



## Comparative Study of Achievement and Content Presentation cum Organization Skill of Students in Mind Map Technique and Traditional Teaching

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### ABSTRACT

The main objective of the study is to compare the effectiveness of Mind Map Technique and Traditional Teaching among 8<sup>th</sup> class students. The study used Posttest-Only Equivalent-Group Design. 48 students were equated based on previous academic achievement and in that two groups, each with 24 students were randomly assigned to control and experimental group. Normality of the group confirmed using Shapiro-Wilk test. Further, Control group intervention through Traditional Teaching and experimental group through Mind Map Technique for Geography topic The Earth-Our Living Planet. Data were collected using an achievement test and free writing sheet. The t test was used to analyses the data. The study revealed that Mind Map Technique was found to be significantly effective in enhancing students post achievement and content presentation cum organization skill compare to the traditional method of teaching. There is no gender difference in students' achievement intervention through mind map. Whereas girls showed higher scores in content presentation cum organization skill compare to boys.

**Key Words:** Mind Map, Achievement, Traditional Teaching

### INTRODUCTION

One of the significant requirements of teaching and learning is how teacher and students process and organize the information and visualize meaningfully. For this, each individual workout and analyze intellectually and use different technique to present and comprehend the material. Graphic organizers, concept maps and mind maps are the well-known technique for organizing and present information. Among, mind maps are a widely used Technique in education. The mind map technique was developed by British psychologist, mathematician and brain researcher Tony Buzan at the end of the 1960s (Aydin, Baysan, & Aydogan, 2017). It is a tool to describe the subtopic and portion in spider form (Rambabu M, Ramana N, & Sadanandam M, 2018). It is a technique always helps to plan and present our thought process and report the same in creative and effective in the form of note-taking (Buzan, 2013). Concern to significance of mind map Zhang (2018) rightly pointed out that "Mind Map is a potential tool for learners to establish and organize the interconnections between ideas and concepts". Entirely the usage of Mind Map gains many benefits such as individual will 1) read master 2) concentrate better 3) get in a creative flow 4) and make confident choices and smarter decisions (Buzan, 2013). Overall mind map is a useful Technique for learning and also be used as the best tool for teaching. The present investigation is an attempt to compare and study

the Mind Map Technique and Traditional Teaching and their effect on academic achievement and content presentation cum organization skill of students.

**REVIEW OF RELATED LITERATURE:**

Stankovic, Besic, Papic, and Aleksic (2011) investigated evaluation of using mind maps in teaching and found that students were more motivated to learn through mind maps as well as organize knowledge and allows students to easy interpretation. Minolin (2015) conducted study on Mind Mapping vs traditional: A comparison of two instructional methods to teach of growth and development of children among B.Sc (N) III year students and found that knowledge of growth and development of children in Group I is effective than the traditional group of students in Group II. Adodo, (2013) investigated the effect of mind-mapping Technique as a self-regulated learning Technique on students on achievement in Basic Science and Technology. The study found that mind-mapping Technique as SRL helped to improve students' performance and, critical thinking and critical thinking and found to be a better approach to teach BST. Tanriseven, (2014) analyses the effect to task planning with mind maps on the self-regulation strategies and motivational beliefs of pre-service teachers and study indicated that planning by means of mind map had positive effects on the use of self-regulation strategies and their motivation. Hallen and Sangeetha (2015) find out the effectiveness of mind mapping technique over conventional method in teaching English at high school level and study stated that Mind Mapping technique is more effective than the conventional method and showed higher scores as well as attainment of objectives Knowledge, Understanding and Application. Tarkashvand (2015) conducted a study on Male learners' vocabulary achievement through concept mapping and mind mapping: differences and similarities. The study revealed that the students who are in mind mapping group benefited higher than the students who are in concept mapping group in vocabulary achievement. Buchatska (2016) investigated psychological foundations of mind mapping strategies in teaching English by using observational and opinion based research. The study concluded that mind maps are truly profound and powerful learning tool help students brainstorm any topic and think creatively and achieve high levels of cognitive performance. Susilawati, Hernani, and Sinaga (2017) studied the application of project-based learning using mind maps to improve students' environmental attitudes towards waste management in junior high school. The study found that PBL method using mind maps for the theme of waste and its management works effective and improve student environmental attitude. Akbar and Taqi (2017) examined Does mind mapping enhance learning? The study found that students of Mind Map group technique performed higher compared to Standard Note Technique group. More positive attitude favour of Mind-Mapping were also elicited from their selection between the three responses i.e know, remember and guess. Wibowo (2017) carried research entitled an application of mind mapping teaching model to enhance natural science learning an achievement in the fifth graders in the first semester at SD N 4 Kaliuntu. The study concluded that Mind Mapping teaching model helped in increasing students learning achievement natural science. Yanti, Zikra, and Haryono, (2018) designed a study on validity test of handout based on mind map in biology learning Technique and design subject. The result showed that handouts based on mind map considered very valid

with 96% and could be used by students of Biology learning Technique and design subject. Khatimah and Rachman, (2018) compared mind mapping technique and semantic mapping techniques in teaching reading comprehension. The study resulted that concept mapping Technique was more effective than the semantic mapping in creating more interest in reading as well as reading comprehension. From review of related literature it is evident that Mind Map is one of the significant areas of research. The present study also contribution to knowledge and research and study intended to compare the effect of mind map technique and traditional teaching

**STATEMENT OF PROBLEM:**

Comparative study of achievement and content presentation cum organization skill of students in Mind Map Technique and Traditional Teaching.

**OBJECTIVES OF THE STUDY:**

1. To develop Mind Maps for a Geography topic The Earth-Our Living Planet to teach 8<sup>th</sup> class students.
2. Find the difference in students' achievement intervention through Mind Map Technique and Traditional Teaching.
3. Find the difference in students' content presentation cum organization skill scores of students' intervention through Mind Map Technique and Traditional Teaching.
4. Examine gender difference in the achievement of students' intervention through Mind Map Technique.
5. Examine gender difference in content presentation cum organization skill scores of students' intervention through Mind Map Technique.

**HYPOTHESIS:**

1. There is no significance difference in post achievement scores of students' intervention through Mind Map Technique and Traditional Teaching.
2. There is no significance difference in content presentation cum organization skill scores of students' intervention through Mind Map Technique and Traditional Teaching.
3. There is no significant gender difference in students' achievement intervention through Mind Map technique.
4. There is no significance difference in content presentation cum organization skill scores of students' intervention through Mind Map Technique.

**RESEARCH DESIGN**

The study applied Posttest-Only Equivalent-Group Design. The method falls under true experimental design, its main assumption is that experimental and control groups are equated by random assignment (Best & Kahn, 2011). In this study, 48 students of class 8<sup>th</sup> studying in one of the state board school of Bangalore city participated. Students were equated based on previous academic achievement and divided into two groups. Each group consists of 24 students and groups are randomly assigned to control and experimental group. Further, Control group intervention through Traditional Teaching and experimental group through Mind Map Technique for Geography topic The Earth-Our Living Planet. At the end of the intervention, both groups were assessed using post achievement test and free writing sheet. 25 marks achievement test assigned to assess the achievement of the students. Students were

also asked to present and organize content in free writing sheet using the main point, sub-points in the form of content presentation cum organization skill. It was assessed for 10 marks.

**STATISTICAL TECHNIQUES:**

In this study Shapiro-Wilk test and t-test used to analysis the data.

**ANALYSIS AND INTERPRETATION OF DATA:**

**Testing Normality of Groups**

The study used Posttest-Only Equivalent-Group Design. Academic achievement scores from the previous unit was considered to equate the groups. Initially scores are arranged from highest to lowest and allotted to two groups. To check the normality of the groups Shapiro-Wilk test of normality was used.

**Table: 1 Results of Shapiro-Wilk Test of Normality**

Groups	Statistic	df	Sig.
Group One	.936	24	.134
Group Two	.968	24	.630

Table 1 reports *p* value for group one is  $p = .134$  and group two is  $p = .630$ . Here, obtain *p* value for both the groups are higher than the .05 level of significance. Thus, according to Shapiro-Wilk test the data is normally distributed.

HYPOTHESIS 1: There is no significant difference in post achievement scores of students' intervention through Mind Map Technique and Traditional Teaching.

**Table: 2 Comparison of post achievement scores of control group and experimental group**

Groups	N	Mean	SD	t-value	p-value
Control Group	24	14.04	5.57	-2.493	.017
Experimental Group	24	17.38	3.45		

Table 2 reports *t* value of -2.493 and  $p = .017$ . As  $p < .05$ , this indicates that there is significant difference in post achievement scores of control group and experimental group at .05 level of significance,  $t(46) = -2.943$ ,  $p = .017$ . Mean gain score favors experiment group and result indicate that the students who attended the intervention of Mind Map Technique performed better in the achievement compare to the students expose to the Traditional Teaching.

HYPOTHESIS 2: There is no significance difference in content presentation cum organization skill scores of students' intervention through Mind Map Technique and Traditional Teaching.

**Table: 3 Comparison of content presentation cum organization skill scores of Control Group and Experimental Group**

Groups	N	Mean	SD	t-value	p-value
Control Group	24	6.83	.82	-3.325	.002
Experimental Group	24	7.67	.92		

Table 3 reports *t* value of -3.325 and  $p = .002$ . As  $p < .05$ , this indicates that there is significant difference in content presentation cum organization skill scores of control group and experimental group at .05 level of significance,  $t(46) = -3.325$ ,  $p = .002$ . Mean gain score favors experiment group and result indicate that the students who attended the intervention of Mind Map Technique performed better in content

presentation cum organization skill compare to the students expose to the Traditional Teaching.

HYPOTHESIS 3: There is no significant gender difference in students post achievement intervention through Mind Map Technique.

Table: 4 Gender wise difference in post achievement scores of experimental group

Gender	N	Mean	SD	t-value	p-value
Boys	13	16.69	3.22	-1.057	.302
Girls	11	18.18	3.68		

Table 4 reports *t* value of -1.057 and *p* = .302. As *p* > .05, this indicates that there is no significant difference in post achievement scores of boys and girls at .05 level of significance, *t* (22) = -1.057, *p* = .302. It means both boys and girls showed equal achievement intervention through Mind Map Technique.

HYPOTHESIS 4: There is no significance difference in content presentation cum organization skill scores of students’ intervention through Mind Map Technique.

**Table: 5 Gender wise difference in content presentation cum organization skill scores of student’s intervention through Mind Map technique**

Gender	N	Mean	SD	t-value	p-value
Boys	13	7.00	1.0	-4.611	.000
Girls	11	8.54	.52		

Table 5 reports *t* value of -4.611 and *p* = .000. As *p* < .05, this indicates that there is significant difference in content presentation cum organization skill scores of boys and girls at .05 level of significance, *t* (22) = -4.611, *p* = .000. Mean gain score favors girls group and result indicate girl students performed more in content presentation cum organization skill compare to boys intervention through Mind Map Technique.

**FINDINGS**

There is a significance difference in post achievement scores of students’ intervention through Mind Map Technique and Traditional Teaching. There is a significance difference in content presentation cum organization skill scores of students’ intervention through Mind Map Technique and Traditional Teaching. There is no significant gender difference in students’ achievement intervention through Mind Map technique. There is a significance difference in content presentation cum organization skill scores of students’ intervention through Mind Map technique.

**DISCUSSION:**

The results of experimental design suggest that the students of experimental group intervention through Mind Map Technique showed higher post achievement scores compare to students exposed to Traditional Teaching. In the same way, the students of experimental group showed higher scores in content presentation cum organization skill compare to control group. These finding clearly indicate that the mind map provide the students to understand the subject matter and organize and present their content in meaningful and logical order. As result, students’ intervention through mind map significantly showed better achievement in experimental group.

In the light of findings of gender wise analysis, it is confirmed that, no difference in the academic achievement of boys and girls intervention through Mind Map Technique. It means gender doesn’t influence on academic achievement of students in experimental group. Whereas girl students displayed higher scores in content

presentation cum organization skill in Mind Map Technique compare to their counterpart boys. But mean difference is less. Thus, it seems to be gender influence on content presentation cum organization skill intervention through the Mind Map Technique.

### CONCLUSION

Based on the present study, it is found that the students intervened through Mind Map Technique performed higher in the academic achievement as well as content presentation cum organization skill in Geography subject than the students of traditional teaching group. Thus, study empirically showed that the Mind Map technique is effective than the traditional technique. Therefore, the secondary school teaching community can use this technique to bring novelty in classroom teaching and also achieve higher achievement as well as content organization and presentation skills in social science subject. Similar studies can also be conducted in other than social science subjects.

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