23
	Follow-up	-0.08 N. S.	0.13
Follow-up	**Before**	0.83*	0.19
	After	0.08	0.13

*= Significant at 0.05 level NS= Not Significant

The above table 10 shows the Pairwise Comparison for Visual Scanning in Delis Kaplan Executive Function System among Before, After and Follow-up Phases in Experimental Group. Chandrasekaran, Rajesh and Srinivasan (2014) conducted a research on selective attention and psychological states to find out the effectiveness of repetitive yogic squats with specific hand position (Thoppukaranam). Thirty undergraduate students were administered with the State Anxiety Inventory short form which was utilised to deliver the D2 test and the State Mindful Attention Awareness Scale was employed to assess cognitive performance and psychological states. Findings indicated that Thoppukaranam (Super Brain Yoga) resulted in the improvement of cognitive and psychological states of cognitive functioning and psychological states. It was discovered that Super Brain yoga made a substantial improvement in eye hand co-ordination, visual motor speed, behavioural and academic performance.

Table 11

Pairwise Comparisons for Visual Scanning in Trial Making Test among the Waitlist Control Group in Before, After and Follow-up Phases

Phases (I)	Phases(J)	Mean Difference (I-J)	Standard Error
Before	**After**	0.10 NS	0.11
	Follow-up	0.07 NS	0.14
After	**Before**	-0.10 NS	0.11
	Follow-up	-0.03 NS	0.07
Follow-up	**Before**	-0.07 NS	0.14
	After	0.03 NS	0.07

NS= Not Significant

Table 11 shows the Pairwise Comparison for Visual Scanning in Delis Kaplan Executive Function System among Before, After and Follow-up Phases in Waitlist Control Group. Results showed that there is a no significant changes among the participants in the Waitlist control Group.

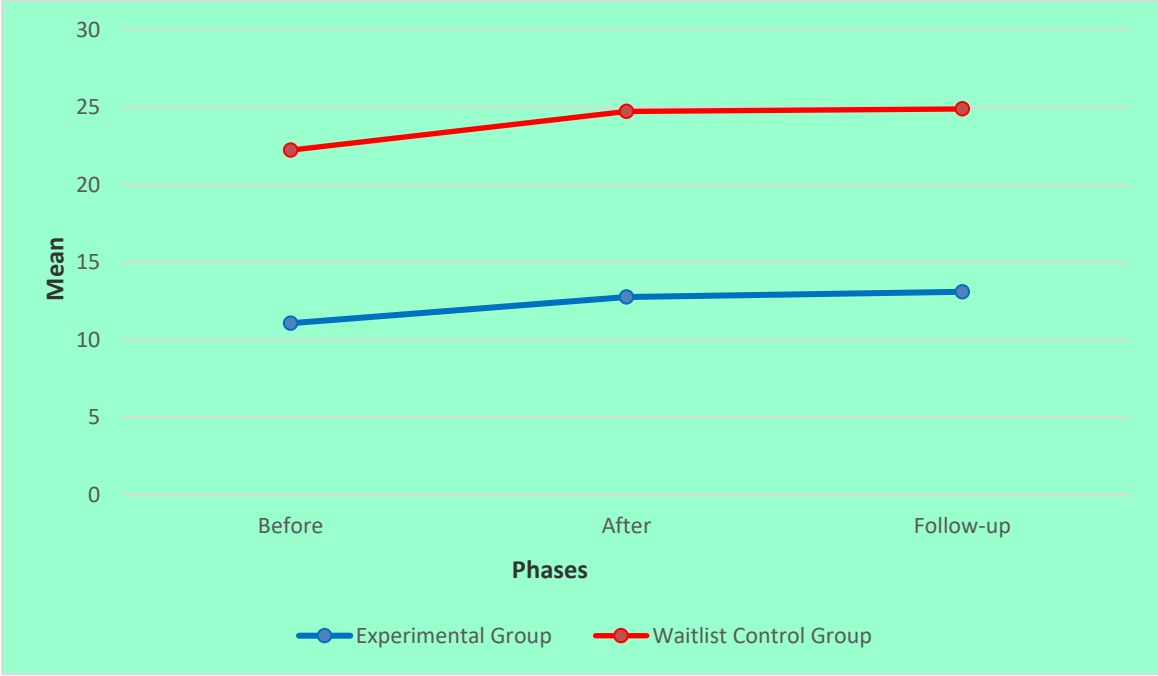

Figure 2. Visual Scanning in Trial Making Test among Experimental and Waitlist Control Group during Before, After and Follow-up Phases

The above graph shows that the Visual Scanning during Before, After and Follow-up Phases among Experimental and Waitlist control group. The subjects in the experimental group showed improvement in it. Waldron and Saphire (1992)

investigated the Learning Disabled students perceptual and academic patterns. They discovered24 learning disabled/skilled children ways of perceiving and recall auditory and visual information and apply it to reading, mathematics and spelling. They were assessed in mathematics, arithmetic and written calculation, word problems and numerical reasoning were covered. To develop perception and memory skills, students were given rigorous examinations of visual and auditory memory as well as auditory discrimination of sounds are all skills that can be developed. Their reading and mathematical computation responses were also scrutinized for indicators of visual impairment. Decoding, Spelling and most areas of mathematics were much lower in these learning disabled/gifted children than in control group. In addition, they performed much worse in auditory discrimination and memory as well as visual discrimination. Hence the Alternate Hypothesis 3, **"There will be significant difference between Before, After and Follow-up Phases in Visual Scanning of Delis Kaplan Executive Function System Trial Making Test among the Learning Disabled Children in the Experimental Group"** will be accepted and the Alternate Hypothesis 4, **"There will be significant difference between Before, After and Follow-up Phases in Visual Scanning of Delis Kaplan Executive Function System Trial making Test among the Learning Disabled Children in the Waitlist Control Group"** is rejected.

Table 12

Mean and Standard Deviation of Number Sequencing in Trial Making Test among the Experimental Group in Before, After and Follow-up Phases

Group	Intervention	Mean	Standard Deviation
Experimental Group	**Before**	12.07	2.26
	After	13.43	1.48
	Follow-up	13.87	1.60

Table 12 shows the Mean and standard deviation scores of Number Sequencing in Delis Kaplan Executive Function System Trial Making Test among Experimental Group in Before, After and Follow-up Phases and the Mean value for Before, After and Follow-up Phases were 12.07,13.43 and 13.87 respectively and there was

significant differences after intervention. The kids struggle to complete tasks in the correct order. It's possible that they couldn't pay attention to the steps in the first place. Some kids have issues in processing. Counting, Naming the numbers, remembering the numbers and writing them down will be very difficult for them. This fundamental issue is referred to as "Number sense" children usually rely on procedure based counting. This is reflected in basic activation of dorsal ganglia, which is involved in working Memory. Learning Disabled children often have memory issues and Thoppukaranam (Super Brain Yoga) improved their memory.

Table 13

Mean and Standard Deviation of Number Sequencing in Trial Making Test among the Waitlist Control Group in Before, After and Follow-up Phases

Group	Intervention	Mean	Standard Deviation
Waitlist Control Group	**Before**	11.43	1.35
	After	11.93	1.46
	Follow-up	11.87	1.19

Table 13 depicts the Mean and Standard Deviation scores of Number sequencing of Delis Kaplan Executive Function System Trial Making Test among Waitlist Control Group in Before, After and follow-up Phases" and significant difference was not found in the above table.

Table 14

Repeated Measures ANOVA for Number Sequencing in Trial Making Test among the Experimental and Waitlist Control group

Source		Sum of Squares	df	Mean Square	F
Phases	**Sphericity Assumed**	12.03	2	6.01	6.12**
	Greenhouse Geisser	12.03	1.40	8.56	6.12**
	Huynh Feldt	12.03	1.45	8.27	6.12**
	Lower-Bound	12.03	1.00	12.03	6.12**
Phases X Interventions	**Sphericity Assumed**	46.67	2	23.33	23.75**
	Greenhouse Geisser	46.67	1.40	33.22	23.75**
	Huynh Feldt	46.67	1.45	32.10	23.75**
	Lower- Bound	46.67	1.00	46.67	23.75**

****= Significant at 0.01 Level**

Table 14 shows the Repeated Measures ANOVA for Number Sequencing in Delis Kaplan Executive Function System Trial making test among Experimental, Waitlist Control Group. The knowledge of mathematical concepts, according to Piaget (1969), is closely linked to stage specific development. Object permanency, seriation, classification is some of the concepts that emerge during the sensory motor period. Cohn (1961) observed that memory and order disorders frequently cooccurred with numerical problems. Thomas and Venkatesh (2017) assessed the effects of Thoppukaranam (super brain yoga) impacts cognitive functions, as well as performing the squats in a simple manner, attentional control and working memory. Medical college students, were made to practice Thoppukaranam (Super Brain Yoga) and simple squats. Attentional control along with working memory were assessed over 4 weeks period. The results concluded that Thoppukaranam (Super Brain Yoga) both attentional control and working memory components of cognition were improved. The

effect was more pronounced on working memory than attentional control in the Thoppukaranam (Super Brain Yoga) group compared to simple squat group.

Table 15

Pairwise Comparisons for Number Sequencing in Trial Making Test among the Experimental Group in Before, After and Follow-up Phases

Phases	Phases	Mean Difference	Standard Error
Before	**After**	-0.43 NS	0.22
	Follow-up	-0.61*	0.18
After	**Before**	0.43 NS	0.22
	Follow-up	-0.18 NS	0.11
Follow-up	**Before**	0.61*	0.18
	After	0.18	0.11

*= significant at 0.05 level NS= not significant

Table 15 shows the Pairwise Comparisons of Number sequencing in Delis Kaplan Executive Function System Trial Making Test among Experimental Group in Before, After and Follow-up Phases. Mean Difference shows that there was a significant difference at 0.05 levels among the participants in after and follow-up phases. Murat et al. (2020) selected thirty six participants from Malaysia to examine the effectiveness of brainwave dominance, balancing index and short term memory. Participants were made to exercise Thoppukaranam (Super Brain Yoga) 30 times, twice a day for about two weeks. To measure the Brainwave balancing index and Brainwave Dominance (EEG- Electroencephalogram) was carried out. Digit Span assessment was carried out before and after intervention. The results showed that Brainwave balancing and Digit Span was improved and it was statistically significant.

Table 16

Pairwise Comparisons for Number Sequencing in Trial Making Test among the Waitlist Control Group in Before, After and Follow-up Phases

Phases	Phases	Mean Difference	Standard Error
Before	**After**	**0.50 NS**	**0.30**
	Follow-up	**0.56 NS**	**0.22**
After	**Before**	**0.50 NS**	**0.30**

	Follow-up	**0.06 NS**	**0.19**
Follow-up	**Before**	**0.56 NS**	**0.22**
	After	**0.06 NS**	**0.19**

NS= Not Significant

Table 16 shows the Pairwise Comparisons of Number Sequencing in Delis Kaplan Executive Function System Trail Making Test among Waitlist Control Group in Before, After and Follow-up Phases and it was not statistically significant.

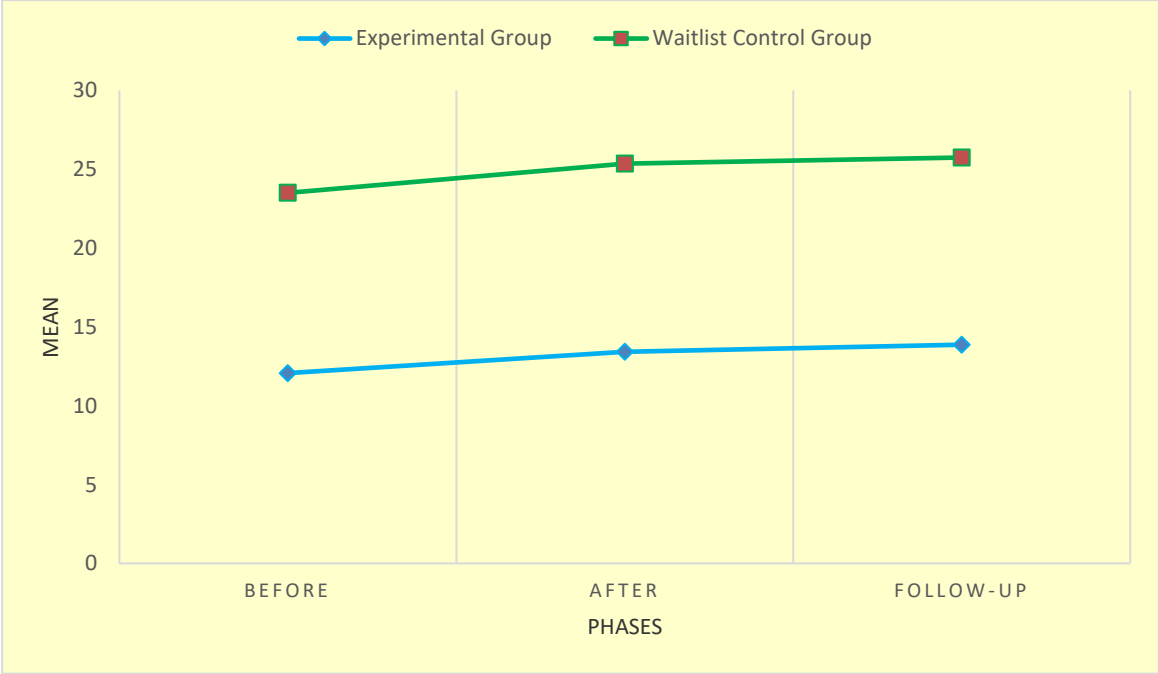

Figure 3. Number Sequencing in Trial Making Test among Experimental and Waitlist Control Group during Before, After and Follow-up Phases

Figure 3 shows the Number Sequencing in Trial Making Test during Before, After and Follow-up Phases of Experimental Group and Waitlist Control Group. There was a slight difference in Before, After and Follow-up Phases among the participants in the Experimental Group. Genovese, Jeremy and Kathleen (2015). Based on the Number facility test to increase performance on a cognitive task, researchers investigated the efficacy of super brain yoga's possible effect on academic achievement. Thirty adults first completed the initial version of the Number Facility test as well as Super Brain Yoga which is considered to be Standardized squats Secondly 30 adults completed the test and performed Squats and 2 alternative forms of Super Brain Yoga. Results indicated that Thoppukaranam (Super Brain Yoga) was very effective and had an effect on cognitive skills. Hence the Alternate Hypothesis 5, **"There will be significant**

difference between Before, After and Follow-up Phases in Number Sequencing of Delis Kaplan Executive Function System Trial Making Test among the Learning Disabled Children in the Experimental Group" is Accepted and the alternate hypothesis 6, **"There will be significant difference between Before, After and Follow-up Phases in Number Sequencing of Delis Kaplan Executive Function System Trial Making Test among the Learning Disabled Children in the Waitlist Control Group"**is rejected.

Table 17

Mean and Standard Deviation of Letter Sequencing in Trial Making Test among the Experimental Group in Before, After and Follow-up Phases

Groups	Intervention	Mean	Standard Deviation
Experimental Group	**Before**	20.83	2.33
	After	23.97	2.53
	Follow-up	24.93	2.71

Table 17 shows the Mean and Standard Deviation of Letter Sequencing in Delis Kaplan Executive Function System Trial Making Test among Experimental Group in Before, After and Follow-up Phases. Letter Sequencing was carried out to identify the letter which is missing in the letter sequence. The letter sequence has a pattern that could be linked to both arithmetical and letter sequences. Louvettet al. (1990) fifty four reading challenged kids were randomly allocated to one of two-word recognition and they were made to participate in spelling training programmes to improve their word recognition skills. The participants in the word training programme improved their accuracy of word recognition and spelling speed. Overall, there was a successful performance from the experimental group than the control group at post-test. The findings showed that instructions given to the readers with dyslexia will be successful,but the readers did not benefit differently from letter sound training and the word training. Bourassa and Treiman (2001) reviewed about Spelling Development and Disability. Once children understand the purpose of alphabetic writing is to represent language sounds, they go through a process of learning sound spelling

correspondences in ever-increasing depth. Children can learn about the language's orthographic and morphological rules through continued exposure to print. The conclusion is that such an approach has a lot of potential.

Table 18

Mean and Standard Deviation of Letter Sequencing in Trial Making Test among the Waitlist Control Group in Before, After and Follow-up Phases

Groups	Intervention	Mean	Standard Deviation
Waitlist Control Group	**Before**	25.20	1.06
	After	25.20	1.06
	Follow-up	25.20	1.06

Table 18 indicates the Mean and Standard Deviation of Letter Sequencing in Delis Kaplan Executive Function System Trial Making Test among Waitlist Control Group in Before, After and Follow-up Phases" and there were no differences.

Table 19

Repeated Measures ANOVA for Letter Sequencing in Trial Making Test among the Experimental and Waitlist Control Group

Source		Sumof Squares	df	Mean Square	F
Phases	**Sphericity Assumed**	132.21	2	66.10	31.67**
	Greenhouse Geisser	132.21	1.63	81.20	31.67**
	Huynh Feldt	132.21	1.70	77.89	31.67**
	Lower Bound	132.21	1.00	132.21	31.67**
Phases X Intervention	**Sphericity Assumed**	147.66	2	73.83	35.37**
	Greenhouse Geisser	147.66	1.63	90.70	35.37**

	Huynh Feldt	147.66	1.70	86.10	35.37**
	Lower Bound	147.66	1.00	147.66	35.37**

****= Significant at 0.01 Level**

Table 19 shows the Repeated Measures ANOVA for Letter Sequencing in Delis Kaplan Executive Function System Trial Making Test among Experimental, Waitlist Control Group. Gabay, Schiff and Vakil (2012) investigated among the Individuals with Developmental dyslexia and the participants in Control Groups were tested on their learning procedure of letters and motor sequences. The serial search activity was completed independently by both groups, allowing for the examination of letter names and motor sequences. Both the letter names and the motor sequence were learned by Control Participants. Individuals with Developmental Dyslexia, on the other hand, had trouble learning the letter names sequence but were able to transfer the motor sequence reliably. The findings suggest that in people with developmental dyslexia, the procedural learning system of language is more inadequate than the motor procedural learning system. The separation of motor and letter name sequence learning among people with Developmental dyslexia also suggests that the processes underpinning these two tasks were separate. Studies have been effective in determining the impact of Thoppukaranam (Super Brain Yoga) on brain activity, and research shown that it has a significant impact on brain waves. Data showed that fifteen minutes of Thoppukaranam (super brain yoga) can cause an increase level of alpha wave activity, which can improve one's cognitive abilities. The more alpha waves stimulated, the better the cognitive advantages.

Table 20

Pairwise Comparisons for Letter Sequencing in Trial Making Test among the Experimental Group in Before, After and Follow-up Phases

Phases	**Phases**	**Mean Difference**	**Standard Error**
Before	**After**	-1.70*	0.29
	Follow-up	-1.92*	0.29
After	**Before**	1.70*	0.29
	Follow-up	-0.21	0.20
Follow-up	**After**	1.92*	0.29

	Before	0.21	0.20

***= Significant at 0.05 Level**

Table 20 shows the Pairwise comparisons of Letter Sequencing in Delis Kaplan Executive Function System, Trial Making Test among Experimental Group in Before, After and Follow-up Phases. For a period of thirty days, children were introduced Thoppukaranam (super brain yoga) by their teachers. To obtain information from them, the Mizan Meta Memory and Meta Concentration Scale was used. All of the subjects were put through a memory test with the use of ten nonsense syllables. The session was recorded after the subject had perfectly completed the number of trials. Results showed that participants in the post test showed a significant difference.

Table 21

Pairwise Comparisons for Letter Sequencing in Trial Making Test among the Waitlist Control Group in Before, After and Follow-up Phases

Phases	**Phases**	**Mean Difference**	**Standard Error**
Before	**After**	-0.26	0.18NS
	Follow-up	0.26	0.27 NS
After	**Before**	0.26	0.18 NS
	Follow-up	0.53	0.26 NS
Follow-up	**Before**	0.26	0.27 NS
	After	-0.53	0.26 NS

NS= Not Significant

Table 21 shows the Pairwise comparison of Letter Sequencing in Delis Kaplan Executive Function System Trial Making Test among Waitlist Control Group in Before, After and Follow-up phases and it was not significant.

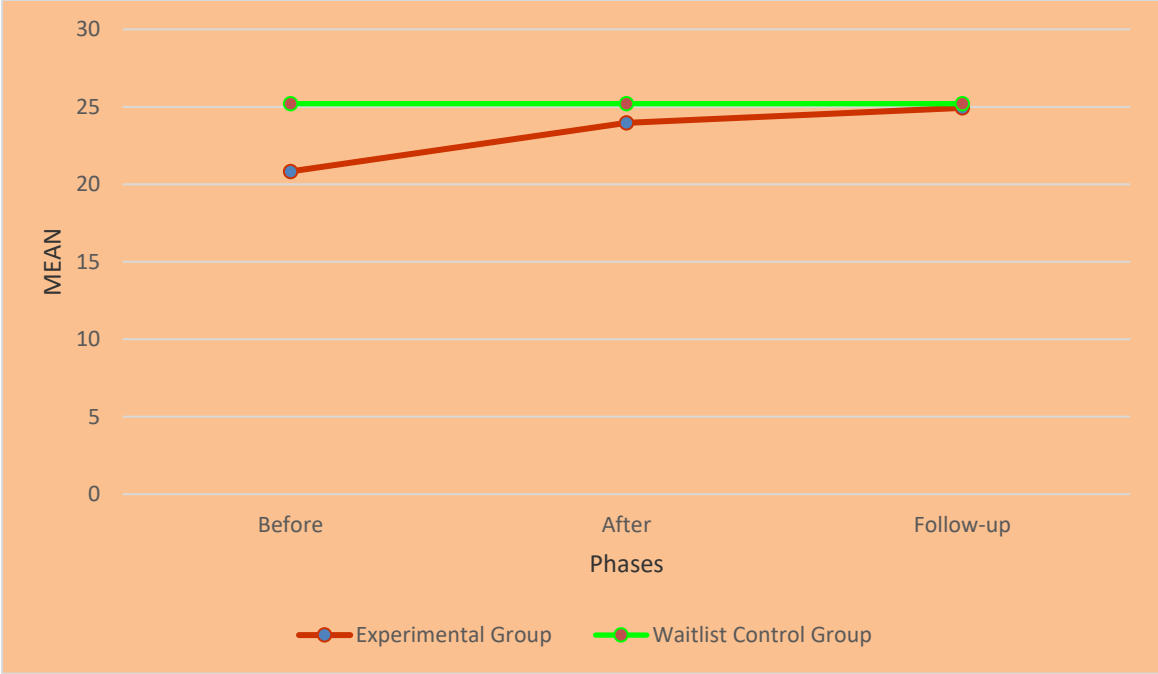

Figure 4. Letter Sequencing in Trial Making Test among Experimental and Waitlist Control Group during Before, After and Follow-up Phases

Figure 4 illustrate that Letter Sequencing in Delis Kaplan Executive Function System, "Trial Making Test" among Experimental Group, Waitlist Control Group. The general Consensus in the study of learning disorders is that the emergence and persistence of defective cognition can be explained primarily in terms of brain functioning, perception and memory, information processing or problem solving (Coles, 1984). Hence the Alternate Hypothesis 7, **"There will be significant difference between Before, After and Follow-up Phases in Letter Sequencing of Delis Kaplan Executive Function System Trial Making Test among the Learning Disabled Children in the Experimental Group"** is accepted and Alternate Hypothesis 8,**"There will be significant difference between Before, After and Follow-up Phases in Letter Sequencing of Delis Kaplan Executive Function System Trail Making Test among the Learning Disabled Children in the Waitlist Control Group"** is rejected.

Table 22

Mean and Standard Deviation of Number Letter Sequencing in Trial Making Test among the Experimental Group in Before, After and Follow-up Phases

Groups	Phases	Mean	Standard Deviation
Experimental Group	**Before**	22.40	2.22
	After	24.37	3.20
	Follow-up	25.57	3.69

Table 22 shows the Mean and Standard Deviation for Number Letter Sequencing in Delis Kaplan Executive Function System Trial Making Test among Experimental Group in Before, After and Follow-up Phases." Crowe (2000). The letter and number sequencing problem were explored to see if anything other than digit span could be measured. The Letter Number Sequencing task was completed by 102 college going students, along with all the executive functions such as reading, memory, visual spatial memory and WAIS-III (Weschler Adult Intelligence Scale-III). The findings revealed that while traditional measures of digit span explained about the variance on the letter, number sequencing, high contributions were given by the measures of processing speed and working memory. Brunner (2017) conducted a yoga programme for cognitive enhancement. Yoga practice has been shown to boost cognitive performance in recent studies. Although preliminary findings suggested that yoga increased working memory (WM), there was no high resolution information about the types of working memory substructures such as maintenance and manipulation. Measures of working Memory and MAAS- Mindfulness Attention Awareness Scale was administered. They investigated the effects of practicing yoga for mindfulness and working memory. A six session yoga programme was linked to improvements in enhancement of memory and mindfulness.

Table 23

Mean and Standard Deviation of Number Letter Sequencing in Trial Making Test among the Waitlist Control Group in Before, After and Follow-up Phases

Groups	Phases	Mean	Standard Deviation
Waitlist Control Group	**Before**	25.17	1.08
	After	25.20	1.06
	Follow-up	24.57	1.73

Table 23 shows the Mean and Standard Deviation of Number Letter Sequencing in Delis Kaplan Executive Function System Trial Making Test among Waitlist Control Group in Before, After and Follow-up Phases and there were no significant differences.

Table 24

Repeated Measures ANOVA for Number Letter Sequencing in Trial Making Test among the Experimental and Waitlist Control Group

Source		Sum of Squares	df	Mean	F
Phase	**Sphericity Assumed**	54.54	2	27.27	8.73**
	Greenhouse Geisser	54.54	1.77	30.80	8.73**
	Huynh Feldt	54.54	1.85	29.41	8.73**
	Lower Bound	54.54	1.00	54.54	8.73**
PhasesX Intervention	**Sphericity Assumed**	106.43	2	53.21	17.03**
	Greenhouse Geisser	106.43	1.77	60.08	17.03**
	Huynh Feldt	106.43	1.85	57.38	17.03**
	Lower Bound	106.43	1.00	106.43	17.03**

****= Significant at 0.01 Level**

Table 24 shows the Pairwise Comparisons for Number Letter Sequencing in Delis Kaplan Executive Function System Trial Making Test among Experimental and Waitlist Control Group.

Table 25

Pairwise Comparisons for Number Letter Sequencing in Trial Making Test among the Experimental Group in Before, After and Follow-up Phases

Phases	Phases	Mean Difference	Standard Error
Before	**After**	-1.00*	0.27
	Follow-up	-1.28*	0.37
After	**Before**	1.00*	0.27
	Follow-up	-0.28	0.31
Follow-up	**Before**	1.28*	0.37
	After	0.28	0.31

*** = Significant at 0.05 Level**

Table 25 shows the Pairwise Comparisons for Number Letter Sequencing in Delis Kaplan Executive Function System Trial Making Test among the Experimental Group in Before, After and Follow-up Phases. Egeland (2015) measured the Letter Number Sequencing Subtests and Working Memory with Digit Span from the Weschler Adult Intelligence Scale -4: Excessive manipulation Load and the risk ofmodality effects being underestimated. One of the most commonly utilised assessments among psychologists was the Adult Intelligence Scale. For a more accurate measurement of working memory, the subtests digit span and number letter sequencing were enlarged. Results concluded that visual span will also be a reason for Working Memory and for Sequencing Letter and Number.

Table 26

Pairwise Comparisons for Number Letter Sequencing in Trial Making Test among the Waitlist Control Group in Before, After and Follow-up Phases

Phases	Phases	Mean Difference	Standard Error
Before	**After**	-0.03	0.10NS
	Follow-up	0.60	0.20NS

After	**Before**	0.03	0.10NS
	Follow-up	0.63	0.27NS
Follow-up	**Before**	0.60	0.20NS
	After	0.63	0.27NS

NS= Not Significant

Table 26 shows the Pairwise Comparisons for Number Letter Sequencing in Delis Kaplan Executive Function System Trial Making Test among Waitlist Control Group and there was no progress in the Before, After and Follow-up Phases.

Figure 5. Number Letter Sequencing in Trial Making Test among Experimental and Waitlist Control Group during Before, After and Follow-up Phases

Figure 5 depicts that the participants in the Experimental Group showed improvement in the After and Follow-up Phases. The advantages of visual administration were discussed by Mielicki, Koppel, Valencia and Wiley (2018) when testing with the letter number sequence, they can also test the capacity ofworking memory. Working memory capacity played a significant part in a variety of applications, therefore it was critical to be able to reliably quantify it. The letter number sequencing task affects performance on the task and was included from Wechsler Adult Intelligence Scale-III. Hearing a series of letters and digits and reporting them back in alphabetical order for letters and ascending numerical order for digits. The findings

suggested that language background and task delivery modality may influence performance on the letter number sequencing test. Both attentional control and working memory components of cognition benefits because of Thoppukaranam (Super Brain Yoga). The effect was more pronounced on working memory than attention. The results suggested that the participants who practiced Thoppukaranam (Super Brain Yoga) had an impact. Hence the Alternate Hypothesis 9, **"There will be significant difference between Before, After and Follow-up Phases in Number Letter Sequencing of Delis Kaplan Executive Function System Trail Making Test among the Learning Disabled Children in the Experimental Group"**is accepted and the Alternate hypothesis 10, **"There will be significant difference between Before, After and Follow-up Phases in Number Letter Sequencing of Delis Kaplan Executive Function System Trail Making Test among the Learning Disabled Children in the Waitlist Control Group"** is rejected.

Table 27

Mean and Standard Deviation of Motor Speed in Trial Making Test among the Experimental Group in Before, After and Follow-up Phases

Group	Phases	Mean	Standard Deviation
Experimental Group	**Before**	25.57	2.22
	After	26.30	2.10
	Follow-up	26.33	2.29

Table 27 shows the Mean and Standard Deviation of Motor Speed in Delis Kaplan Executive Function System Trial Making Test among Experimental Group in Before, After and Follow-up Phases. Mean scores were 25.57, 26.30, and 26.33 respectively. When motor skills impairments severely interfere with academic progress or daily activities, developmental coordination disorder is diagnosed. A child with a motor skills issue may struggle with writing mechanics, planning motor activities, or remembering motor patterns. Krynski et al. (2017) from simple to complicated sequential co-ordination, there are common and distinct motor skill impairments in children with dyslexia and or attention deficit disorder. Motor skill problems were identified resulting in constant findings. On Simple motor speed tests, the results

revealed normal performance, but all 3 clusters had a consistent deficit on sequential motor tasks, including unimanual and bimanual, these children are in these groups often grow to the same level as children in other subjects with practice, however they make a greater number of mistakes. Furthermore, children with attention deficit hyperactivity disorder (ADHD) had the most difficulty with sophisticated bimanual out of phase motions and manual dexterity.

Table 28

Mean and Standard Deviation of Motor Speed in Trial Making Test among the Waitlist Control Group in Before, After and Follow-up Phases

Group	Phases	Mean	Standard Deviation
Waitlist Control Group	**Before**	25.07	1.98
	After	25.20	1.06
	Follow-up	24.67	1.72

Table 28 shows the Mean and Standard Deviation of Motor Speed in Delis Kaplan Executive Function System Trial Making Test among Waitlist Control Group in Before, After and Follow-up Phases.

Table 29

Repeated Measures ANOVA for Motor Speed in Trial Making Test among the Experimental and Waitlist Control Group

Source		Sum of squares	df	Mean	F
Phases	**Sphericity Assumed**	5.67	2	2.83	1.56**
	Greenhouse Geisser	5.67	1.71	3.32	1.56**
	Huynh Feldt	5.67	1.79	3.17	1.56**
	Lower bound	5.67	1.00	5.67	1.56**

GroupsX Interventions	**Sphericity Assumed**	10.21	2	5.10	2.81**
	Greenhouse Geisser	10.21	1.71	5.97	2.81**
	Huynh Feldt	10.21	1.79	5.71	2.81**
	Lower bound	10.21	1.00	10.21	2.81**

****= Significant at 0.01 Level**

Table 29 shows the Repeated Measures ANOVA of Motor Speed in Delis Kaplan Executive Function System Trial Making Test among Experimental and Waitlist Control Groups. Motor abilities were seen as essential domain components for both motor learning and school formation activities. This indicates that by mastering good motor control, children will be laying the foundation for their intellectual development, implying a direct link between what one can learn (cognitive) and how well one can execute motor. (Rosa Neto etal., 2010). The acquisition of an enormous amount of motor skills, which progress from simple and disorganised movements to the implementation of highly organised and complex motor skills, was thought to be a sequential, continuous and age related process by which humans acquire an enormous amount of motor skills. (Willrich, Azevedo & Fernandes, 2009; Siqueira &Gurgel-Giannetti, 2011). Okuda and Pinheiro (2014) investigated to characterise and compare the motor performance of kids with learning disabilities to that of students who have excelled academically. A total of 20 students were split into two groups, Group 1 included student with learning difficulty and group 2 included students with academic performance, Bruininks Oseretsky Test of Motor Proficiency was used. Findings supported that the behavioural and academic expressions, allowing an educational conduct centred on minimising the impact of these manifestations.

Table 30

Pairwise Comparisons for Motor Speed in Trial Making Test among the Experimental Group in Before, After and Follow-up Phases

Phases	Phases	Mean	Standard Error
Before	**After**	-0.43	0.21
	Follow-up	-0.18	0.23
After	**Before**	0.43	0.21
	Follow-up	0.25	0.21
Follow-up	**Before**	0.18	0.23
	After	-0.25	0.21

Table 30 shows the Pairwise Comparisons of, Motor Speed in Delis Kaplan Executive Function System Trial Making Test among Experimental Group in Before, After and Follow-up Phases. There was a higher likelihood of motor and gross functions being altered in the presence of learning difficulties, compromising dexterity, object manipulation speed, motion accuracy, spatial and temporal organisation, body schema, and hand posture, among other things all of which compromise the capacity to learn reading and writing abilities as well as, buttoning and using a computer, utilising scissors, managing to use coins, pencils and glue are examples of functional jobs. (Gabbard &Caçola, 2010; Martin, Piek, Baynam, Levy& Hay, 2010; Okuda, 2013). According to the specialised literature, at least fifty percent of students with learning difficulties were also diagnosed with a developmental deficit of motor co-ordination and these motor abnormalities were detected in between five and seven percent of school aged children in the general population (Rosenblum, Aloni&Josman, 2010).

Table 31

Pairwise Comparisons for Motor Speed in Trial Making Test among the Waitlist Control Group in Before, After and Follow-up Phases

Phases		Mean	Standard Error
Before	**After**	-0.13 NS	0.16
	Follow-up	0.40 NS	0.26

After	**Before**	0.13 NS	0.16
	Follow-up	0.53 NS	0.26
Follow-up	**Before**	-0.40 NS	0.25
	After	-0.53 NS	0.26

NS= Not Significant

Table 31 shows the Pairwise Comparisons of Motor Speed in Delis Kaplan Executive Function System Trial Making Test in Before, After and Follow-up phases among Waitlist Control Group and there was not much difference in the mean level.

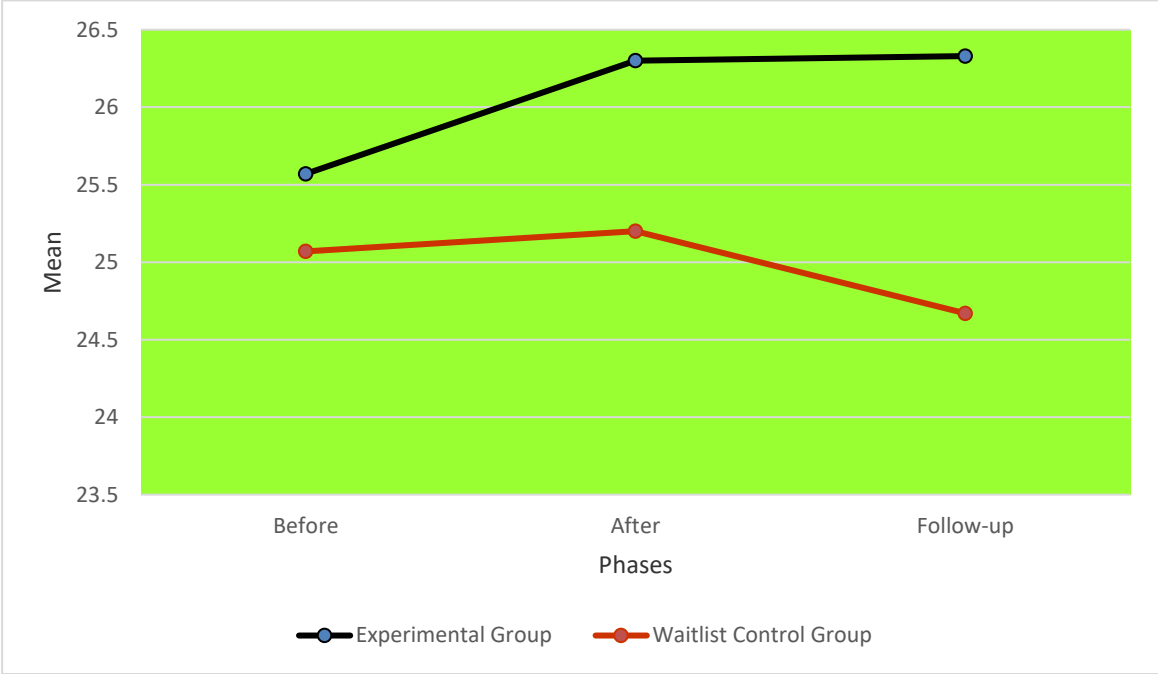

Figure 6. Motor Speed in Trial Making Test among Experimental and Waitlist Control Group during Before, After and Follow-up Phases

Figure 6 shows the difference between Experimental Group and Waitlist Control Group. The delivery of a sensory stimulus and the onset of a motor reaction is defined as the time of reaction. It is a measure of sensory motor coordination as well as internal processing speed in the brain. It may also be considered as an index of cortical arousal and is a simple non-invasive assessment of peripheral and central neural structures. Exercise is known to improve reaction time. The Participants increased performance was ascribed to a higher level of attentiveness and better muscular coordination (Venkatesh, 2017). Hence the Alternate Hypothesis 11, **"There will be significant**

difference between Before, After and Follow-up Phases in Motor Speed of Delis Kaplan Executive Function System Trial Making Test among the Learning Disabled Children in the Experimental Group" wereAccepted and the Alternate Hypothesis 12, **"There will be significant difference between Before, After and Follow-up Phases in Motor Speed of Delis Kaplan Executive Function System Trial Making Test among the Learning Disabled Children in the Waitlist Control Group"** is rejected

Table 32

Mean and Standard Deviation of Verbal Fluency among the Experimental Group in Before, After and Follow-up Phases

Groups	Phases	Mean	Standard Deviation
Experimental Group	**Before**	25.03	1.96
	After	26.17	1.98
	Follow-up	26.27	2.10

Table 32 shows the Mean and Standard Deviation of Verbal Fluency in Delis Kaplan Executive Function System among Experimental Group in Before, After and Follow-up Phases and the mean scores were 25.03, 26.17,26.27 and there was a significant difference among the participants. School psychologists, according to Berninger and Fuller (1992), should employ standardized assessments of orthographic, verbal and composition fluency to identify primary school students who require early assistance. Cohen, Morgan, Vaughn, Riccio and Hall (1999) observed about verbal fluency in children who was affected with Attention Deficit hyperactivity disorder (ADHD) and two dyslexia subtypes after a damage to the frontal lobes and left temporal lobe, verbal fluency was severely affected. Few studies have found that lesions and hemispheres have considerable impacts on verbal fluency in children and adults. They came to the conclusion that the verbal fluency test was clinically

beneficial in distinguishing between dyslexic, attention hyperactivity disorder and language disorders.

Table 33

Mean and Standard Deviation of Verbal Fluency among the Waitlist Control Group in Before, After and Follow-up Phases

Groups	Phases	Mean	Standard Deviation
Waitlist Control Group	**Before**	23.97	1.95
	After	24.57	1.96
	Follow-up	24.63	1.98

Table 33 shows the Mean and Standard Deviation of Verbal Fluency in Delis Kaplan Executive Function System among Waitlist Control Group in Before, After and Follow-up Phases of mean scores were 23.97, 24.57 and 24.63 in Before, After and Follow-up Phases respectively.

Table 34

Repeated Measures ANOVA for Verbal Fluency among the Experimental and Waitlist Control Group

Source		Sum of Squares	df	Mean	F
Phases	**Sphericity Assumed**	33.21	2	16.60	133.56**
	Greenhouse Geisser	33.21	1.87	17.80	133.56**
	Huynh Feldt	33.21	1.95	16.96	133.56**
	Lower Bound	33.21	1.00	33.21	133.56**
PhasesX Groups	**Sphericity Assumed**	3.03	2	1.51	12.19**
	Greenhouse Geisser	3.03	1.87	1.62	12.19**
	Huynh Feldt	3.03	1.95	1.54	12.19**
	Lower Bound	3.03	1.00	3.03	12.19**

****= Significant at 0.01 Level**

Table 34 shows the Repeated Measures ANOVA of Verbal Fluency in Delis Kaplan Executive Function System among Experimental and Waitlist Control Group. Andreou and Vlachos (2005) studied on second language orientations and verbal fluency performance. Students from a university in Central Greece participated.

Students replies to phonological, syntactical and semantic challenges were used to assess their English verbal fluency. The centre for research on learning and instruction used a condensed version of Entwistle and Tait's revised approaches to measure students study habits (1995). Females outperformed males on syntactical tasks, students from exact sciences outscored students from pure sciences on phonological tasks and those with a professional degree outperformed those without a degree on all verbal fluency measures. The left and right brain wave patterns were frequently in sync throughout any sort of relaxation, including meditation and other forms of yoga, and this synchronicity may boost brain strength to help retain more knowledge and give more control over the emotions. Master choa sui, the founder of the Philippines based institute for Inner studies, sees the brain as alive battery that needs to be recharged on a regular basis. This means that for the optimum outcomes, Thoppukaranam (Super Brain Yoga) should be practiced on a daily basis.

Table 35

Pairwise Comparisons for Verbal Fluency among the Experimental Group in Before, After and Follow-up Phases

Phases	Phases	Mean Difference	Standard Error
Before	**After**	-0.86*	0.06
	Follow-up	-0.95*	0.07
After	**Before**	0.86*	0.07
	Follow-up	-0.08 NS	0.05
Follow-up	**Before**	0.95*	0.06
	After	0.08 NS	0.05

*** = Significant at 0.01 Level** **NS= Not Significant**

Table 35 shows the Pairwise Comparison Tests of Verbal Fluency in Delis Kaplan Executive Function System among Experimental Group and there was significant difference among the participants in After and Follow-up Phases. Studies have shown that yoga has a considerable impact on emotional control, self esteem and physical and mental health (Janjhua, Sharma & Kumar, 2020). A research of 200 high school students aged 14 to 15 years old to determine the effects of yoga practice on their memory and concentration level. The students were divided into two groups and

pre test was conducted to check their attentiveness and memory. The experimental group did yoga activities that included pranayama and super brain yoga. Results showed that they had better attention and memory concentration. Gross et al. (2012) investigated modelling learning and memory utilizing verbal learning tests by using latent growth models to administer the auditory verbal learning test and Hopkins verbal learning test to initial recall and learning across trials. Memory training slows the deterioration of memory span and improves learning.

Table 36

Pairwise Comparisons for Verbal Fluency among the Waitlist Control Group in Before, After and Follow-up Phases

Phases	Phases	Mean Difference	Standard Error
Before	**After**	-0.43	0.21
	Follow-up	-0.18	0.30
After	**Before**	0.43	0.21
	Follow-up	0.25	0.21
Follow-up	**Before**	0.18	0.30
	After	-0.25	0.21

Table 36 shows the Pairwise Comparisons of Verbal Fluency in Delis Kaplan Executive Function System among Waitlist Control Group in Before, After and Follow-up Phases.

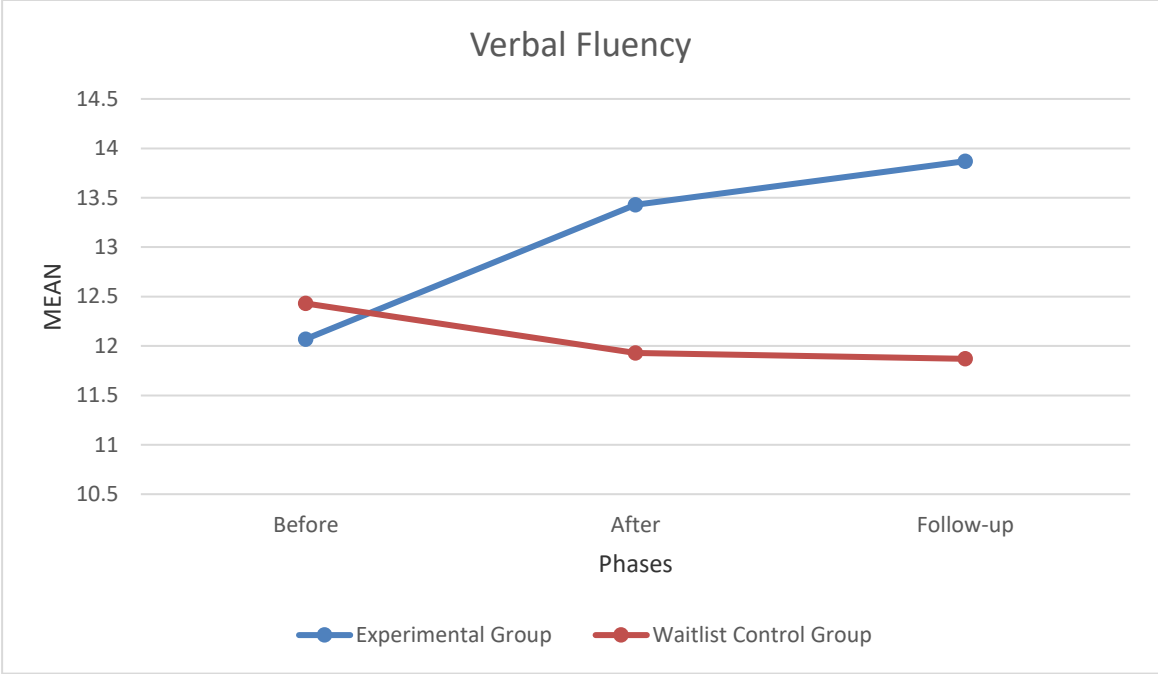

Figure 7. Verbal Fluency among Experimental and Waitlist Control Group during Before, After and Follow-up Phases

Figure 7 shows the graph of the participant's performance during Before, After and Follow-up Phases among Experimental and Waitlist Control Group. Anup De and Mondal (2020) discussed about yogic therapies for repairing brain functioning, nerve problems and cognitive impairment and they found out that practising yoga and super brain yoga increases all verbal skills, Timely response, eye-hand coordination. Intervention related to yoga improves the brain activity and all cognitive process. Hence the Alternate Hypothesis 13, **"There will be significant difference between Before, After and Follow-up Phases of Verbal Fluency of Delis Kaplan Executive Function System among the Learning Disabled Children in the Experimental Group"** is accepted and Alternate Hypothesis 14, **"There will be significant difference between Before, After and Follow-up Phases of Verbal Fluency of Delis Kaplan Executive Function System among the Learning Disabled Children in the Waitlist Control Group"**is rejected.

Table 37

Mean and Standard Deviation of Design Fluency among the Experimental Group in Before, After and Follow-up Phases

Groups	Phases	Mean	Standard Deviation
Experimental Group	**Before**	25.03	1.96
	After	26.17	1.98
	Follow-up	26.27	2.10

Table 37 shows the Mean and Standard Deviation of Design Fluency Test of Delis Kaplan Executive Function System among Experimental Group during Before, After and Follow-up Phases. Mean scores were25.03, 26.17 and 26.27 respectively. It shows that there was a significant difference in After and Follow-up Phase. Suchy et al. (2009) studied about the contributions from motor speed, researchers looked at planning, cognitive flexibility and fluency in generating visual patters. 61 community dwelling older adults were assessed by Delis Kaplan Executive Function System trial making test and letter fluency assessments, as well as electronically administered measures of motor planning and motor sequence fluency. The results showed that generation of novel designs the first two trial assessment primarily relied on motor planning, the ability to develop innovative motor motion and to a lesser extent the speed with which a writing implement may be drawn. Third trial relied on visual scanning and the findings highlighted the wisdom of interpreting the switching trial. The developmental dyslexia now appear to be associated with some oral and visual language difficulties. Recent research demonstrated that dyslexic children have difficulty finding words, but issues about specificity and cause remained unaddressed. Only at the word form level of access was evidence for dyslexia related issues. Dyslexics were better at finding words on a semantic level. These findings supported neurocognitive models that stressed diffuse hemisphere impairment Evidence for dyslexia related difficulties was found only at the word form level of access. At the semantic level, dyslexics' finding the word was superior.

Table 38

Mean and Standard Deviation of Design Fluency among the Waitlist Control Group in Before, After and Follow-up Phases

Groups	Phases	Mean	Standard Deviation
Waitlist Control Group	**Before**	23.97	1.95
	After	24.57	1.96
	Follow-up	24.63	1.98

Table 38 shows the Mean and Standard Deviation of Design Fluency Test of Delis Kaplan Executive Function System among Waitlist Control Group participants and there was not much differences in Before, After and Follow-up Phases.

Table 39

Repeated Measures ANOVA for Design Fluency among the Experimental and Waitlist Control Group

Source		Sum of Squares	df	Mean Squares	F
Phases	**Sphericity Assumed**	33.21	2	16.60	133.56**
	Greenhouse Geisser	33.21	1.87	17.80	133.56**
	Huynh Feldt	33.21	1.95	16.96	133.56**
	Lower Bound	33.21	1.00	33.21	133.56**
PhasesX Interventions	**Sphericity Assumed**	3.03	2	1.51	12.20**
	Greenhouse Geisser	3.03	1.87	1.62	12.20**
	Huynh Feldt	3.03	1.95	1.54	12.20**
	Lower Bound	3.03	1.00	3.03	12.20**

****= Significant at 0.01 Level**

Table 39 shows the Repeated Measures ANOVA of Design Fluency Test of Delis Kaplan Executive Function System and there was a significant difference among the experimental group and the waitlist control group. There was difference amongst the participants and Performing Thoppukaranam (Super Brain Yoga) had a great impact among the participants and they have showed a great improvement.

Table 40

Pairwise Comparisons for Design Fluency in among the Experimental Group in Before, After and Follow-up Phases

Phases	Phases	Mean difference	Standard Error
Before	**After**	-0.86*	0.07
	Follow-up	-0.95*	0.06
After	**Before**	0.86*	0.07
	Follow-up	-0.08	0.06
Follow-up	**Before**	0.95*	0.06
	After	0.08	0.05

***=Significant at 0.01 Level**

Table 40 shows the Pairwise comparisons of Design Fluency test of Delis Kaplan Executive Function System among Experimental Group. In comparing the other types of brain trauma that impede cognitive function, early life frontal damage appears to bring the neurological dysfunction that relies on learning disabled. Therefore, there was a study conducted by Kaplan et al. (2001) assessed about the right hemisphere or right frontal brain and it was revealed to be important in design fluency. The current study looked at both verbal and nonverbal fluency in a single group of patients with focal frontal lobe lesions. In the verbal fluency task, participants generated items using both letter and category cues. The design fluency assessment required participants to join dot arrays with four straight lines to generate new designs. Patients with left frontal lesions performance was very poor than with right frontal lesions, while the two groups performed similarly on the design fluency task. The findings revealed that verbal fluency relies more on the left frontal cortex, frontal lobes get activated because of nonverbal fluency tasks such as design fluency,

Table 41

Pairwise Comparisons for Design Fluency in among the Waitlist Control Group in Before, After and Follow-up Phases

Phases	Phases	Mean Difference	Standard Error
Before	**After**	0.10 NS	0.11
	Follow-up	0.06 NS	0.14
After	**Before**	-0.10 NS	0.11
	Follow-up	-0.03 NS	0.08
Follow-up	**Before**	-0.06 NS	0.14
	After	0.03 NS	0.08

NS= Not Significant

Table 41 shows the Pairwise comparisons of Design fluency of Delis Kaplan Executive Function System among Waitlist Control group in Before, After and Follow-up Phases.

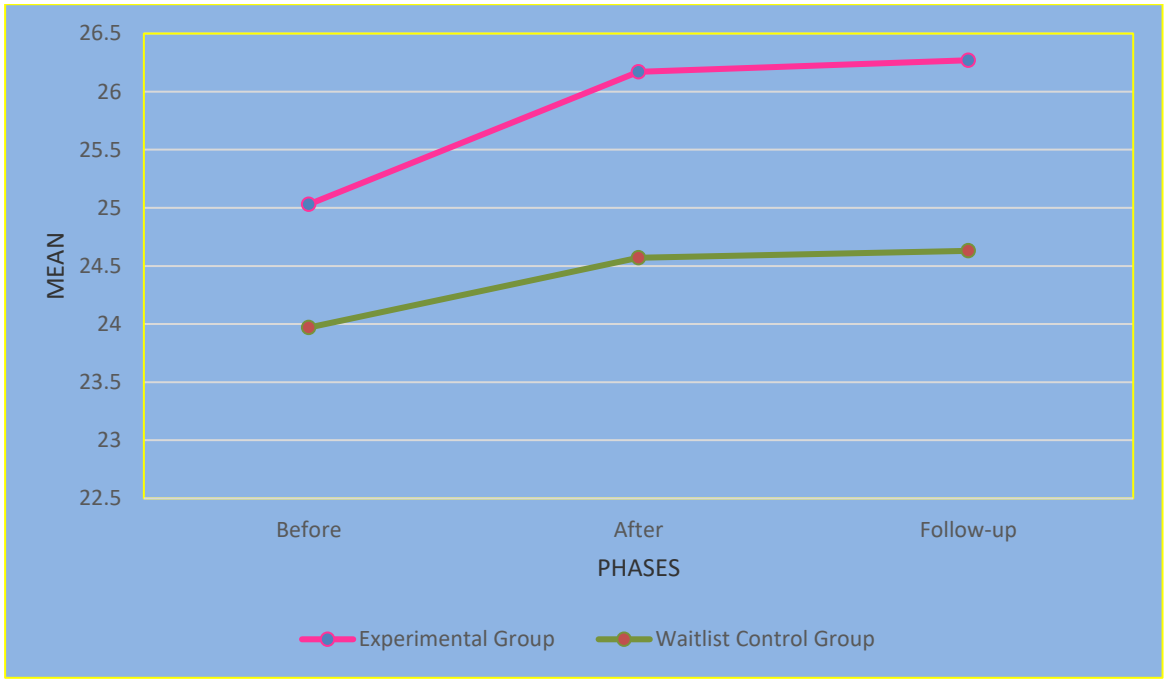

Figure 8. Design Fluency among Experimental and Waitlist Control Group during Before, After and Follow-up Phases

Figure 8 shows the Design Fluency of Delis Kaplan Executive Function System among Experimental and Waitlist Control Group. The graph clearly depicts that there was an improvement among the participants in Before, After and Follow-up Phases. Griffiths (1991) studied about Wordfinding ability and design fluency in developmental dyslexia. The developmental dyslexia syndrome now appears to be

associated with some oral and visual language difficulties. Recent research has indicated word finding difficulties in dyslexic children, although specificity and causality questions remain unsolved. Cued lexical retrieval and stick design tasks were used to assess verbal and nonverbal fluency in dyslexics and non dyslexics. Only at the word form level of access was evidence for dyslexia related was found.

Dyslexics beat non dyslexics in finding words on a semantic level. It was usual to have nonverbal fluency. This finding supports neuro cognitive models that highlight diffuse left hemisphere impairment and implicates long term linguistic memory mechanisms in dyslexia. The participants had improved as a result of intervention.Hence the Alternate hypothesis 15, **"There will be significant difference between Before, After and Follow-up Phases of Design Fluency of Delis Kaplan Executive Function System among the Learning Disabled Children in the Experimental Group"** is accepted and Alternate hypothesis 16, **"There will be significant difference between Before, After and Follow-up Phases of Design Fluency of Delis Kaplan Executive Function System among the Learning Disabled Children in the Waitlist Control Group"** is rejected

Table 42

Mean and Standard Deviation of Colour Naming in Colour Word Interference Test among the Experimental Group in Before, After and Follow-up Phases

Groups	Phases	Mean	Standard Deviation
Experimental Group	**Before**	12.07	2.25
	After	13.43	1.47
	Follow-up	13.87	1.59

Table 42 shows the Mean and Standard Deviation of Colour naming in Colour Word Interference test of Delis Kaplan Executive Function System among Experimental group in Before, After and Follow-up phase. Mean Scores were 12.07, 13.43 and 13.87. A meta analysis of the sensitivity and specificity of the strop colour and word test with children was undertaken by Homack and Riccio (2004). Attention Deficit Hyperactivity Disorder and other developmental disorders are linked to executive function deficiencies. For all studies they compared groups of children on

the stroop task, weighted effect sizes were determined. The results showed that children and adolescents with ADHD performed worse on the Stroop task as measured by weighted word, colour, colour word than those without a clinical diagnosis.

Table 43

Mean and Standard Deviation of Colour Naming in Colour Word Interference Test among the Waitlist Control Group in Before, After and Follow-up Phases

Groups	Phases	Mean	Standard Deviation
Waitlist Control Group	**Before**	12.43	1.35
	After	11.93	1.46
	Follow-up	11.87	1.19

Table 43 shows the Mean and Standard Deviation of Colour Naming in Colour Word Interference test of Delis Kaplan Executive Function System among Waitlist Control Group in Before, After and Follow-up Phases. Mean scores were 12.43,11.93,11.87 respectively.

Table 44

Repeated Measures ANOVA for Colour Naming in Colour Word Interference Test among the Experimental and Waitlist Control Group

Source		Sum of Squares	df	Mean Squares	F
Phases	**Sphericity Assumed**	12.03	2	6.01	6.12**
	Greenhouse Geisser	12.03	1.40	8.56	6.12**
	Hyunh Feldt	12.03	1.45	8.27	6.12**
	Lower Bound	12.03	1.00	12.03	6.12**
PhasesX Interventions	**Sphericity Assumed**	46.67	2	23.33	23.75**

	Greenhouse Geisser	46.67	1.40	33.22	23.75**
	Hyunh Feldt	46.67	1.45	32.10	23.75**
	Lower Bound	46.67	1.00	46.67	23.75**

****= Significant at 0.01 Level**

Table 44 shows the Repeated Measures ANOVA of Colour Naming in Colour Word Interference Test of Delis Kaplan Executive Function System. Zarabeth and Charles(2002) conducted a research about the performance patterns on the stroopcolour as well as word test in children with academic, attentional and mental difficulties. A total of 43 kids were identified as Learning disabled after undergoing battery of tests. The stroop test was administered to all subjects, which took around four minutes per subject. The findings revealed significant disparities between the groups, with the Learning Disabled and Attention Deficit Hyperactivity Disorder (ADHD) groups producing distinct profiles from the normal controls. Only the colour Word score revealed impairment in the youngsters with learning disabilities. Using the three fundamental stroop scales, a discriminant analysis was able to distinguish the learning disabled group from the non-learning disabled group.

Table 45

Pairwise Comparisons for Colour Naming in Colour Word Interference Test among the Experimental Group in Before, After and Follow-up Phases

Phases	**Phases**	**Mean Differences**	**Standard error**
Before	**After**	-0.43 NS	0.23
	Follow-up	-0.62*	0.34
After	**Before**	0.43 NS	0.22
	Follow-up	-0.18 NS	0.11
Follow-up	**After**	0.61*	0.18
	Before	0.18 NS	0.11

*** = Significant at 0.05 level**

Table 45 shows the Pairwise Comparisons of Colour Naming in Colour Word Interference Test of Delis Kaplan Executive Function System among Experimental Group in Before, After and Follow-up Phases. To find out if there was any conflict

between colour naming and reading stroop test was used. In 12.5-year-old dyslexics, Protopapas et.al (2007) found more errors in an interference test and longer response times as well as higher stroop interference with worse reading skills. The goal of this study was to measure interference and flexibility in older dyslexic children using a variation of the stroop with four colour cards. Colour naming, Reading, interference and flexibility were the four colour cards. After that they did a series of sixty saccades left to right, then there's the interference task. The findings revealed that even in older dyslexics, the inhibitory and attention mechanisms required by the stroop test were dysfunctional. The study, on the other hand, found no evidence of increased difficulty in the flexibility task, which would argue against mental switching issues. (Kapoula, Bonnet, Bourtoire, Fauvel, Quilicci& Yang, 2010).

Table 46

Pairwise Comparisons for Colour Naming in Colour Word Interference Test among the Waitlist Control Group in Before, After and Follow-up Phases

Phases	Phases	Mean Differences	Standard error
Before	**After**	0.51	0.31
	Follow-up	0.58*	0.23
After	**Before**	-0.51	0.31
	Follow-up	0.06	0.20
Follow-up	**After**	-0.58*	-0.23
	Before	-0.06	0.20

***= Significant at 0.05 Level**

Table 46 Shows the Pairwise comparison of Inhibition in Colour Word Interference Test of Delis Kaplan Executive Function System among Waitlist Control Group. Thoppukaranam was used for ear acupuncturing and subtle energy of the body.Thoppukaranam (Super Brain Yoga) improves the brain's quality and quantity of pranic energy. In this study, which comprised 1,945 school pupils, Thoppukaranam (Super Brain Yoga) was introduced to the children through theirinstructors over a three month period.Thoppukaranam (Super Brain Yoga) improved their memory and concentration.

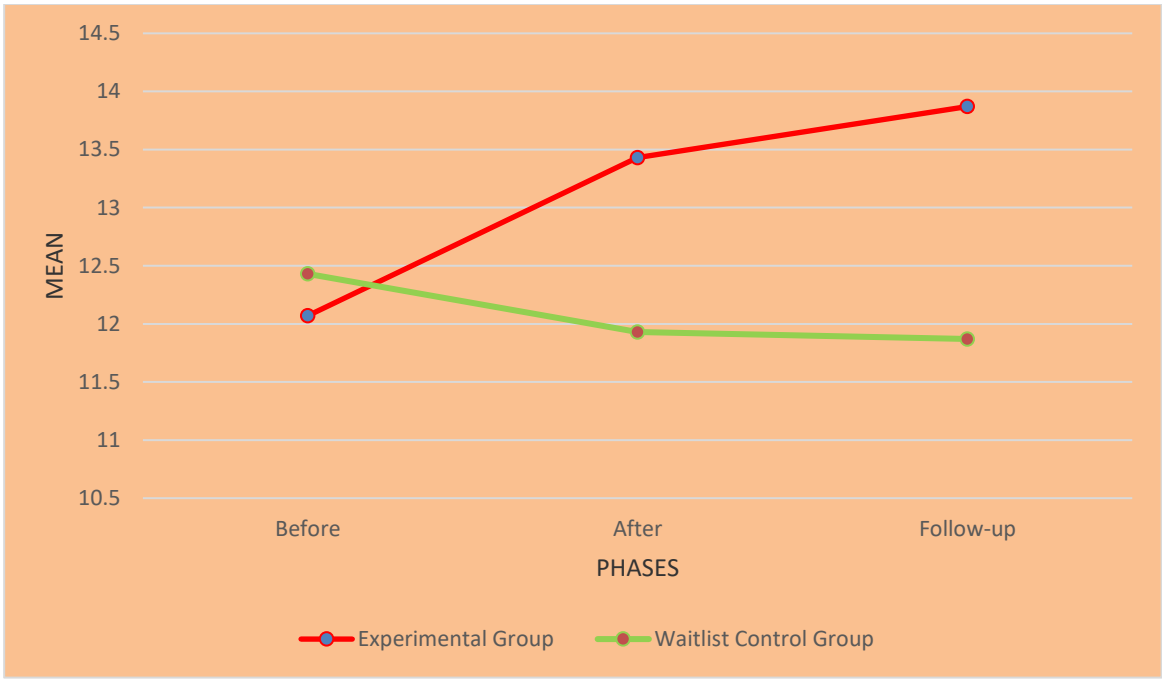

Figure 9. Colour Naming in Colour Word Interference Test among Experimental and Waitlist Control Group during Before, After and Follow-up Phases

Figure 9 shows the Colour Naming in Colour word interference test during Before, After and Follow-up Phases among Experimental and Waitlist Control Group. The Graph clearly shows that there was an improvement among the participants in the experimental group. Among the Waitlist Control Group there was a decline in their performance. Hence the Alternate Hypothesis 17, **"There will be significant difference between Before, After and Follow-up Phases of Colour Naming of Delis Kaplan Executive Function System Colour Word Interference test among the Learning Disabled Children in the Experimental Group"** is accepted and Alternate Hypothesis 18, **"There will be significant difference between Before, After and Follow-up Phases of Colour Naming of Delis Kaplan Executive Function System Colour Word Interference test among the Learning Disabled Children in the Waitlist Control Group"** is rejected.

Table 47

Mean and Standard Deviation of Inhibition in Colour Word Interference Test among the Experimental Group in Before, After and Follow-up Phases

Groups	Phases	Mean	Standard Deviation
Experimental Group	**Before**	22.40	3.69
	After	24.37	3.20
	Follow-up	25.57	2.22

Table 47 shows the Mean and Standard Deviation of Inhibition in Colour Word Interference Test of Delis Kaplan Executive Function System among Experimental Group in Before, After and Follow-up Phases. Kavale and Forness (1999) studied about Interference, Inhibition and Learning Disability. Learning disability concept was linked to neurological malfunction and psychological processing abnormalities, according to the assumptions. These Interference and Inhibition approaches have two advantages when it comes to describing learning disabilities. First, they proposed a new way of looking at the nature of process deficiencies in people with Learning Disabilities.Second, they could be more reliably linked to brain activity. Hence there was a relationship between Inhibition and Learning Disabled which was significantly improved among the participants.

Table 48

Mean and Standard Deviation of Inhibition in Colour Word Interference Test among the Waitlist Control Group in Before, After and Follow-up Phases

Groups	Phases	Mean	Standard Deviation
Waitlist Control Group	**Before**	25.17	1.98
	After	25.20	1.06
	Follow-up	24.57	1.73

Table 48 shows the Mean and Standard Deviation of Inhibition in Colour Word Interference Test of Delis Kaplan Executive Function System among Waitlist Control Group in Before, After and Follow-up Phases Mean scores were 25.17, 25.20 and 24.57.

Table 49

Repeated Measures ANOVA for Inhibition in Colour Word Interference Test among the Experimental and Waitlist Control group

Source		Sum of Squares	df	Mean Squares	F
Phases	**Sphericity Assumed**	54.54	2	27.27	8.73**
	Greenhouse Geisser	54.54	1.77	30.79	8.73**
	Huynh Feldt	54.54	1.85	29.41	8.73**
	Lower Bound	54.54	1.00	54.54	8.73**
PhasesX Interventions	**Sphericity Assumed**	106.43	2	53.21	17.03**
	Greenhouse Geisser	106.43	1.77	60.08	17.03**
	Huynh Feldt	106.43	1.85	57.38	17.03**
	Lower Bound	106.43	1.00	106.43	17.03**

****= Significant at 0.01 Level**

Table 49 shows the Repeated Measures ANOVA of Inhibition in Colour Word Interference Test of Delis Kaplan Executive Function System among the Experimental and Waitlist Control Group. There was frequently a Behavioral Inhibition among children with Learning Disabilities. The same were studied by Weerdt, Desoete and Roeyers (2013). Children with reading disabilities, mathematical disabilities combined reading and mathematical disabilities were tested with a go/no task in an image, letter and digit modality, they were assessed on behavioural inhibition. Children with reading disabilities produced considerably more commission errors on alphanumerical modalities than on non alphanumeric picture modalities, compared to children without reading disabilities. Children with mathematical disabilities made just as many commission errors on the picture modality as they did on the letter modality as compared to children without mathematical disabilities. There was no evidence of a significant interaction impact between reading disability and mathematical disability.

These data support the existence of behavioural inhibition impairments in children with reading disabilities, but not in children with arithmetical disabilities, when it comes to alpha numerical stimuli, however this is not the case with children with mathematics impairments.

Table 50

Pairwise Comparisons for Inhibition in Colour Word Interference Test of Delis among the Experimental Group in Before, After and Follow-up Phases

Phases	Phases	Mean Difference	Standard Error
Before	**After**	-1.00*	0.27
	Follow-up	-1.28*	0.37
After	**Before**	1.00*	0.28
	After	-0.28*	0.31
Follow-up	**After**	1.28*	0.37
	Follow-up	0.28	0.31

***= Significant at 0.01 Level**

Table 50 shows the Pairwise Comparisons of Inhibition in Colour Word Interference Test of Delis Kaplan Executive Function System among Experimental Group in Before, After and Follow-up Phases .Sluis and Leij(2004) analyzed about shifting and inhibition in children with arithmetic and reading difficulties. The executive functions of inhibition and shifting were investigated in seventy-four children with arithmetic, reading disabilities. Measures included rapid naming of objects, digits, letters or numbers with or without additional task limitations that demonstrated inhibition or shifting. The task of making trials, which reflected shifting was also given. Arithmetic disabled children were slower in naming numerals and letters in tasks that did not require executive function. On the executive tasks, children with arithmetic and verbal disabilities struggled with the making trials test and an object identifying task. Inhibition and shifting were required for reading. Executive functioning was not affected in children who were unable to read. Furthermore, it was found out that children with reading and arithmetic issues have learning deficit in a single manner.

Table 51

Pairwise Comparisons for Inhibition in Colour Word Interference Test of Delis among the Waitlist Control Group in Before, After and Follow-up Phases

Phases	Phases	Mean Difference	Standard Error
Before	**After**	0.00 NS	0.09
	Follow-up	0.55 NS	0.20
After	**Before**	0.00 NS	0.09
	After	0.55 NS	0.27
Follow-up	**After**	-0.55 NS	0.20
	Follow-up	-0.55 NS	0.27

NS= Not Significant

Table 51 shows the Pairwise comparisons of Inhibition in Colour Word Interference Test of Delis Kaplan Executive Function System among Waitlist Control and there was no significant difference.

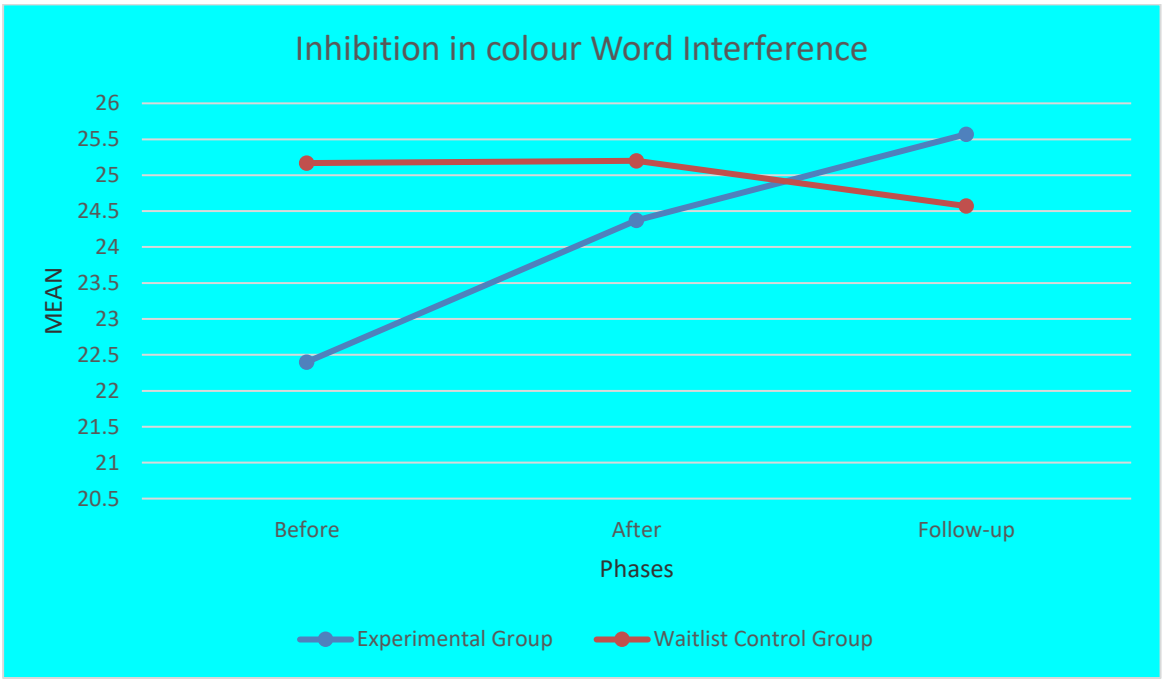

Figure 10. Inhibition in Colour Word Interference Test among Experimental and Waitlist Control Group during Before, After and Follow-up Phases

Figure 10 shows the Inhibition in Colour word Interference Test in Before, After and Follow-up Phases among Experimental and Waitlist Control Group and it clearly indicates that there was proper improvement among the participants in the Experimental Group because of Super Brain Yoga, emission of Neurotransmitter takes

place. Dopamine pathways are typically connected with reward networks, but they also influence attentional concentrating and response inhibition (Nieoullon, 2002). Increased Dopamine receptor availability in the stratum has been linked to selective attention and affects inhibition in the brain. Hence the Alternate Hypothesis 19,**"There will be significant difference between Before, After and Follow-up Phases of Inhibition of Delis Kaplan Executive Function System Colour Word Interference test among the Learning Disabled Children in the Experimental Group"** is accepted and the Alternate Hypothesis 20, **"There will be significant difference between Before, After and Follow-up Phases of Inhibition of Delis Kaplan Executive Function System Colour Word Interference test among the Learning Disabled Children in the Waitlist Control Group"** is rejected.

Table 52

Mean and Standard Deviation of Inhibition and Switching in Colour Word Interference Test among the Experimental Group in Before, After and Follow-up Phases

Group	Phases	Mean	Standard Deviation
Experimental Group	**Before**	25.57	2.22
	After	26.30	2.10
	Follow-up	26.33	2.29

Table 52 shows the Mean and Standard Deviation of Inhibition and Switching in Colour Word Interference Test of Delis Kaplan Executive Function System among Experimental Group in Before, After and Follow-up Phases and the Mean Scores were 25.57, 26.30,26.33 respectively. Inhibition and switching operates from the "command centre" in the brain's frontal lobes. Damage to the frontal lobes or brain connections might make executive functions harder to perform as they should. This can happen as a result of an executive functioning problem in brain. Thoppukaranam (Super Brain Yoga) acted as an enhancer of executive functioning in brain. Thus, there was an enhancement in Before, After and Follow-up Phases.

Table 53

Mean and Standard Deviation of Inhibition and Switching in Colour Word Interference Test among the Waitlist Control Group in Before, After and Follow-up Phases

Group	Phases	Mean	Standard Deviation
Waitlist Control Group	**Before**	25.07	0.980
	After	25.20	1.06
	Follow-up	24.67	1.72

Table 53 shows the Mean and Standard Deviation of Inhibition and Switching in Colour Word Interference Test of Delis Kaplan Executive Function System among Waitlist Control Group in Before, After and Follow-up Phases.

Table 54

Repeated Measures ANOVA for Inhibition and Switching in Colour Word Interference Test among the Experimental and Waitlist Control Group

Source		Sum of Squares	df	Mean Square	F
Phases	**Sphericity Assumed**	5.67	2	2.83	1.56**
	Greenhouse Geisser	5.67	1.71	3.32	1.56**
	Huynh Weldt	5.67	1.78	3.17	1.56**
	Lower Bound	5.67	1.00	5.68	1.56**
PhasesX Interventions	**Sphericity Assumed**	10.21	2	5.10	2.81**
	Green house Geisser	10.21	1.71	5.97	2.81**
	Huynh Weldt	10.21	1.78	5.71	2.81**
	Lower Bound	10.21	1.00	10.21	2.81**

****= Significant at 0.01 Level**

Table 54 shows the Repeated Measures ANOVA of Inhibition and Switching of Colour Word Interference Test of Delis Kaplan Executive Function System among Experimental and Waitlist Control Group. Lippa and Davis (2010) evaluated the Inhibition/ Switching was not necessarily harder than Inhibition: An Analysis of D-KEFS and Colour word interference test and it was created to improve upon the Stroop task by including an inhibition/switching trial, which was intended to be more challenging in terms of time to completion and number of errors than the inhibition trial. However they discovered in clinical practice that many persons performed better on the inhibtion/ switching trial than the inhibition trial. They looked at the prevalence and relationships of this performance pattern on the colour word interference test. The colour word interference test was done as part of test battery. In terms of completion time or errors, fifty seven percent of patients showed an abnormal pattern of performance. Patients who had an abnormal completion time pattern were considerably slower at colour naming and word reading than those who had a regular completion time pattern. On learning and semantic verbal fluency tests, patients with an abnormal pattern of errors outperformed patients with a typical pattern. According to the findings, the intervention resulted in a significant improvement in performance.

Table 55

Pairwise Comparisons for Inhibition and Switching in Colour Word Interference Test of Delis among the Experimental Group in Before, After and Follow-up Phases

Phases	Phases	Mean Difference	Standard Error
Before	**After**	-0.43 NS	0.21
	Follow-up	-0.18NS	0.29
After	**Before**	0.43 NS	0.21
	Follow-up	0.25 NS	0.21
Follow-up	**Before**	0.18 NS	0.29
	After	-0.25 NS	0.21

Table 55 shows the Pairwise Comparisons of Inhibition and Switching of Colour Word Interference Test of Delis Kaplan Executive Function System among

Experimental Group in Before, After and Follow-up Phases and there were no differences in it.

Table 56

Pairwise Comparisons for Inhibition and Switching in Colour Word Interference Test of Delis among the Waitlist Control Group in Before, After and Follow-up Phases

Phases	Phases	Mean Difference	Standard Error
Before	**After**	-0.14 NS	0.17
	Follow-up	-0.41NS	0.26
After	**Before**	0.13NS	0.17
	Follow-up	0.55NS	0.27
Follow-up	**Before**	-0.41NS	0.26
	After	-0.55NS	0.27

NS= Not Significant

Table 56 Shows the Pairwise Comparisons of Inhibition and Switching of Colour Word Interference Test of Delis Kaplan Executive Function System among Waitlist Control Group in Before, After and Follow-up Phases and there was no significant difference among the three phases.

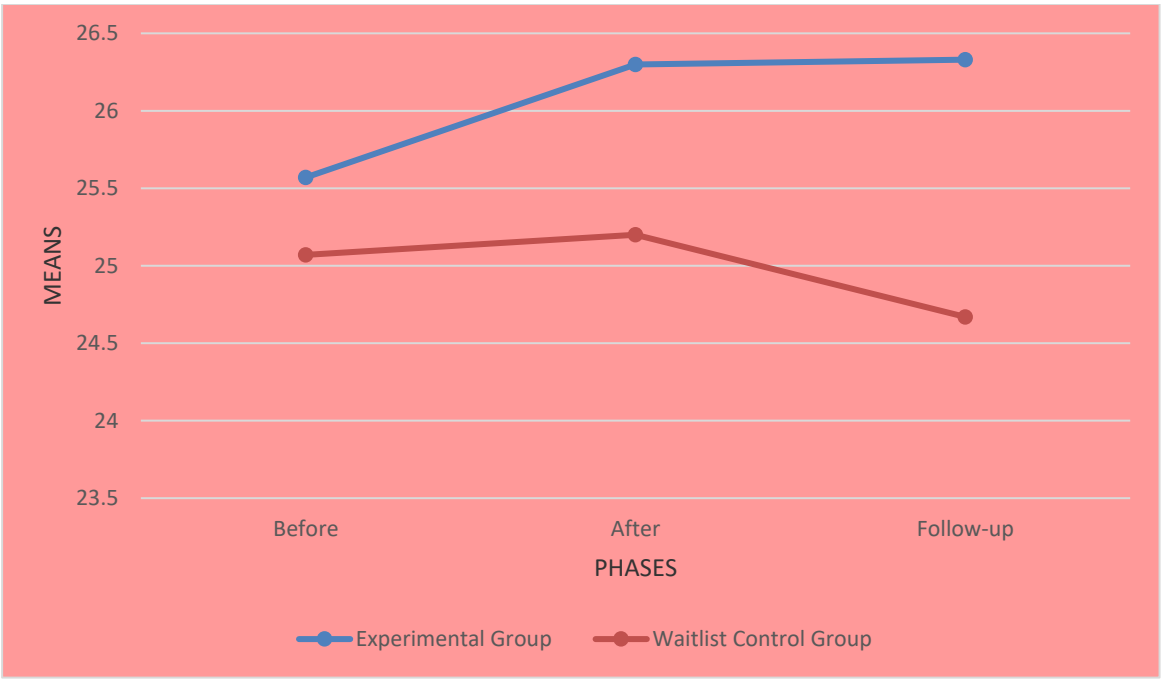

Figure 11. Inhibition and Switching in Colour Word Interference Test among Experimental and Waitlist Control Group during Before, After and Follow-up Phases

Figure 11 shows the results of Before, After and Follow-up phases with reference to the interventions in Inhibition and Switching of Colour Word Interference Test. Subramanya and Telles. (2009) pointed that Yoga and Thoppukaranam (Super Brain Yoga) can improve the sensitivity of the postsynaptic membrane and the efficient suppression of distracting signals, resulting in better cognitive function. Hence the Alternate Hypothesis 21, **"There will be significant difference between Before, After and Follow-up Phases of Inhibition and Switching of Delis Kaplan Executive Function System Colour Word Interference test among the Learning Disabled Children in the Experimental Group"** is accepted and the Alternate Hypothesis 22, **"There will be significant difference between Before, After and Follow-up Phases of Inhibition and Switching of Delis Kaplan Executive Function System Colour Word Interference test among the Learning Disabled Children in the Waitlist Control Group"** will be rejected.

Table 57

Mean and Standard Deviation of Word Context among the Experimental Group in Before, After and Follow-up Phases

Group	Phases	Mean	Standard Deviation
Experimental Group	**Before**	28.17	2.80
	After	29.50	2.91
	Follow-up	29.83	3.16

Table 57 shows the Mean and Standard Deviation of Word Context of Delis Kaplan Executive Function System among Experimental Group in Before, After and Follow-up Phases and the Mean Scores were 28.17, 29.50 and 29.83 respectively. Swanson and Alexander(1997)looked at cognitive processes to see if they could predict that in both learning disabled and adapt readers, recognising the words and comprehensive reading are important. In this study, the effects of phonological, orthographic, semantic, metacognitive and working memory variables on reading performance were investigated. In learning disabled and skilled readers, the relationship between phonological, orthographic semantic, metacognitive and working memory variables and reading performance was investigated (aged 8-12 years). The findings suggested that the cognitive processes that lead to reading difficulties should be studied in conjunction with other activities rather than separately.

Table 58

Mean and Standard Deviation of Word Context among the Waitlist Control Group in Before, After and Follow-up Phases

Group	Phases	Mean	Standard Deviation
Waitlist Control Group	**Before**	26.77	1.52
	After	26.80	1.47
	Follow-up	26.80	1.47

Table 58 shows the Mean and Standard Deviation of Word Context in Delis Kaplan Executive Function System among Waitlist Control Group in Before, After and Follow-up Phases and the mean scores were 26.77, 26.80 and 26.80.

Table 59

Repeated Measures ANOVA for Word Context among the Experimental and Waitlist Control Group

Source		Sum of Squares	df	Mean Square	F
Phases	**Sphericity Assumed**	24.34	2	12.17	36.53**
	Greenhouse Geisser	24.34	1.47	16.50	36.53**
	Huynh Weldt	24.34	1.53	15.90	36.53**
	Lower Bound	24.34	1.00	24.34	36.53**
PhasesX Intervention	**Sphericity Assumed**	22.34	2	2	33.53**
	Greenhouse Geisser	22.34	1.47	1.47	33.53**
	Huynh Weldt	22.34	1.53	1.53	33.53**
	Lower Bound	22.34	1.00	1.00	33.53**

****= Significant at 0.01 Level**

Table 59 shows the Repeated Measures ANOVA of Word Context Test of Delis Kaplan Executive Function System among Experimental and Control Group. Rashotte and Torgesen (1985) looked at the degree of word overlap between passages and whether repeated reading was useful to determine whether fluency and understanding improved across different stories. Under three distinct situations, nonfluent, learning challenged students read sentences given and timed by a computer. The findings suggested that increases in reading speed with the repeated reading method depend on the number of shared words among stories over short periods of time, and that repeated reading was not more effective for improving speed than an equivalent amount of nonrepetitive reading if stories had few shared words.

Table 60

Pairwise Comparisons for Word Context among the Experimental Group in Before, After and Follow-up Phases

Phases	Phases	Mean Difference	Standard Error
Before	**After**	-0.68*	0.11
	Follow-up	-0.85*	0.12
After	**Before**	0.68 NS	0.11
	Follow-up	-0.17 NS	0.06
Follow-up	**After**	0.85*	0.12
	Before	0.17*	0.06

***= Significant at 0.05 Level** **NS= Not Significant**

Table 60 shows the Pairwise Comparisons of Word Context of Delis Kaplan Executive Function System among Experimental Group in Before, After and Follow-up Phases and there were significant differences because of Thoppukaranam. Pany, Darlene, Jenkins and Joseph (1977) studied about Learning Word Meanings. Three instructional circumstances were tested for their influence on two aspects of reading comprehension: word meaning recall and recalling facts from a storey. The teaching conditions ranged in how much direct instruction on word meanings was favoured. Each of the six learning impaired children who took part in the study received each treatment three times. Results showed that for remedial reading instruction and for analyses of relationships between reading comprehension subskills.

Table 61

Pairwise Comparisons for Word Context among the Waitlist Control Group in Before, After and Follow-up Phases

Phases	Phases	Mean Difference	Standard Error
Before	**After**	-0.03 NS	0.03
	Follow-up	-0.03 NS	0.32
After	**Before**	0.03 NS	0.03
	Follow-up	0.00 NS	0.00
Follow-up	**After**	0.03 NS	0.03
	Before	0.00 NS	0.00

NS= Not Significant

Table 61 shows the Pairwise Comparisons of Word Context of Delis Kaplan Executive Function System among Waitlist Control Group in Before, After and Follow-up Phases.

Figure 12. Word Context among Experimental and Waitlist Control Group during Before, After and Follow-up Phases

Figure12 shows the Word Context Test of Before, After and Follow-up Phases among the Experimental and Waitlist Control Group. Steele and Watkins (2010) studied about

children with language learning disabilities and typically developing peers learn word meanings when reading. They wanted to see if children with language learning disabilities were better than their typically developing classmates at learning the meanings of new words presented during reading. 15 children with Learning disabilities and 15 children who were typically developing will read nonsensical twenty words. Oral definition and multiple choice activities were used to asses word learning. The findings demonstrated that children with language learning disabilities have trouble inferring and recalling word meanings during reading, indicating the importance of vocabulary in upper elementary school. Hence the Alternate Hypothesis 23, **"There will be significant difference between Before, After and Follow-up Phases of Word Context of Delis Kaplan Executive Function System among the Learning Disabled Children in the Experimental Group"**is accepted and the Alternate Hypothesis 24, **"There will be significant difference between Before, After and Follow-up Phases of Word Context of Delis Kaplan Executive Function System among the Learning Disabled Children in the Waitlist Control Group"**is rejected

On the whole, the research analysis shows the effectiveness of Thoppukaranam (Super Brain Yoga) on the Intelligence and Cognitive Abilities among Learning Disabled students was successful. Master Chao Kuk Sui introduced it as a type of regular exercise to improve general physical and mental well being. This activity is a traditional method of worship in India for Lord Ganapati, the elephant headed deity. The effectiveness of Thoppukaranam (Super Brain Yoga) has been found to have impact on Learning Disabled Students through the Raven's Coloured Progressive Matrices who underwent the Intervention alone got more benefitted in enhancing the fluid intelligence than the Waitlist Control Group.

Trial Making Test Involves Visual Scanning, Number Sequencing, Letter Sequencing, Number and Letter Sequencing and Motor Speed which falls under cognitive abilities. These cognitive abilities among the participants in the Experimental Group were enhanced than those in Waitlist Control Group. Participants were made to exercise the Thoppukaranam (Super Brain Yoga) which enhances the brain by creating and strengthening the Neurons. During Childhood the brain can get plasticize to the

maximum level, so therefore there was a significant difference among the participants during the Before, After and Follow-up Phases.

Verbal Fluency is a function related with cognition which helps to retrieve information from the memory. It also includes cognitive processes such as selective attention, selective inhibition and self monitoring. Thoppukaranam (Super Brain Yoga) helps to increases the total brain activity, which improves perceived cognition, working memory, attention, switching ability, focusing ability, positive mindset and perception. Hence the Thoppukaranam (Super Brain Yoga) was found to be effective among the participants in the experimental group during After and Follow-up Phases.

Design fluency is typically assumed to assess planning, cognitive flexibility and fluency in generation of visual patterns, above and beyond contributions from motor speed. Participants in the Experimental Group during Before, After and Follow-up Phases showed a significant difference. The intervention showed a great impact in enhancing the speed of writing, concentrating and visual attention.

Colour Word Interference Test is most commonly used to measure the speed and executive functioning. Colour Word Interference Test revealed that Gray matter volume of the temporal lobe in the left side elongates which in turn results in a better performance on behavioural measures of cognition. Thoppukaranam (Super Brain Yoga) helps to boost the gray matter among the participants. It showed a significant difference among the participants.

Word Context Test examines to identify the meaning of the words. When the left and right brain gets synchronized, there was a better performance among the participants. The intervention was found to be very significant among the participants who practiced it regularly, the areas of vision, brain perception and motor output was enhanced and it helped the participants to be psychologically balanced.

To sum up, it was expected that Thoppukaranam (Super Brain Yoga) would have a significant influence in the effect on the Learning Disabled. It also enhanced the cognitive abilities of the participants by eliminating the stress, anxiety and instilling confidence among them to excel in their studies.