

**MODERN TEACHING TECHNIQUES IN IMPROVING COGNITIVE SKILLS  
AMONG SCHOOL CHILDREN –A NOVEL APPROACH****\* R.V.GEETHA AND \*\*V. VISHNU PRIYA**

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**ABSTRACT**

Cognition refers to mental activity including thinking, memory, psycholinguistics, comprehension, motivation, perception and self confidence. When cognitive approach is applied to learning and teaching, focus is on understanding of information and concepts. If we are able to understand the connections between concepts, breakdown information and rebuild with logical connections, then our retention of material and understanding capacity will be improved. To improve the cognitive skills among school children by using modern teaching techniques. The study participants were from a school following uniform curriculum in Chennai. The control group and study group participants were exposed to conventional teaching and novel modern teaching methodology respectively. The results were statistically analysed and found to be statistically significant. This study revealed that modern teaching techniques are one of the effective and efficient method in improving the cognitive skills of the school students to make them perform better in their education.

**KEY WORDS:** Cognition, Dopamine, Neurotransmission, teaching techniques.

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## INTRODUCTION

Learning is a complex process that develops through the following stages: Innate abilities, Sensory / motor skills, cognitive skills and instruction.<sup>1</sup> Every academic activity a child participates in requires strong, efficient underlying learning skills if it is to be completed successfully. Many children become frustrated and find schoolwork difficult because they do not have the cognitive skills required to process information properly.<sup>2</sup> Cognitive skills are necessary in everyday life and essential for decision-making, learning and processing information. Learning struggles are due to one or more weaknesses of cognitive skills, which are basic brain skills that allow individuals to remember, think and learn.<sup>3</sup> The core areas of cognitive skills are information processing speed, auditory processing, visual processing, long-term memory, short-term memory, logic and reasoning, and attention skills. Classroom lectures can be long, boring and ineffective.<sup>4</sup> Most students get bored and distracted after about 15 minutes. Your brain can effectively focus and concentrate for up to 25 minutes.<sup>5,6</sup>

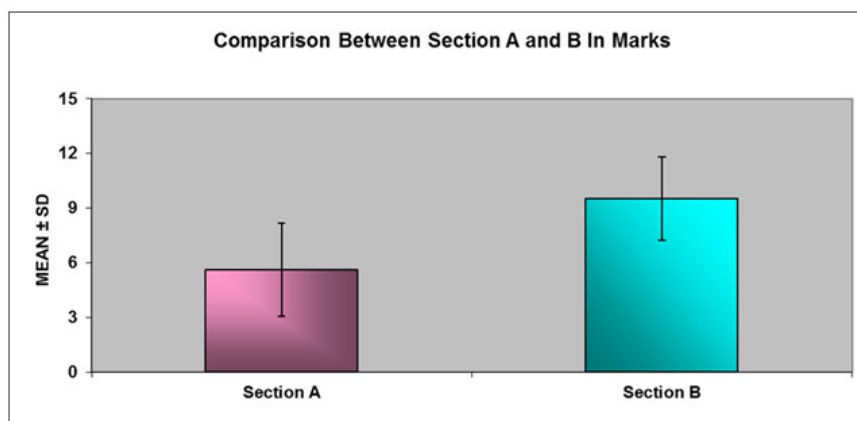
### Scope of the study

- Introducing new teaching strategies like clay modeling and group discussion among school children.
- To evaluate how effective is the new teaching methodology for the students in comparison with the old traditional method of teaching.

## MATERIALS AND METHODS

The study was conducted in a local school in Chennai that follows state board curriculum. Children of class IX from two sections [A and B] were chosen for the study. Section A was taken as the control group, where normal teaching methodology was followed.

## RESULTS AND DISCUSSION



**Figure 1**  
**Comparison of marks between section A and B**

The marks secured by the students of section A and B is shown by a graphical representation. The graph showed a marked difference in the performance of the school students on exposure to modern teaching methodology.

Section B was taken as the study group. The students were divided into 5 batches of six each.

### Questionnaire

Which is the protective double walled sac of heart?  
Muscles of heart  
Upper chamber of the heart  
Lower chamber of the heart  
Septum present between the right auricle and right ventricle  
A valve with 3 flaps is found in the right auriculo ventricular aperture to regulate the flow of blood.  
Other name for mitral valve  
Contraction phase of the heart  
Relaxation phase of the heart  
Heart sounds  
Number of times a human heart beats at rest.  
Artery carrying deoxygenated blood.  
Which artery supplies oxygenated blood to different regions of the body  
What drains the blood from different parts of the body to the heart  
Which is the river of life providing the internal environment to the body

### Section A

A chapter from subject science, structure of human heart was taken for about 60 mins by normal teaching method. A questionnaire was given at the end of the class for each student.

### Section B

The same chapter, structure of human heart was taken for 20 mins. The students were divided in to 5 groups of six each. The groups were asked to do two activities 1. Clay modelling 2. Group discussion. The groups were given coloured clays to make a model of human heart with parts labelled for 20 mins. Then a group discussion for 20 mins about the lesson. At the end of the class same questionnaire was given to them also.

Academic performance of students from section A who were exposed to conventional teaching methodology was lesser when compared to students from section A who were taught with modern teaching methodology.

Average marks of students of section A was found to be 6 (out of 15) and those in section B was found to be 10 (out of 15). The results were statistically significant as evidenced from the graphical representation. As per students' opinion, the preparation was easy in conventional method whereas understanding the logic was more effective in modern teaching methodology. It was also found to be related to what students perceive as "good teaching" and "freedom in learning" (choices in what and how to learn).<sup>7</sup> Several processes takes place when a person search for novel ideas. At the onset, new synaptic connections are created with every new activity an individual is engaged. Researchers have found that after training working memory, there was an increase of dopamine D1 binding potential in the prefrontal and parietal areas of the brain. This particular dopamine receptor, the D1 type, is associated with neural growth and development.<sup>8</sup> This increase in plasticity, allows greater binding of this receptor, which is essential for maximizing cognitive functioning . Novel Activity—>triggers dopamine—>creates a higher

motivational state—>which fuels engagement and primes neurons—> neurogenesis can take place and increase in synaptic plasticity (increase in new neural connections, or learning).<sup>9</sup>

## CONCLUSION

Learning is all about exposing yourself to new things and taking in that information in ways that are meaningful and unique. Networking with other people is a great way to make that happen. You are creating new synaptic connections with every new activity you engage in. These connections build on each other, increasing your neural activity, creating more connections to build on other connections, thus learning occurs.<sup>10</sup> Constantly exposing yourself to new things helps puts your brain in a primed state for learning. More research may be required to get a deeper insight into the human cognition and its interpretation in developing innovative teaching methodologies to benefit the younger minds.

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