



Assess The Effectiveness Of Mnemonics And Mind Mapping In Enhancing The Perceived Memory Of School Going Children In Selected School Of Udaipur (Rajasthan). Pre-Experimental Study

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Abstract

Introduction:

A mnemonics device, or memory device, is any learning technique that aids information retention or retrieval (remembering) in the human memory. Mnemonics make use of elaborative encoding, retrieval cues, and imagery as specific tools to encode any given information in a way that allows for efficient storage and retrieval. Mnemonics aid original information in becoming associated with something more accessible or meaningful—which, in turn, provides better retention of the information. Commonly encountered mnemonics are often used for lists and in auditory form, such as short poems, acronyms, or memorable phrases, but mnemonics can also be used for other types of information and in visual or kinaesthetic forms.

Method:

The research method adopted for the study was an evaluative approach. It was considered to be most suitable method here because it involves the collection of data from a representation sample of population to assess the effectiveness of mnemonics and mind mapping in enhancing the perceived memory of school going children. In this present study the researcher adopted an experimental (one group pre-test post-test- research design). The samples were 50 school going children of selected schools of Udaipur city who underwent inclusive and exclusive criteria.

Results:

The pre interventional memory score shows that 20 (40%) out of 50 had poor knowledge, 24 (48%) had average knowledge, 05(10%) had good knowledge and 1(2%) had excellent knowledge. The post interventional memory score shows that 20 (40%) out of 50 had good knowledge, 25 (50%) had excellent knowledge, 05(10%) had average knowledge.

Discussion and Conclusion:

The particular study enhances new interventional strategy to help the child to learn various non-academic or extracurricular activities in simple way. Rather than lecture method this new techniques can improve the educational standards among the students to much extended level.

Keywords: mnemonics, mind mapping, perceived memory, school going children, intervention

INTRODUCTION

Good memory is a sure sign of sound learning and you cannot learn if you are unable to remember. When we mix up learned materials with all other sorts of knowledge that is stored in our memory the task of remembering becomes more difficult. We should not make a mess of things learned.¹ Memory, the encoding, storage, and retrieval in the human mind of past experiences. Memory is both a result of and an influence on perception, attention, and learning.² A mnemonics device, or memory device, is any learning technique that aids information retention or retrieval (remembering) in the human memory. Mnemonics make use of elaborative encoding, retrieval cues, and imagery as specific tools to encode any given information in a way that allows for efficient storage and retrieval.³

Mnemonics aid original information in becoming associated with something more accessible or meaningful—which, in turn, provides better retention of the information. Commonly encountered mnemonics are often used for lists and in auditory form, such as short poems, acronyms, or memorable phrases, but mnemonics can also be used for other types of information and in visual or kinesthetic forms.⁴

Memory helps make individuals who they are. Without the help of memories, someone would struggle to learn new information, form lasting relationships, or function in daily life. Memory allows the brain to encode, store, and retrieve information in three basic forms.⁵ Humans process stimuli first with their sensory memory; that information is typically held in the brain for less than a second, which may explain why most people report that when shown an object quickly, they feel like they take in more details than they're able to recall later. Next, the information is transferred to the short-term memory or working memory, which allows someone to mull things over and hold key information in their mind.⁶ Finally, people store past events and patterns in their long-term memory, also known as episodic or semantic memory.⁷

Memory researchers have generally supposed that anything that influences the behaviour of an organism endowed with a central nervous system leaf—somewhere in that system—a “trace” or group of traces. So long as these traces endure, they can, in theory, be restimulated, causing the event or experience that established them to be remembered. Whatever its origins, forgetting has attracted considerable investigative attention. Skills such as working memory, planning, organization and attention develop over time with brain maturation and with practice. Working memory is the ability to keep information in mind while solving a problem. For young children, teachers need to give directions one at a time.⁸ For late elementary school children, directions can be given in a limited series of steps. Executive functions are those skills that allow a person to evaluate what has happened, to review what was done, and to change course to an alternative or different response. Planning and organization is the ability to plan and organize is a skill that develops along

with the brain's ability to consolidate information. These skills develop slowly and with experience and development.^{9,10,11}

Different areas of the brain affect different aspects of memory. The hippocampus, for instance, is related to spatial memory, which helps the brain map the surrounding world and find its way around a known place. The amygdala, on the other hand, is linked to emotional memory. Research is being done on the genetics of memory—and particularly a possible genetic root for Alzheimer's disease—but the science is still preliminary; it's hard to know why some people remember things much more efficiently than others.^{12,13,14}

METHODS and METHODOLOGY

Study design and setting

The present study was a pre-experimental (one group pre-test post-test) study assess the effectiveness of mnemonics and mind mapping in enhancing the perceived memory of school going children in selected school of Udaipur (Rajasthan).

Sample and Technique

A purposive nonprobability sampling technique was used to recruit 50 participants who were eligible according to the inclusion and exclusion criteria under study. Rao soft size calculator was used to estimate the sample size. This calculator allows for a 5% margin error, 95% confidence interval level, and, assumes that per month delivery rate in hospital. The sample size was 50 when the 10% non-response rate was included.

Participants of the study

The person who are below 17 years of age The sample who are regular visitor of the school. The sample who can read and understand Hindi and English. The sample who are available at the time of data collection. Furthermore, were excluded from the study if they had those who are not available at the time of data collection Those who are irregular in the visiting of the school Those who are already attending various mind mapping technique classes.

Data collection procedure and tool

The tool was divide into the two section; Part I: This part includes socio demographic variables of the children who were selected as samples. The demographic variables include, age. gender. academic performance, any previous exposure to certain techniques, type of family. Part II : This section deals with administration of mind mapping and mnemonics techniques to learn 30 spelling which are commonly made by the students of all age. The investigator obtained written permissions from the concerned authority of the selected special school prior to data collection. Main study was conducted on at Government Senior Secondary School, Umarda, Udaipur. The data was collected for a period of 4 weeks i.e. from 15/02/2020 to 2/03/2020. Investigator decided to take 15 children per week for the test.

Data analysis and statistical plan

The data was analyzed using IBM-SPSS (version-26). The researcher developed a master data sheet to compute the data and used both descriptive and inferential statistics to calculate the results based on the objectives and hypothesis of the study. The demographic profile, which included participants' characteristics, was evaluated with frequency and percentage. The chi-square test with a significance threshold of <0.05 was employed to examine the association for categorical variables.

Ethical consideration

Ethical approval for the study was taken from the Institute Ethics Committee. After being informed about the research, and the confidentiality and anonymity of the information, participants were asked to sign a written consent.

RESULTS

Table:1 Study participants demographic characteristic

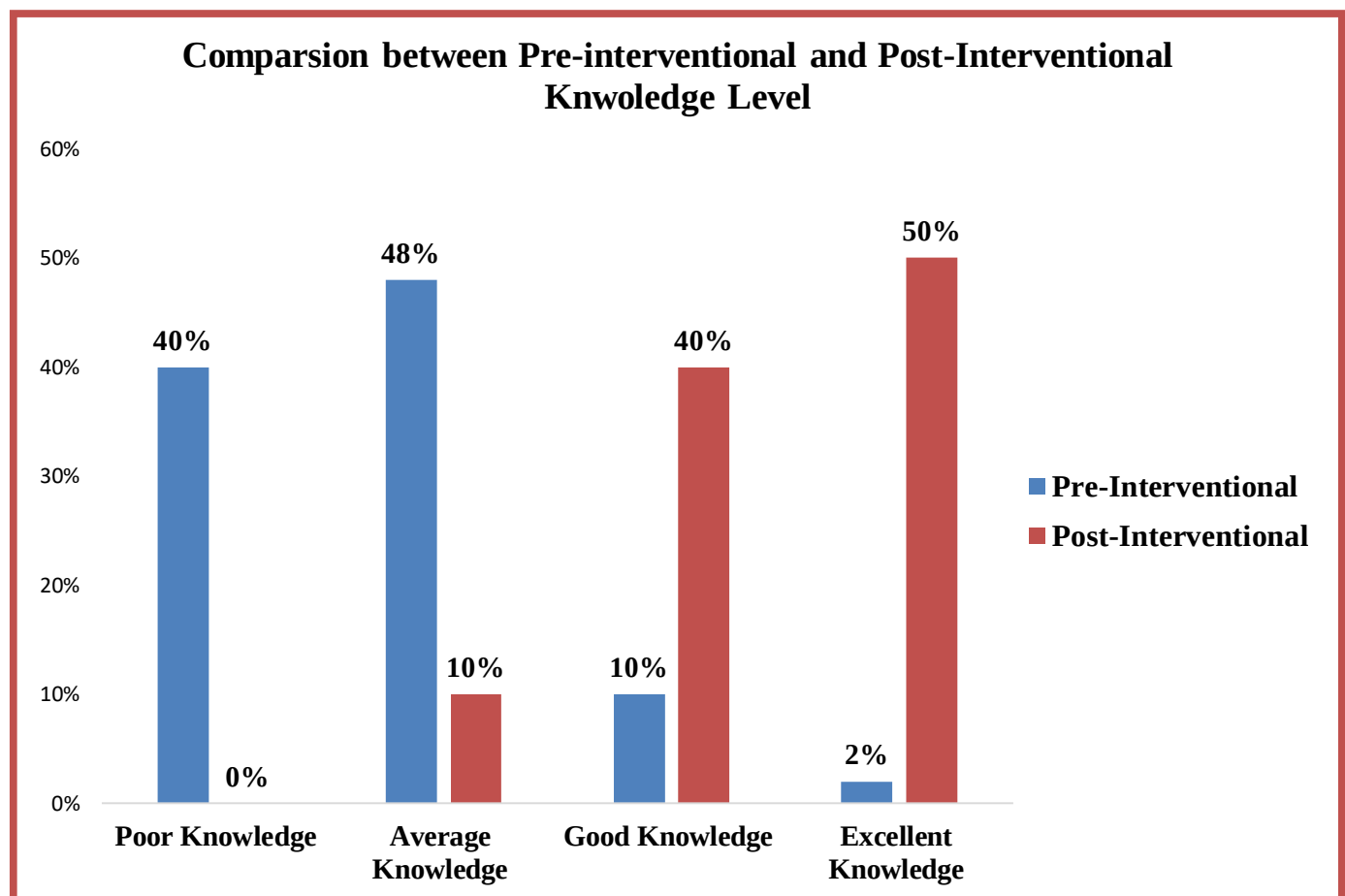
(N=50)

Demographic characteristics	Frequency	Percentage
Age		
9-11 years	18	36
12– 14 years	25	50
15– 17 years	07	14
Gender		
Male	30	60
Female	20	40
Academic Performance		
Below 50%	10	18
51-60 %	20	40
71-80%	15	30
81%- 90%	6	12
Previous Exposure to Vocabulary Study		
Yes	07	14
No	43	86
Type of Family		
Nuclear	32	64
Joint Family	14	28
Extended Family	04	08

Table 1 depicts that the out of 50 study participants, was found out that majority of children were in the age group of 12-14yrs i.e. 25 (50%), Nearly half of these 30 (60 %) were male and 20(40%) were females. In the present study the most of the students were having an academic score of 71-80% i.e. 25(50%). A considerable proportion 7 (14%) have previous exposure to the vocabulary study and 43(86%) have no idea of vocabulary study. Additionally, the majority of the students belongs to a nuclear family 32(64%).

Figure: 1 Pre-Interventional and Post Interventional knowledge score of the study participants

(N=50)



The above the figure shows the pre-test knowledge score of the samples regarding knowledge regarding vocabulary study of spellings. It clearly shows that 20 (40%) out of 50 had poor knowledge, 24 (48%) had average knowledge, 05(10%) had good knowledge and 1(2%) had excellent knowledge. Moreover, after that the administer intervention, the knowledge scores that 20 (40%) out of 50 had good knowledge, 25 (50%) had excellent knowledge, 05(10%) had average knowledge during the post-interventional.

Table: 2 Effectiveness of Mnemonics Technique by calculating Mean, SD, Mean Difference and ‘t’ Value of Pre- and Post-interventional memory level.

(N=50)

Memory level	Mean	SD	df	Paired “t” test value	P-value	Level of significance
Pre-interventional	10.40	4.54	49	15.53	0.005	Significant
Post-interventional	23.85	4.11				

Table 2 revealed that the, mean and SD of pre-and post-interventional were compared and ‘t’ test was applied. It can be clearly seen that the ‘t’ value was 15.5307 and p value was 0.05 which clearly show that mind

mapping and mnemonics techniques was very effective in improving the vocabulary studies of spellings.

“Hence, the present study describes that the study was effective in improving the spellings.”

Table: 3 Association between the Pre-interventional Memory level and demographic variable's

(N=50)

Demographic characteristics	Pre-Interventional score				Chi-Square	df	P value
	Poor	Average	Good	Excellent			
Age							
9-11 years	6	7	4	1	23.52	6	0.002
12– 14 years	13	11	1	0			
15– 17 years	1	6	0	0			
Gender							
Male	15	12	3	0	7.84	3	0.004
Female	5	12	2	1			
Academic Performance							
Below 50%	2	2	0	0	24.51	9	0.003
51-60 %	5	10	0	0			
71-80%	9	11	4	1			
81%- 90%	4	1	1	0			
Previous Exposure to Vocabulary Study							
Yes	20	20	2	1	12.27	3	0.05
No	0	4	3	0			
Type of Family							
Nuclear	14	18	0	0	23.27	6	0.001
Joint Family	6	4	4	0			
Extended Family	0	2	1	1			

Table 3 showing the significant association between the pre-interventional memory level and selected demographic variables such as age, gender, academic performance, previous exposure to vocabulary study, and types of family. Hence found to be significant at the level of $p = 0.05$.” can accepted.

DISCUSSION

The present study suggested the temporal pattern structure in music and rhythm can enhance cognitive functions. To further elucidate this question specifically for memory, they investigated if a musical template can enhance verbal learning in patients with multiple sclerosis (MS) and if music-assisted learning will also influence short-term, system-level brain plasticity. The researcher measured systems-level brain activity with oscillatory network synchronization during music assisted learning. Specifically, measured the spectral power of 128-channel electroencephalogram (EEG) in alpha and beta frequency bands in 54 patients with MS. The study sample was randomly divided into two groups, either hearing a spoken or a musical (sung) presentation

of Rey's auditory verbal learning test. The result suggest that a musical mnemonic recruits stronger oscillatory network synchronization in prefrontal areas in MS patients during word learning. It is suggested that the temporal structure implicit in musical stimuli enhances "deep encoding" during verbal learning and sharpens the timing of neural dynamics in brain networks degraded by demyelination in MS.^{15,16}

The experimental design of the study was with multiple probe design across behaviors and 'Demographical Information Form' together with 'Brigance Inventory of Early Development –II' which was developed by Brigance (2004) and adapted to Turkish by Aral et al. (2008) were used in the study. The child in the study group was trained one hour a day and five days a week for six weeks. The child's achievement scores for 60 each domain are as follows: Fine Motor: 8, Gross Motor: 11, Receptive Language: 7, Expressive Language: 1, Academic Cognitive: 4, Daily Life: 1 and Social-Emotional: 1. There was an increase of 8% in fine motor and 11% in gross motor in post test score. The graphical analysis of findings revealed that the trainable mentally retarded child scored higher on all the post tests in comparison with the pretest scores. The trainable mentally retarded child showed remarkable progress on gross motor, fine motor, receptive language and academic cognitive domains while the amount of daily life and social-emotional domains were lower.¹⁷

CONCLUSION

The particular study enhances new interventional strategy to help the child to learn various non-academic or extracurricular activities in simple way. Rather than lecture method their new techniques can improve the educational standards among the students to much extended level.

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