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# Effect of Mind Mapping Technique on Academic Achievement of Commerce Students

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**Abstract**

This paper focuses on effect of mind mapping technique on academic achievement of commerce students in relation to interest in business studies. Sample of the study consisted of 60, XI grade Commerce students of DCJ Collegiate Senior Secondary School, Jalandhar City. Convenience sampling technique was used to select the sample. Experimental method was used to conduct the research. Sample was divided into experimental group and control group, which were matched on the basis of interest of students in business studies. Pre test post test control group design was used. Self constructed academic achievement test in business studies and self constructed test on interest in business studies were used to collect the data. Collected data was analyzed by using mean, standard deviation, t-test and Two way analysis of variance. Results of the present study revealed significant difference in academic achievement of experimental group and control group. Significant difference was also found in academic achievement of students in relation to high and low interest. Significant interaction effect of method of teaching (mind mapping and conventional method) and interest (high interest and low interest) was found. On the basis of results, it was concluded that mind mapping was more effective method than conventional method of teaching to improve academic achievement of students with high interest in business studies.

**Key words:** Mind mapping, conventional method, academic achievement, interest

## 1. Introduction

Mind mapping is the visual cognitive strategy that can be used in non linear manner to organize, generate and represent one's knowledge. Mind maps had been described as radiant thinking, in which ideas through interconnected braches are spread outward from central concept **(Buzan & Buzan, 1993)**. This technique is totally different from traditional linear notes taking technique. which is deeply rooted in Ausubel's theory of meaningful learning and it focuses on the integration of new knowledge with existing cognitive structures **(Ausubel, 1968).** Deeper understanding and long term retention of learning can be made possible with the help of linking concepts and mind maps. **Eppler (2006)** indicated that as compared to conventional method of notes taking, mind mapping provides concept clarity, improved recall and understanding.

In the words of **Novak and Canas (2008)**, with the help of brainstorming, organization and synthesis of ideas; mind mapping supports constructive learning and enables the learners to construct the knowledge

actively. It also promotes higher order thinking skills of analyzing, evaluating and creating. Due to advancements in digital technology, computer assisted formats of mind mapping allow real time modification of ideas, flexibility and collaboration. These maps also enhance the cognitive engagement.

Academic achievement is one of the key indicators of learners' learning outcomes. It refers to the extent to which learners achieve educational goals, which are often measured through grades, standardized test scores or performance assessments **(Steinmayr, Meibner, Weidinger and Wirthwein, 2014).** It is a multidimensional phenomenon, which is influenced by complex interaction of cognitive, psychological, social and environmental factors. Cognitive abilities (intelligence and prior knowledge) significantly contribute to learners' academic success **(Bloom, 1984)** and non -cognitive factors such as study habits, motivation, self-efficacy and emotional well-being are equally important determinants of achievement **(Bandura, 1997; Zimmerman, 2000)**. School-related factors such as quality of instructions, teaching strategies, teacher effectiveness and classroom climate play a significant role in enhancing academic achievement **(Hattie, 2009)**. Academic achievement does not reflect only cognitive development but also plays a very crucial role in shaping students' future educational opportunities.

Interest is psychological construct which plays crucial role in motivation, learning and academic achievement. It is relatively enduring predisposition which engages with particular topics, objects, or activities which are perceived meaningful and enjoyable **(Hidi & Renninger, 2006)**. It is a key driver of learners' cognitive engagement, persistence and depth of learning. When learners' develop interest in a particular subject, they invest efforts, employ effective learning strategies and attain higher levels of achievement.

Interest includes situational interest and individual interest. Situational interest is considered temporary which arises due to environmental factors like instructional methods or strategies, novelty or relevance of content. On the other hand individual interest is considered stable and it is long-term orientation towards a domain developed over time **(Krapp, 2002)**. Both forms of interest influence learners attention, understanding and educational outcomes.

Interest enhances intrinsic motivation, which leads the learners' to engage them in learning activities for internal satisfaction rather than external rewards **(Deci & Ryan, 2000)**. Understanding how interest develops, effectively nurtured through teaching strategies is essential to bring improvement in educational quality.

Results of various studies indicated that mind mapping is an effective pedagogical tool fostering conceptual understanding, improved academic performance and critical thinking across diverse educational settings **(Datumanong, Mukattil, Hayudini, Abdulhan, Jilah, Elam, Najar, Saradi & Casma, 2025)**. These are also effective tools for enhancing academic performance, in terms of knowledge retention and understanding **(Aljamal, Alawneh & Derbas, 2025)**. It is also helpful in higher knowledge gains and retention **(Jabade & Nadaf, 2024)**. **Safiruddin and Heru (2020)** indicated that mind map method improved students' interest on subject. Present study focused on the following objectives:

1. To study the effect of mind mapping and conventional method on academic achievement of commerce students.

2. To study the difference in academic achievement of commerce students in relation to high or low interest.
3. To study the interaction effect of mind mapping and conventional method; and high or low interest on academic achievement of commerce students.

Following hypotheses were tested:

1. There will be no significant difference in academic achievement of students taught through mind mapping and conventional method of teaching.
2. There will be no significant difference in academic achievement of students in relation to high or low interest.
3. There will be no significant interaction effect of mind mapping and conventional method; and high interest and low interest on academic achievement of commerce students.

**Methodology**

Experimental method was used to conduct the present study. Investigator used pre test- post test control group design to see the effect of mind mapping technique on academic achievement of students in relation to interest in business studies. Convenience sampling technique was used to draw the sample. Sample of the study consisted of 60, XI grade Commerce students of DCJ Collegiate Senior Secondary School, Jalandhar City. Both the groups were matched on the basis of interest in business studies. Self constructed academic achievement test, self constructed interest scale were used to collect the data which was further analyzed by using mean, standard deviation, t-test and Two way analysis of variance.

**Results**

After testing the hypotheses following results were found:

1. t-value for experimental group and control group was 4.56, which is significant at 0.01 level, which means that there is significant difference in academic achievement of experimental group and control group. Hypothesis 1, which states that “There will be no significant difference in academic achievement of students taught through mind mapping and conventional method of teaching”, is rejected.
2. t-value for high interest and low interest group was 8.84, which is significant at 0.01 level, which means that there is significant difference in academic achievement of students in relation to interest (high interest and low interest). The hypothesis 2, states that “There will be no significant difference in academic achievement of students in relation to high or low interest”, is rejected.
3. F-value for teaching methods (mind mapping and conventional method) is 218.57, which is significant at 0.01 level. F-value for interest (high and Low) is 130.03 and it is significant at 0.01 level. F-value for interaction between teaching methods (mind mapping and conventional method) and interest (high interest and low interest) is 112.59, which is significant at 0.01 level. It shows significant interaction effect of method of teaching and interest. The hypothesis 3, states that “There

will be no significant interaction effect of mind mapping and conventional method; and high interest and low interest on academic achievement of commerce students", is rejected.

## Discussions

1. Results of the present study indicated significant difference in academic achievement of commerce students taught through mind mapping and conventional method of teaching. Experimental group students taught through mind mapping had significant higher mean score than the students in control group taught through conventional method of teaching.
2. Results of the present study depicted significant difference in academic achievement of commerce students in relation to high interest and low interest. Those students, who were having high interest, had significant higher mean scores than the students with low interest group. On the basis of results, it can be concluded that mind mapping is more effective as compared to conventional method to improve academic achievement of students with high interest.
3. Results of present study revealed that main effects of method of teaching and interest are favorable, which showed that experimental group is significantly better than control group. The interaction between groups (experimental and control) and interest (high interest and low interest) is also significant i.e. students with high interest taught by using mind mapping and students with low interest taught through mind mapping differ significantly from students with high interest taught by using conventional method and students with low interest taught through conventional method.

## Conclusion

Mind mapping is helpful in improving the academic achievement of commerce students; therefore it is highly effective technique to teach business studies to commerce students. Present study incorporated convenience sampling technique; therefore results of present study may or may not be applicable to the larger population.

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