

MIND MAPS AS A LEARNING TOOL IN ANATOMY

Deepali D Deshatty ¹, Varsha Mokashi ².

¹ Assistant professor, Department of Anatomy, Rajrajeswari Medical College and Hospital, Bangalore, India.

² Head of the Department, Department of Anatomy, Vydehi Institute of Medical Sciences and Research Centre, Bangalore, India.

ABSTRACT

Aim of the study: A medical student has to read vast portion of anatomy in short time period. Mind maps are multi-sensory tool that may help medical students organize, integrate and retain information. The purpose of this study is first to see how mind mapping as a note-taking strategy facilitates medical students to learn anatomy better. Whether a relationship existed between mind-mapping and recall of information was assessed.

Materials and Methods: First year medical students (2011 batch) of VIMS &RC, Bangalore were divided in 2 groups. Each group was having 50 students. One group was standard note-taking (SNT) and other was mind map group (MM). Same gross Anatomy topics were assigned for both groups. MM group was given training for mind mapping and asked them to study topic with mind maps. Theory exam was conducted on the given topic for both groups. Marks scored in the exam were compared. After exam a questionnaire was given to MM group to assess their opinion to mind maps.

Result: Students belonging to MM group scored better than SNT group. Majority of students of MM group opinion was mind map as a better learning tool in gross Anatomy.

Conclusion: Mind maps helped medical students in learning Anatomy. It should be encouraged as a learning tool in gross Anatomy along with standard note-taking method.

KEY WORDS: Mind maps; Note-taking; Learning tool.

Address for Correspondence: Dr. Deepali D Deshatty, No.42, ANAGHA, 5th B block, Bhavani housing soc layout, 34th main, Banagirinagara, Banashankari 3rd stage, Bangalore-560085. Karnataka, India. **Contact no.**+91 9342276777. **E-Mail:** ddeshatty@rediffmail.com

Access this Article online

Quick Response code



Web site: International Journal of Anatomy and Research
ISSN 2321-4287
www.ijmhr.org/ijar.htm

Received: 10 Sep 2013

Peer Review: 10 Sep 2013 Published (O):30 Sep 2013

Accepted: 20 Sep 2013 Published (P):30 Sep 2013

INTRODUCTION

A medical student has to read vast portion of anatomy in short time period. Students memorized facts instead of understanding & applying concepts (meaningful learning). We need to prepare medical students for life-long, self-directed learning. We should create learning experiences that will enable students to think.

We cannot teach students to think, but we should be creating learning experiences that will enable students to think and developed ideas using a bottom up approach where rich experiences turn into meaningful learning.

A learning strategy is a thinking tool that a student can use to actively acquire information. Several learning strategies which have been used for example mnemonics, traditional hierarchical note taking, flow charts, Scientograms, Concept maps [1] and Mind maps [2].

BACKGROUND (What is Mind Map)

A mind map is a diagram used to represent words, ideas, tasks, or other items linked to and arranged around a central key word or idea. These tools are simply a way to visualize a concept. An aid to studying and organizing, summarizing information, and writing. It is an extremely

effective method of taking notes. It also aid recall of existing memories.

In a mind map the main study topic is drawn at the centre with key words branching at divergent pattern. These key words correspond to subtopics and then smaller branches project from the subtopics with further details regarding the subject being included in a progressively branching pattern. By undergoing this process, information initially contained within passages of text becomes hierarchically organized, with the most general information being presented in the centre of the mind map and material of increasing detail being presented at the extremes [3].

Objective

To evaluate the effectiveness of mind maps as a learning tool and to assess whether a relationship existed between mind-mapping and recall of information.

MATERIALS AND METHODS

A total of 100 First year medical students (2011 batch) of VIMS &RC, Bangalore were randomly selected. These students were divided in 2 groups. Each group was having 50 students. One group was standard note-taking (SNT) and other was mind map group (MM).

The participants in the mind map group were given 2 mind map training session (30 minute each) for how to produce mind maps and how to apply it the best way. During training participants were given the opportunity to ask questions regarding technique.

Five short gross anatomy topics were selected, and asked both group to study them over a week using their respective method of learning. Written exam was conducted. 5 short essay questions were given, which they have to answer in 30 minutes. All questions were of similar length and required the recall of a specific piece of text. Each question reflected a similar level of difficulty. Scores obtained by students from two groups were compared; the perception regarding technique was obtained from the mind map group by giving a questionnaire.

RESULTS

The mean score obtained by the MM group was 22.38. It was 21.23 in the SNT group. There was

no statistically significant difference between the two groups.

Pass percentage of students compared (table no.1) 38% students from MM group were passed compared to only 26% students from SNT group. The percentage of students scoring more than 75% was same from both groups.

Student group	SNT	MM
Pass percentage	26%	38%

Table 1: Showing pass percentage of students.

Tables 2 to 5 demonstrate % agreement using a 5-point Likert scale of student's perception to the questions regarding the usefulness of mind maps. As noted by the responses presented in table 2, students overall (86%) perceived that mind mapping was valuable when/for learning concepts. When looking at student's perception of the usefulness of mind mapping in understanding the topic, the responses presented in table 3 suggest that, 90% students agreed that mind mapping helped them to understand the topic. Student percent agreement noted in table 4, 80% students positively support mind mapping is helpful in recall of information. As noted in table 5, an average number of students (72%) positively agreed that mind mapping helped them in organizing information. When we observe Tables 2 to 5, some students (8 to 18%) are unsure about usefulness of mind map as a learning tool.

When reviewing responses to the open end question the following were noted;

- Encouraged us to read & outline the chapters
- Helped to clear my concepts
- Good self-study tool
- Helpful for rapid revision
- Enjoyed learning anatomy with color
- Not my style learning
- I don't think it helped with retention of material

Q1.Valuable when learning concepts	Strongly agree	agree	unsure	disagree	Strongly disagree
Students (%)	16	70	14	0	0

Table 2: Students perception of Mind Mapping as valuable when learning concepts.

Q2. Improved understanding of topic	Strongly agree	agree	unsure	disagree	Strongly disagree
Students (%)	30	60	8	0	2

Table 3: Students perception of Mind Mapping in improved understanding of topic.

Q3. Helpful in recall of information	Strongly agree	agree	unsure	disagree	Strongly disagree
Students (%)	32	48	18	0	2

Table 4: Students perception of Mind Mapping as helpful in recall of information.

Q4. Helpful in organizing information	Strongly agree	agree	unsure	disagree	Strongly disagree
Students (%)	22	50	18	8	2

Table 5: Students perception of Mind Mapping as helpful in organizing information.

DISCUSSION

The MM technique showed superiority over SNT, as pass percentage of students from MM group was more. However the students of the MM group as well as the SNT group achieved same performance level (mean score), and also percentage of high scorer is same. This study shows that MM technique is helpful to increase pass percentage, but certainly it can't replace SNT.

The MM technique was helpful in recall of information in the short-term (retention of information). When Ferrand et al.(2002) studied whether MM learning technique was superior to SNT in both short term & long term factual recall of written information in medical students, he perceived MM group had significantly higher factual recall [3].

A majority of students in the MM group had grasped the concept of developing MM after initial training session. Also most of the MM group perceived it as a useful way of summarizing information. Students expressed their interest to learn more about the MM technique and follow it in their future academic activities.

Similarly Amilla wickramasnghe et al had studied effectiveness of mind map as a learning tool for medical students and found it useful way of memorizing information (100%), summarizing information (97.1%), wanted to learn more about MM(87.9%). [4]

D'Antoni et al(2010) studied whether a relationship exists between Mind mapping and critical thinking in medical students, as measured by the HSRT, and found MM not much effective over SNT. In this study we haven't evaluated usefulness of MM in information retrieval & critical thinking in medical students [5].

Further studies should be undertaken to evaluate Mind mapping as learning tool in anatomy, and usefulness of it in integrating, organizing information. Lastly it's a small effort to make anatomy easy.

CONCLUSION

Mind maps helped medical students in learning Anatomy. It should be encouraged as a learning tool in gross Anatomy along with standard note-taking method.

This study demonstrates that mind mapping can be easily taught to first year medical students who have no previous background in mind mapping and doing so requires no cost or expensive equipment. Thus mind mapping may be an attractive resource to add to the study-strategy of entering medical students to help them in learning and organizing the information.

LIST OF ABBREVIATIONS

1. SNT- Standard note taking
2. MM- Mind Map

COMPETING INTERESTS: None

REFERENCES

1. Novak JD. Learning, creating, and using knowledge: Concept Maps as facilitative tools in Schools and Corporations. Lawrence Erlbaum Associates: Mahwah, NJ, 1998.

2. Buzan T, Buzan B. The Mind Map Book. London: BBC Books; 1993.

3. Farrand P, Hussain F, Hennessy E. The efficacy of the 'mind map' study technique. Med Educ. 2002;36:426–431.

4. Wickramasinghe A, Widanapathirana N, Kuruppu O, Liyanage I, Karunathilake I. Effectiveness of mind maps as a learning tool for medical students. South East Asian J Med Educ. 2007;1:30–32.

5. D'Antoni AV, Zipp GP, Olson VG, Cahill TF. Does the mind map learning strategy facilitate information retrieval and critical thinking in medical students? BMC Med Educ. 2010;10:61.

How to cite this article:

Deepali D Deshatty, Varsha Mokashi. Mind maps as a learning tool in Anatomy. Int J Anat Res, 2013;02:100-03.