Abstract

A Mind Map is a graphic diagram used to represent our thoughts, ideas, tasks, or other items linked to a central key idea or theme. Mind Mapping is the effective, “brain-friendly” way to turn the unorganized, linear, fleeting ideas and thoughts into a structured, visual “map”. The objective of the study is to find out whether there is any significant difference between control and experimental group of standard VIII students in their effectiveness of Mind Mapping Technique in teaching mathematics with reference to gain score at knowledge, understanding, application and total level. The investigator has used experimental method for the study. The finding shows that the experimental group students are better than the control group students in the gain scores. This may be due to the fact that the Mind Mapping Technique in mathematics is effective for standard VIII students. Thus Mind Mapping is very useful for mathematics learning purpose.

1. Introduction

Majority of pupils feel that Mathematics is a difficult subject and it can be understood and followed only by exceptionally intelligent student. At present, majority of Mathematics teachers are following traditional methods of instruction in schools. Gestalt psychologists like Tolman and Ausubel have stressed a lot on meaningful learning. Our brain is a sleeping giant. We use as little as 1% of our full potential. Our brain is divided into left and right cortex. If we want to improve our memory, learning, and thinking skills, we have to use the whole brain. Hence there is a need among teachers to make use of newer and attractive techniques of teaching mathematics for a better understanding and the application of mathematics.
2. Mind Map

Mind Maps are a dynamic way to capture significant points of information. Mind Mapping is technique that trains our brain to see the whole picture and details to integrate logic and imagination. Mind Map is simply a visualization tool which helps to think and learn more proficiently. A Mind Map is a graphic diagram used to represent our thoughts, ideas, tasks, or other items linked to a central key idea or theme. It is used to generate, visualize, structure and classify ideas. Mind Maps are used as an aid in study, organization, problem solving, and decision making. Mind Mapping is the effective, “brain-friendly” way to turn the unorganized, linear, fleeting ideas and thoughts into a structured, visual “map”. Mind Map represents the best of both worlds by resembling the visual aspects of a flow chart and the organizational structure of an outline. A Mind Mapping uses the concept of “radiant thinking” that is, thoughts radiate out from a single idea, often expressed as an image.

3. Need And Significance Of The Study

At present, majority of mathematics teachers follow the traditional methods of instruction in schools. What is required is learner centered-approach to enable them to work on their own with little support from the teachers. When teachers carry out instructional process in the classroom, learner tends to be more passive listeners. No lessons can be effective unless there is effective pupil participation in it. In order to enable the learners to participate in the instructional process, there is an imperative need to adopt some kind of learner-centered new approaches in the classrooms. The teachers should always try to keep the interest of child in mind. Correlating the subject matter with the problems of life can awaken interest. Teaching should be child centered. New knowledge and experiences should be linked with previous knowledge to arouse interest of the people. So the investigator conducted a study on “Effectiveness of Mind Mapping Technique in Teaching of Mathematics for standard VIII Students”.

4. Statement Of The Problem

“Effectiveness of Mind Mapping Technique in Teaching of Mathematics for Standard VIII Students”.

5. Sample Used

The investigator has selected 60 students, comprising of 30 students in the control group and 30 students in the experimental group in the Government High School in Kamuthi in Ramanathapuram District.

6. Method Of Investigation

Since the problem selected for the present study is concerned with “Effectiveness of Mind Mapping Technique in Teaching of Mathematics for Standard VIII Students”, the investigator has adopted the experimental method, which would guide the investigator to test the hypotheses if causal relationships between variables.

7. Experimental Procedure

Two identical groups are selected. These should be ‘identical’ in terms of the characteristic of the Phenomenon under study. One of the groups is used as experimental group, and the other
control group. Experimental group is exposed to an experimental variable or stimulus and control group is not exposed to the experimental variables. The difference between the experimental and control groups outcome is attributed to the effect of the experimental variables.

8. Tools Used

The following tools are used for the data collection:

i. Standardized tool for group test.
ii. Lesson plan prepared from standard VIII Mathematics text book.
iii. Objective type questions for pre-test and post-test.

9. Hypotheses

I. There is no significance of difference between control group students and experimental group students in their gain score in the knowledge level objectives.
II. There is no significance of difference between control group students and experimental group students in their gain score in the understanding level objectives.
III. There is no significance of difference between control group students and experimental group students in their gain score in the application level objectives.
IV. There is no significance of difference between control group students and experimental group students in their gain score.

10. Analysis Of Data

10.1 Null Hypothesis-1

There is no significance of difference between control group students and experimental group students in their gain score in the knowledge level objectives

Table –1 : Difference between control group students and experimental group students in their gain score in the knowledge level objectives

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Variance</th>
<th>Calculated ‘t’ value</th>
<th>Table ‘t’ value</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Group</td>
<td>30</td>
<td>5.5</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental Group</td>
<td>30</td>
<td>7.4</td>
<td>8.5</td>
<td>2.27</td>
<td>2.04</td>
<td>Significant</td>
</tr>
</tbody>
</table>

It is inferred from the above table shows that the calculated “t” value 2.27 is greater than the table value 2.04 at 0.05 level for degrees of freedom =29. So the null hypothesis is rejected. There is significant difference between control group students and experimental group students in their gain score in the knowledge level objectives.

10.2 Null Hypothesis-2

There is no significance of difference between control group students and experimental group students in their gain score in the understanding level objectives.
Table -2: Difference between control group students and experimental group students in their gain score in the understanding level objectives

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Variance</th>
<th>Calculated ‘t’ value</th>
<th>Table ‘t’ value</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Group</td>
<td>30</td>
<td>1.9</td>
<td>10.7</td>
<td>0.67</td>
<td>2.04</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Experimental Group</td>
<td>30</td>
<td>2.3</td>
<td>4.3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is inferred from the above table shows that the calculated “t” value 0.67 is less than the table value 2.04 at 0.05 level for degrees of freedom =29. So the null hypothesis is accepted. There is no significant difference between control group students and experimental group students in their gain score in the understanding level objectives.

10.3 Null Hypothesis- 3

There is no significance of difference between control group students and experimental group students in their gain score in the application level objectives.

Table -3: Difference between control group students and experimental group students in their gain score in the application level objectives

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Variance</th>
<th>Calculated ‘t’ value</th>
<th>Table ‘t’ value</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Group</td>
<td>30</td>
<td>2.9</td>
<td>10.7</td>
<td>2.15</td>
<td>2.04</td>
<td>Significant</td>
</tr>
<tr>
<td>Experimental Group</td>
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<td>4.3</td>
<td>5.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is inferred from the above table shows that the calculated “t” value 2.15 is greater than the table value 2.04 at 0.05 level for degrees of freedom =29. So the null hypothesis is rejected. There is significant difference between control group students and experimental group students in their gain score in the application level objectives.

10.4 NULL HYPOTHESIS: 4

There is no significance of difference between control group students and experimental group students in their gain score.

Table-4 : Difference between control group students and experimental group students in their gain score.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Variance</th>
<th>Calculated ‘t’ value</th>
<th>Table ‘t’ value</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Group</td>
<td>30</td>
<td>10.3</td>
<td>65.3</td>
<td>2.56</td>
<td>2.04</td>
<td>Significant</td>
</tr>
<tr>
<td>Experimental Group</td>
<td>30</td>
<td>14.1</td>
<td>27.4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is inferred from the above table shows that the calculated “t” value 2.56 is greater than the table value 2.04 at 0.05 level for degrees of freedom =29. So the null hypothesis is rejected. There is significant difference between control group students and experimental group students in their gain score.
11. Conclusion

Mind mapping is a beneficial learning tool to help students brainstorm any topic in mathematics and think creatively. Mind maps also provide teachers with insight into their students’ thought process regarding a specific topic. All the students benefit from learning through mind mapping as revealed in the findings of this study. Mind mapping increases creativity and productivity because it’s an excellent tool to generate more ideas, identify relationships among the different data and information and effectively improve memory and retention.

References