Original Article

A Study to Evaluate the Effectiveness of Concentration Enhancement Activity on Level of Concentration Among Children in Selected Schools, Salem

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Abstract

This quasi-experimental study evaluated the effectiveness of a Concentration Enhancement Activity among 4th and 5th grade children (aged 8–10 years) in selected schools in Salem. Concentration levels were assessed using the Digit Symbol Substitution Test and the Digit Span Test, with pre-test and post-test measurements conducted for the experimental group following the intervention.

In the experimental group, the mean score on the Digit Symbol Substitution Test increased from 37.2 ± 9.74 (40%) at pre-test to 59.1 ± 11.31 (63.5%) post-intervention, reflecting a 23.5% improvement. Similarly, Digit Span Test scores rose from 7.5 ± 1.85 (44.11%) to 10.8 ± 1.78 (63.5%), a 19.39% increase. These changes were statistically significant ($p \leq 0.05$, $t = 2.0$), indicating a substantial enhancement in concentration.

Analysis also revealed significant associations between age and pre-test Digit Symbol Substitution Test scores, type of family and pre-test Digit Span Test scores, and maternal educational status with post-test Digit Span Test scores in the experimental group. In the control group, type of family and family structure were significantly associated with pre- and post-test scores, respectively.

These findings demonstrate that the Concentration Enhancement Activity effectively improves concentration among children, suggesting its potential as a practical intervention in school-based programs aimed at enhancing cognitive performance.

Introduction

Concentration is the ability to direct one's attention following one's will. Concentration means control of attention. It is the ability to focus the mind on one subject or thought and at the same time exclude from the mind every other unrelated thought, ideas, feelings, and sensations. Concentration may be cognitively impaired if the mind is overactive, constantly thinking of multiple things due to concerns or important events. Concentration cannot be achieved overnight. By improving concentration the children will be able to accomplish, what they value.[7]

Concentration is willful focusing of mental energy on one object or one component of a complex experience. Concentration is the amount of effort the children exerts to solve a problem. It is the process or act of remembering or recalling and especially

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the ability to reproduce what has been learned or experienced. Concentration is the mental effort placed on sensory or mental events deliberate mental effort on what is most important in a given situation.[1]

Concentration or focus is provided by the process of attention helps in the clarity of the perception of the perceived object or phenomenon. At one time the children can concentrate or focus their consciousness on a particular object. Concentration assists in study, memory, understanding or achieving goal. It is also essential for psychological development and efficient use of creative visualization.[4]

Concentration is the ability of a child to be able to engage in work by choice. It is the first essential element in child's development. Movement has great importance in a child's mental development which determines if there will be an increase in their concentration. More movement is essential for child's emotional and physical health. Regular physical exercise has improved the child's concentration.[17]

Concentration is the ability to control what we pay attention to. In today's tech-driven world, where multiple stimuli constantly compete for our focus, maintaining this control has become increasingly challenging. The very tools that make our lives easier—smartphones, apps, and endless digital notifications—also fragment our attention. While it is an inevitable consequence of enjoying the benefits of technology, all hope is not lost; with awareness and deliberate effort, our capacity to concentrate can still be strengthened. We must step up, adjust and incorporate habits that keep in top shape as far as concentration is concerned.[18]

Concentration enhancement activities are essential for school-aged children, as they help improve focus across all areas of their lives. Such activities can boost performance not only in academics but also in extracurricular pursuits. Concentration is equally important in everyday tasks, such as reading or listening. Whether children are reading a newspaper or following the news, maintaining focus is crucial for understanding and processing information effectively.[22].

The study was conducted to assess the effectiveness of concentration enhancement therapy in improving concentration among school-aged children (7–9 years) in selected schools in Kanyakumari district. At baseline, in the experimental group, 16 children (53.33%) exhibited low levels of concentration, 14 (46.67%) had medium levels, and none demonstrated high levels of concentration. In the control group, 15 children (50%) had low levels, 15 (50%) had medium levels, and none had high levels. Following the concentration enhancement therapy, the experimental group showed marked improvement: none of the children had low levels, 20 (66.6%) demonstrated medium levels, and 10 (33.3%) achieved high levels of concentration. In contrast, the control group remained largely unchanged, with 16 children (53%) at low levels and 14 (46.6%) at medium levels, and none reaching high concentration. These findings indicate that concentration enhancement therapy was effective in improving the level of concentration among school children, suggesting its potential value as a structured component of academic programs.[20]

Staying focused can be difficult, especially for children surrounded by constant distractions. Concentration is essential for learning, achieving goals, and performing well across tasks. Improving focus is possible but requires effort and changes to daily habits. While adults can use specialized exercises, children need tailored strategies to develop their attention, which can be nurtured through guidance and consistent practice.[10]

Objectives

1. To assess the level of concentration among children in the experimental and control groups.
2. To evaluate the effectiveness of a Concentration Enhancement Activity in improving concentration levels among children.

3. To examine the association between pre-test concentration scores and demographic variables in both groups.
4. To examine the association between post-test concentration scores and demographic variables in both groups.

Hypotheses

H_1: There is a significant difference between the pre-test and post-test Level of Concentration among children in experimental group at p≤ 0.05 level.

H_2: There is a significant difference between the post-test Level of Concentration among children in experimental and control group at p≤ 0.05 level.

H_3: There is a significant association between the pre-test Level of Concentration among children with their demographic variables in experimental and control group at p≤ 0.05 level.

H_4: There is a significant association between the post-test Level of Concentration among children with their demographic variables in experimental and control group at p≤ 0.05 level.

Research Methodology: (Materials and Methods)

A quantitative research approach with a quasi-experimental design was employed to conduct the study among 100 children (50 in the experimental group and 50 in the control group) studying in the 4th and 5th grades in selected schools in Salem. Participants were selected using a systematic random sampling technique, while the study setting was chosen through convenience sampling. Data were collected using a structured questionnaire, which included demographic variables and concentration assessment tests, specifically the Digit Symbol Substitution Test and the Digit Span Test, scored from below-average to excellent levels of concentration. Oral informed consent was obtained from parents, and institutional ethical clearance was secured (Ref No: IECSGH/2024/12). Following permission from the relevant authorities, data collection was conducted over a four-week period.

Results and Discusssion

Table 4.1. Frequency and percentage distribution of children according to their demographic variables in experimental and control group.

n=100

S. No	Demo graphic variables related to children	Experimental group(n=50)		Control group(n=50)	
		f	%	f	%
1.	Age				
	a) 8years	2	4	7	14
	b) 9years	12	24	12	24
	c) 10years	36	72	31	62
2.	Year of Study				
	a) 4th standard	20	40	24	48
	b) 5th standard	30	60	26	52

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3.	Gender				
	a) Male	18	36	25	50
	b) Female	32	64	25	50
4.	Religion				
	a) Hindu	37	74	35	70
	b) Christian	8	16	6	12
	c) Muslim	5	10	9	18
	d) Others	0	0	0	0
	Birth Order				
5.	a) First	14	28	12	24
	b) Second	27	54	32	64
	c) Thirdandabove	9	18	6	12
	No. of. Siblings				
6.	a) None	14	28	6	12
	b) 1 Child	26	52	36	72
	c) 2 Children	9	18	8	16
	d) 3 Children and above	1	2	0	0
	Type of diet				
7.	a) Vegetarian	7	14	9	18
	b) Non-vegetarian	43	86	41	82
	Type of extra curricular activity as a habit				
	a) Listeningtomusic	8	16	8	16
	b) Sports	9	18	16	32
8.	c) WatchingTV	31	62	19	38
	d) Browsing	2	4	7	14
	e) Anyother	0	0	0	0
	f) None	0	0	0	0
	Type of Family				
9.	a) Joint family	10	20	22	44
	b) Nuclear family	40	80	28	56

Table 4.2. Frequency and percentage distribution of children according to their demographic variables related to their parent.

n=100

S. No	Demographic variables related to parent	Experimental group (n=50)		Control group (n=50)	
		f	%	f	%
1.	Family structure				
	a) Single parent	2	4	0	0
	b) Parents living together	45	90	50	100
	c) Divorced parents	3	6	0	0
	d) No parent	0	0	0	0
2.	Educational status of father				
	a) No formal education	0	0	2	4
	b) Primary education	5	10	5	10
	c) Secondary education	16	32	16	32
	d) Higher secondary education	9	18	13	26
	e) Diploma/ Graduate	3	6	7	14
	f) Post graduate	17	34	7	14
3.	Educational status of mother				
	a) No formal education	1	2	3	6
	b) Primary education	8	16	2	4
	c) Secondary education	16	32	12	24
	d) Higher secondary education	15	30	14	28
	e) Diploma/ Graduate	5	10	14	28
	f) Post graduate	5	10	5	10
4.	Father's occupation				
	a) Labor	5	10	3	6
	b) Self-employee	27	54	26	52
	c) Government employee	13	26	11	22
	d) Private employee	5	10	10	20
	e) Unemployed	0	0	0	0
5.	Mother's occupation				
	a) Labor	6	12	1	2
	b) Self-employee	24	48	17	34
	c) Government employee	12	24	8	16
	d) Private employee	5	10	7	14
	e) Unemployed	3	6	17	34

The Table 4.3 shows that inpre-test of Digit Symbol Substitution Test, experimental group 41 (82%) of the mhad Average level of concentration, in control group 34 (68%) of them had Average level of concentration and Digit Span Test, experimental group 27 (54%) of them had Average level of concentration, in control group 43(86%) of them had Average level of concentration.

Table 4.3. Frequency and percentage distribution of children in Digit Symbol Substitution Test and Digit Span Testaccording to pre-test score on Level of Concentration in experimental and control group.

n=100

S. No	Level of Concentration	Digit Symbol Substitution Test				Digit Span Test			
		Experimental group (n=50)		Control group (n=50)		Experimental group (n=50)		Control group (n=50)	
		f	%	f	%	f	%	f	%
1.	Below average level of concentration	0	0	1	2	2	4	4	8
2.	Average level of concentration	5	10	**32**	**64**	15	30	**42**	**84**
3.	Good level of concentration	**39**	**78**	17	34	**31**	**62**	4	8
4.	Excellent level of concentration	6	12	0	0	2	4	0	0

Table 4.4. Percentage distribution of children according topost test scores of Digit Symbol Substitution Test and Digit Span Teston Level of Concentration in experimental and control group.

n=100

	Level of Concentration	Digit Symbol Substitution Test				Digit Span Test			
		Experimental group (n=50)		Control group (n=50)		Experimental group (n=50)		Control group (n=50)	
		f	%	f	%	f	%	f	%
1.	Below average level of concentration	3	6	4	8	21	42	3	6
2.	Average level of concentration	41	82	34	68	27	54	43	86
3.	Good level of concentration	6	12	12	24	2	4	4	8
4.	Excellent level of concentration	0	0	0	0	0	0	0	0
	Level of Concentration	**Digit Symbol Substitution Test**				**Digit Span Test**			
		Experimental group (n=50)		**Control group (n=50)**		**Experimental group (n=50)**		**Control group (n=50)**	
		f	**%**	**f**	**%**	**f**	**%**	**f**	**%**
1.	Below average level of concentration	3	6	4	8	21	42	3	6
2.	Average level of concentration	41	82	34	68	27	54	43	86
3.	Good level of concentration	6	12	12	24	2	4	4	8
4.	Excellent level of concentration	0	0	0	0	0	0	0	0

The above Table 4.4 reveals that in post-test of Digit Symbol Substitution test, experimental group 39(78%) of them had Good Level of Concentration, in control group 32(64%) of them had Average Levelof Concentration and Digit Span Test, experimental group 31(62%) of them had Good Level of Concentration, in control group 42(84%) of them had AverageLevel of Concentration.

Table 4.5. Mean, Standard Deviation, Mean Difference, and Difference in Mean of Digit Symbol Substitution Test & Digit Span Test pre-test and post test score on Level of Concentration among children in experimental group.

n=100

S. No	Name of the Tool	Max score	Pre test			Post test			Difference in Mean %
			Mean	SD	Mean %	Mean	SD	Mean %	
1.	Digit Symbol Substitution Test	93	37.2	9.74	40	59.1	11.31	63.5	23.5
2.	Digit Span Test	17	7.5	1.85	44.11	10.8	1.78	63.5	19.39

Above table shows that in experimental group,during pre-test mean score in Digit Symbol Substitution Test is 37.2±9.74 mean percentage 40% and the post-test mean score is 59.1±11.31 mean percentage which is 63.5% with difference in mean percentage 23.5%. In experimental group, during pre-test mean score in Digit Span Test is 7.5±1.85 mean percentage 44.11% and the post-test mean score is 10.8±1.78 mean percentage which is 63.5% with difference in mean percentage 19.39%.

Table 4.6. Comparison between the pre-test and post-test Level of Concentration among children in experimental group

n=100

S. No	Concentration Enhancement Activity	Digit Symbol Substitution Test				Digit Span Test			
		Max score	Mean	SD	't' value	Max Score	Mean	SD	't' value
1.	Pre test	93	37.2	9.74	15.7*	17	7.5	1.85	2.6*
2.	Post test		59.1	11.31			10.8	1.78	

***Significant at p≤0.05 level, df=49, table value=2.0**

The above table shows that in experimental group, Digit Symbol Substitution Test pre-test mean scoreon level of concentration is 37.2±9.74 and post-test mean score is 59.1±11.31.The estimated paired't'value 15.7 is significantly higher than the table value 2.0atp≤0.05 level. Digit Span Test pre-test mean score on level of concentration is 7.5±1.85 and post-test mean score is 10.8±1.78. The estimated paired 't'value 15.7 is significantly higher than the table value 2.0atp≤0.05 level.

It shows that Concentration Enhancement Activity is significantly effective inincreasing the level of concentration among children in experimental group. Hence the research hypothesis $H_1$is retained at p≤0.05 level.

Table 4.7. Comparison between the post-test Level of Concentration among children in experimental and control group.

n=100

S. No	Groups	Digit Symbol Substitution Test			Digit Span Test		
		Mean	SD	't' value	Mean	SD	't' value
1.	Experimental group	59.1	11.31	8.4*	10.8	1.78	5.9*
2.	Control group	41.5	9.5		9.1	1.20	

***Significant at p≤ 0.05 level, df=98, table value=2.0**

The above table shows that in experimental group, Digit Symbol Substitution Test post-test mean score on level of concentration is 59.1±11.31 and in control group mean score is 41.5±9.5. The estimated paired 't' value 8.4 is significantly higher than the table value 2.0atp≤0.05 level. Digit Span Test post-test mean score on level of concentration is 10.8±1.78 and in control group mean score is 9.1±1.20. The estimatedpaired 't'value 5.9 is significantly higher than the table value 2.0 at p≤0.05 level.

Table 4.8. Association between the pre-test score on Level of Concentration among children and selected demographic variables in experimental and controlgroup.

n=100

S. No	Demographic variables	Pretest							
		Experimental group				Control group			
		df	Digit Symbol Substitution Test	Digit Span Test	Table value	df	Digit Symbol Substitution Test	Digit Span Test	Table value
			x^2Value	x^2Value			x^2Value	x^2 Value	
1.	Age	6	14.1*	4.33	**12.59**	6	0.71	2.16	**12.59**
2.	Yearof Study	3	0.81	0.24	**7.82**	3	0.25	0.37	**7.82**
3.	Gender	3	4.75	5.88	**7.82**	3	3.50	0.79	**7.82**
4.	Religion	6	0.43	0.85	**12.59**	6	0.38	0.39	**12.59**
5.	Birth order	6	4.01	2.62	**12.59**	6	1.45	0.94	**12.59**
6.	Number of Siblings	6	4.01	2.49	**12.59**	6	2.02	0.41	**12.59**
7.	Type of diet	3	1.18	1.66	**7.82**	3	1.04	2.13	**7.82**
8.	Type of extracurricul aractivity as a habit	9	3.05	3.00	**16.92**	9	4.91	22.5*	**16.92**
9.	Type of family	3	0.52	15.7*	**7.82**	3	3.78	22.6*	**7.82**

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10.	Family structure	8	2.14	3.82	**15.51**	3	2.88	4.13	**7.82**
11.	Educational status of father	15	1.98	6.88	**24.99**	15	2.18	19.39	**24.99**

***Significantatp≤0.05 level.**

In experimental group there was a significant association between age and pre test scores of Digit Symbol Substitution Test, type of family and pre test scores of Digit Span Test. In control group there was a significant association between type of family and pre test scores of Digit Span Test. This study revealed that the effectiveness of Concentration Enhancement Activity was significantly effective in improving the Level of Concentration among children. Hence, H_3 research hypothesis is accepted at p≤0.05 level.

Table 4.9. Association between the post test score on Level of Concentration among children and selected demographic variables in experimental and control group.

n=100

S. No	Demographic variables	Post test							
		Experimental group				Control group			
		df	Digit Symbol Substitution Test	Digit Span Test	Table value	df	Digit Symbol Substitution Test	Digit Span Test	Table value
			x^2Value	x^2Value			x^2Value	x^2Value	
1.	Age	6	1.59	0.50	**12.59**	6	3.13	3.46	**12.59**
2.	Year of Study	3	1.41	0.55	**7.82**	3	0.03	0.55	**7.82**
3.	Gender	3	2.29	0.46	**7.82**	3	2.89	0.52	**7.82**
4.	Religion	6	0.77	1.71	**12.59**	6	2.46	1.89	**12.59**
5.	Birth order	6	3.76	1.14	**12.59**	6	1.72	2.69	**12.59**
6.	Number of Siblings	9	7.23	11.81	**16.92**	6	2.47	1.33	**12.59**
7.	Type of diet	3	0.16	0.39	**7.82**	3	3.79	1.11	**7.82**
8.	Type of extracurricular activity as a habit	9	1.67	6.11	**16.92**	9	2.44	0.63	**16.92**
9.	Type of family	3	3.51	4.89	**7.82**	3	4.95	4.77	**7.82**
10.	Family structure	6	0.93	9.15	**12.59**	3	11.89*	4.64	**7.82**
12.	Educational status of mother	15	23.1	25.5*	**24.99**	15	11.23	3.40	**24.99**

***Significant at p≤0.05 level.**

The table 4.9 shows that in experimental group there is a significant association between educational status of mother and post test scores of Digit Span Test and in control group family structure and post test scores of Digit Symbol Substitution Test. This study revealed that the effectiveness of Concentration Enhancement Activity was significantly effective in improving the Level of Concentration among children.Hence, H_4 research hypothesis is accepted at $p \leq 0.05$ level.

Discussion

The study is supported by Sujatha Kannan (2016), who investigated the effectiveness of concentration enhancement therapy among school-aged children in selected schools in Nagercoil. The results indicated that, in the experimental group, the post-test mean concentration score was 121.3 with a standard deviation of 30.32, whereas the control group had a post-test mean of 96.6 with a standard deviation of 26.5. The calculated t-value of 3.388 exceeded the critical table value, demonstrating the significant effectiveness of the intervention in improving concentration levels among children.[10].[10]

The study by Ika RizkiAnggraini (2023) supports the view that Brain Gym activities can significantly improve the concentration levels of fifth-grade elementary students. The findings demonstrated a clear difference in concentration before and after engaging in Brain Gym at SD Plus Mutiara Sains Bangil. Brain Gym was found to enhance learning concentration by increasing endorphin levels, promoting a sense of well-being, and reactivating dimensions of laterality, focus, and overall cognitive concentration.[11].

Conclusion

Lack of concentration is a major challenge often reported by parents and teachers. Concentration Enhancement Activities are essential for school-aged children to improve focus across all daily tasks, including academic performance. In the present study, these activities were effective in increasing concentration levels among children who received the intervention. The researcher, however, faced challenges in implementing the activities for children who were absent and in scheduling sessions without disrupting their academic routine. Future studies could explore similar interventions for children with learning disabilities, and different strategies to enhance concentration could be shared with nursing educators through workshops and conferences.

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