

# A Rigorous Academic Inquiry: Leveraging Concept Mapping Methodologies for Amplifying Learning Efficacy in Inaugural BHMS 2 CBDC Cohorts

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## ABSTRACT

**Background:** The study aims to evaluate cognitive gain, student perceptions of concept mapping, compare its effectiveness versus traditional methods, and teach the use of concept mapping as a learning strategy in physiology for clinical practice.

**Materials and Methods:** The study involved 122 students from two batches of First BHMS at CMP Homeopathic Medical College, Mumbai. They were taught concept maps, sent YouTube videos, and instructed to draw them in their A3 drawing book. Awards were given for best concept mapping book, and a survey was conducted to compare different learning methods with Concept Mapping.

**Results:** The study reveals that concept mapping is a highly effective learning tool that significantly enhances cognitive gains among physiology students, making it a robust pedagogical strategy that can provide profound and meaningful learning experiences in the complex field of physiology education.

**Conclusion:** The study survey highlighted how concept mapping helps CMP Homeopathic Medical College, Mumbai's First BHMS students learn more effectively.

Also, idea mapping improves comprehension and academic achievement by allowing for meaningful links between concepts. The suggestion of concept mapping as an effective teaching strategy within the CBDC curriculum is supported by the favorable comments from students and the benefits that have been noted. Subsequent investigations ought to go deeper into the workings of idea mapping and examine its enduring effects on knowledge retention and application.

**Keywords:** Physiology Learning; Concept Mapping

## INTRODUCTION

Concept maps are graphical tools that help in problem solving, conceptual thinking and understanding, organizing and memorization of information, and activation and elaboration of past knowledge [1].

“Knowledge cannot be constructed just by memorization, but should be understood, relevantly integrated with previous knowledge,” states David Ausubel’s assimilation theory. Learning that is “meaningful” entails gaining and retaining cohesive knowledge as well as creating several representations

of it that enable it to be accessed and utilized from a variety of viewpoints [2].

Concept maps are multidirectional conceptual graphical representations that use connecting words or phrases to express the relationships between concepts. This allows for the integration of old and new knowledge and the application of theory to practice [3].

Studies have shown that concept mapping increases critical thinking [4,5]. Critical thinking skills helps to build conceptual knowledge [6,7].

## MATERIALS AND METHODS

### Study Design and Participants

This study involved 122 students enrolled in the First BHMS (CBDC Batches) program at CMP Homeopathic Medical College, Mumbai, spanning two successive academic years. The study included students from both senior and junior batches.

### Educational Intervention

**Concept map introduction:** During the start of the school year, a thorough explanation was given to the pupils on the concept of concept maps.

**Preparation materials:** For the purpose of making idea maps, students were told to have an A3 size drawing book, color pens, and highlighters.

**Concept map delivery:** Students get a link to a YouTube video one day before to each lesson. A concept map pertaining to the subject of the upcoming lecture was included in the video.

**Idea map creation:** After watching the film, students were expected to design an idea map in their sketchbooks at home and bring it to class.

**Assessment integration:** Students were urged to write their answers in the Final MUHS using concept maps as a writing tool.

### Final Measures

**Best concept mapping book award:** Students who kept the best concept mapping book were recognised with awards at the conclusion of the school year.

**Senior batch survey:** To evaluate the efficacy of idea mapping with alternative teaching approaches, a survey was administered to the senior batch. This questionnaire was given to them prior to their final exams.

**Survey for junior batch:** In the first term of the academic year, a survey was administered to the junior batch comparing concept mapping with alternative learning techniques.

## DATA COLLECTION AND ANALYSIS

### Data collection

Data on the use of concept maps, academic performance, and survey responses were collected throughout the academic year.

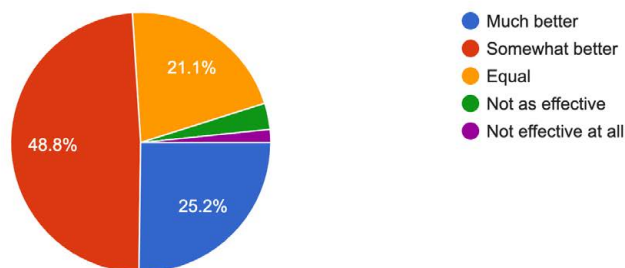
### Statistical analysis

Quantitative data, including exam scores and survey responses, were analyzed using google forms.

## RESULTS

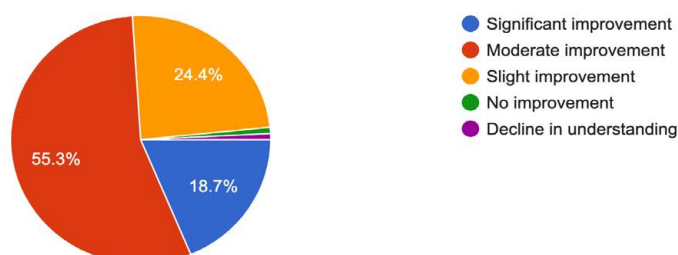
In your opinion, how does concept mapping compare to traditional teaching methods (e.g., Didactic, Powerpoint, Blackboard) in terms of improving learning outcomes?

123 responses



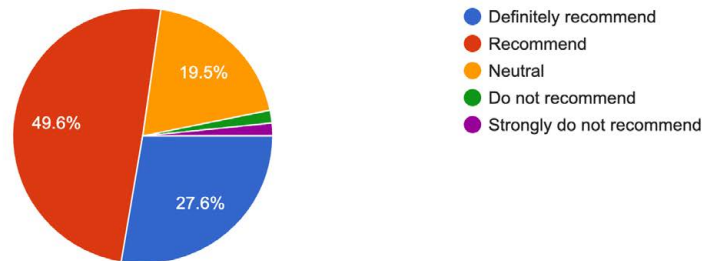
How would you rate your overall improvement in understanding physiology concepts after using concept mapping?

123 responses



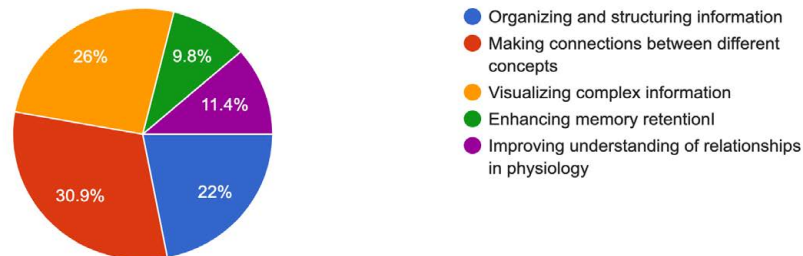
Would you recommend the use of concept mapping to future BHMS 2 CBDC cohorts for learning physiology concepts?

123 responses



What aspects of concept mapping did you find most beneficial for your learning?

123 responses



## CONCLUSION

The research survey's conclusions highlight how idea mapping significantly improves students' learning outcomes. Concept mapping helps to make meaningful links between ideas, which helps with comprehension of difficult subjects and long-term memory retention. The benefits in retention that have been noted after using concept maps point to the usefulness of this teaching strategy in the CBDC curriculum.

Promising outcomes have been shown from the incorporation of idea mapping into the First BHMS curriculum at CMP Homeopathic Medical College in Mumbai. As demonstrated by their academic achievement and survey responses, students who actively participated in developing and applying idea maps demonstrated a stronger understanding of the subject matter.

Students' favorable comments and the observable benefits of their learning experiences support the recommendation of concept mapping as the best mode of instruction in the CBDC program. The methodical strategy of introducing concept maps before to lectures, using them to prepare for exams, and awarding outstanding work has helped to create a supportive learning environment that promotes critical thinking and active engagement.

In the future, more investigation and long-term studies might examine the precise processes by which idea mapping

improves learning results, investigate potential differences in its application across other disciplines or educational levels, and evaluate its long-term effects.

In the future, more investigation and long-term studies could examine the precise processes by which concept mapping improves learning outcomes, investigate possible differences in its application across various subjects or educational levels, and evaluate its long-term effects on application and retention of knowledge. Educators may empower children to succeed academically and acquire lifelong learning skills by implementing evidence-based teaching tactics such as idea mapping.

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