Mind Mapping Vs traditional: A comparison of two instructional methods to teach Theories of Growth and Development of children among B.Sc(N) III year students

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Abstract: Mind maps comprise a network of connected and related concepts. However, in mind mapping, any idea can be connected to any other. Free-form, spontaneous thinking is required when creating a mind map,and the aim of mind mapping is to find creative associations between ideas. Pictures and structured diagrams are thought to be more comprehensible than just words, and a clearer way to illustrate understanding of complex topics. **Objective**: To determine the effectiveness among two instructional methods namely Mind Mapping and traditional method. **Statistical Methods used:** Quasi experimental Post tests only Design was used. **Result:** The purpose of this study was to compare the effectiveness of Mind mapping and traditional method of instruction on the knowledge on Theories of Growth and development of children. . The results indicated that knowledge on growth and development of children in Group I is effective than the traditional group of students in Group II.

Key Words: Mind mapping v/s Traditional method, Theories of Growth & Development of children,

Introduction

- Mind maps comprise a network of connected and related concepts. However, in mind mapping, any idea can be connected to any other. Free-form, spontaneous thinking is required when creating a mind map, and the aim of mind mapping is to find creative associations between ideas. Thus mind maps are principally association maps. Formal mind mapping techniques arguably began with (Buzan1974)Mind mapping allows students to imagine and explore associations between concepts. The over-riding aim of all mapping techniques is similar. If students can represent or manipulate a complex set of relationships in a diagram, they are more likely to understand those relationships, remember them, and be able to analyze their component parts. This, in turn, promotes ''deep'' and not ''surface'' approaches to learning (Biggs1987)
- In recent years, academics and educators have begun to use software maps for a number of education-related purposes. Typically, the tools are used to help impart critical and analytical skills to students, to enable students to see relationships between concepts, and also as a method of assessment. The common feature of all these tools is the use of diagrammatic relationships of various kinds in preference to written or verbal descriptions. Pictures and structured diagrams are thought to be more comprehensible than just words, and a clearer way to illustrate understanding of complex topics.

Need for the study:

- Mind Maps have proved to be a simple but vital aid to learning, and have had amazing success in classrooms all over the world. Pupils and students of all ages, helping them understand course material, boost memory and recall, generate ideas, assist as a revision aid and help structure coursework .There has been significant research into the benefits Mind Mapping can bring to the education system, and why they offer such an essential tool for teaching and learning.
- Mind mapping (or ''idea'' mapping) has been defined as 'visual, non-linear
- Representations of ideas and their relationships' (Biktimirov and Milson(2006)
- In the former hypothesis, representations are encoded as separate intact units; in the latter, visual representations are synchronously organized and processed simultaneously and verbal representations are hierarchically organized and serially processed (Vekiri2002). In simple terms, processing information verbally as well as pictorially helps learning by virtue of using more than one modality.
- **Boyson** (2009)the use of Mind Maps in teaching and learning was examined in three different ways:
- Using Mind Maps as a note making tool in developing the teacher's own subject knowledge.
- Using Mind Maps to present information to students in lessons.
- Introducing Mind Mapping as a note making format for students.

- From the perspective of the teacher, using Mind Mapping for planning brought about increased understanding of module objective, helped in identifying a logical teaching route and increased recall of the subject matter. The results of the student survey revealed.
- More than 80% of students agreed that Mind Mapping might help them to remember information.72% of students agreed that Mind Mapping helped them to know how each topic fits into a subject. More than 68% said they would use Mind Mapping for revision. More than 75% of respondents said they would like to use Mind Maps in other subjects.
- Research into children from the age of 9-12 years examined the difference in the children's recall of a set of words when the Mind Map technique was used in comparison to a list technique Preliminary results revealed that the children's
- Memory of words increases in both groups but this increase is significantly higher in the Mind Map group with improvements in memory of up to 32%providing evidence supporting the notion that using Mind Maps improves recall of words more effectively than using lists.

Objective

To determine the effectiveness among two instructional methods namely Mind Mapping and traditional method

Hypothesis

There is a difference between Mind mapping and traditional method of instruction on the knowledge on Theories of Growth and development of children

Assumption

Traditional method is widely used teaching method in Schools and Colleges

Research Design

Quantitative approach – Quasi experimental Post test only Design

Samples	Manipulation	Post test
Group I (R)	X1	O1
Group II (R)	X2	O2

Group I –Mind mapping

Group II – Traditional

X1 – Lecture by using black board &OHP on Theories of Growth and Development of children

X2 – Lecture by using black board &Mind mapping chart on Theories of Growth and Development of children

O1 – Post test

O2 – post test

Setting

The study was conducted in Saveetha College of Nursing, Saveetha University.

Population

All B.Sc (Nursing) II year students

Sample

B.Sc(Nursing) II Year students of Saveetha College of Nursing, Saveetha University

Sample Size

The sample size consists of 15 in each group

Sampling Technique

Random sampling technique by lottery method

Criteria for Selection of sample

Inclusion Criteria

B.Sc(N) III year students who are studying in Saveetha College of Nursing

Students who are willing to participate in the study

Exclusion Criteria

Students who were absent on the day of data collection

Data Collection Procedure

Group I

Lesson plan was prepared on Theories of Growth and Development of children and the lesson was taken by lecture method using black board and Mind mapping for 45 minutes. Students clarified their doubts.

Group II

Lesson plan was prepared on Theories of Growth and Development of children and the lesson was taken by lecture method using black board and OHP for 45 minutes. Students clarified their doubts.

Post Test

Knowledge was assessed using Structured Multiple Choice Questionnaire for both the groups on the same day and time by 2 different faculties for 10 minutes.

Statistical Methods used

Descriptive Statistics

Mean and Standard Deviation.

Inferential Statistics

Student 't' test to compare the knowledge on Theories of growth and Development of children.

Results:

Group		N	Mean	SD	Standard Error Mean	Standard Error difference	Independent t test (2- tailed)
Knowledge	**Web based**	15	8.4	1.183	0.306	0.644	3.104 P<0.01 S
	Traditional	15	6.4	2.197	0.567		

This table shows the effectiveness and compares the traditional and Mind mapping approached in teaching of Theories of Growth and Development of children. Knowledge on Theories of Growth and Development of children among students in Mind mapping group is effective in the mean score of 8.4 with 1.183 standard deviation and the standard error mean was 0.306 than that of students in the traditional group. Student t test also revealed that there is a significant difference between the traditional and Mind mapping teaching at the level of P<0.01.

Discussion

The purpose of this study was to compare the effectiveness of Mind mapping and traditional method of instruction on the knowledge on Theories of Growth and development of children. Lesson plan was prepared on Theories of Growth and Development of children and the lesson was taken by lecture method using black board and Mind mapping for Group I. Lesson plan was prepared on Theories of Growth and Development of children and the lesson was taken by lecture method using black board and OHP for Group II. The main difference between the two instructional methods was that students in the Mind Mapping group were more effective than the students in the traditional group who received the same information with traditional instruction. The results indicated that knowledge on growth and development of children in Group I is effective than the traditional group of students in Group II. Student's participation in Mind Mapping helped them to acquire meaningful learning in knowledge. This helped them to understand and whole-brain thinking of students.

Conclusion

I concluded that 'Mind Maps provide an effective study technique when applied to students' and are likely to 'encourage a deeper level of processing' for better memory formation. The increased use of Mind Maps within nursing curricula should therefore be welcomed. On a cautionary note, it is recommended that consideration is given towards ways of improving motivation amongst users before Mind Maps are generally adopted as a study technique. The author suggest that effective training is provided so that students are enthusiastic about adopting this approach in preference to other traditional study techniques.

REFERENCES:

1. Textbook of Pediatric Nursing, ed. 4, by Dorothy R. Marlow, R.N., Ed.D. Philadelphia/London/Toronto: W.B. Saunders Co., 1973, 776 pp.
2. "Mind Map noun - definition in the British English Dictionary & Thesaurus - Cambridge Dictionaries Online". Dictionary.cambridge.org. Retrieved 2013-07-10.
3. "Who invented mind mapping". Mind-mapping.org. Retrieved 2013-07-10.
4. "Roots of visual mapping - The mind-mapping.org Blog". Mind-mapping.org. 2004-05-23. Retrieved 2013-07-10.
5. Buzan, Tony 1974. Use your head. London: BBC Books.
6. Buzan claims mind mapping his invention in interview. *Knowledge Board* retrieved Jan. 2010.
7. 'Mind maps as active learning tools', by Willis, CL. Journal of computing sciences in colleges. ISSN: 1937-4771. 2006. Volume: 21 Issue: 4
8. 'Introduction to the applications of mind mapping in medicine', by José M Guerrero, Pilar Ramos. ISBN 978-1502580245
9. Beel, Jöran; Gipp, Bela; Stiller, Jan-Olaf (2009). "Proceedings of the 5th International Conference on Collaborative Computing: Networking, Applications and Worksharing (CollaborateCom'09)". Washington: IEEE. -->|chapter= ignored (help)
10. {G}lennis {E}dge {C}unningham (2005). *Mindmapping: Its Effects on Student Achievement in High School Biology* (Ph.D.). The University of Texas at Austin.
11. {B}rian {H}olland, {L}ynda {H}olland, {J}enny {D}avies (2004). "An investigation into the concept of mind mapping and the use of mind mapping software to support and improve student academic performance".
12. D'Antoni, A.V., Zipp, G.P. (2006). "Applications of the Mind Map Learning Technique in Chiropractic Education: A Pilot Study and Literature".
13. Farrand, P.; Hussain, F.; Hennessy, E. (2002). "The efficacy of the mind map study technique". *Medical Education***36** (5): 426–431. doi:10.1046/j.1365-2923.2002.01205.x. PMID 12028392. Retrieved 2009-02-16.
14. {N}esbit, {J}.{C}., {A}desope, {O}.{O}. (2006). "Learning with concept and knowledge maps: A meta-analysis". *Review of Educational Research* (Sage Publications) **76** (3): 413. doi:10.3102/00346543076003413.
15. {J}oeran {B}eel, {S}tefan {L}anger (2011). "An Exploratory Analysis of Mind Maps". *Proceedings of the 11th ACM Symposium on Document Engineering (DocEng'11)*(PDF). ACM. Retrieved 1 November 2013.
16. {C}laudine {B}rucks, {C}hristoph {S}chommer (2008). "Assembling Actor-based Mind-Maps from Text Stream". *CoRR*. abs/0810.4616.
17. Rothenberger, T, Oez, S, Tahirovic, E, Schommer, Christoph (2008). "Figuring out Actors in Text Streams: Using Collocations to establish Incremental Mind-maps". *arXiv preprint arXiv:0803.2856*.
18. {R}obert {P}lotkin (1009). "Software tool for creating outlines and mind maps that generates subtopics automatically". *USPTO Application: 20090119584*.
19. {M}ahler, {T}., {W}eber, {M}. (2009). "Dimian-Direct Manipulation and Interaction in Pen Based Mind Mapping". *Proceedings of the 17th World Congress on Ergonomics, IEA 2009*.
20. {S}hih, {P}.{C}., {N}guyen, {D}.{H}., {H}irano, {S}.{H}. and {R}edmiles, {D}.{F}., {H}ayes, {G}.{R}. (2009). "Groupmind: supporting idea generation through a collaborative mind-mapping tool". pp. 139–148.
21. Santos, Devin (15 February 2013). "Top 10 Totally Free Mind Mapping Software Tools". IMDevin. Retrieved 10 July 2013.
22. Farrand, Paul; Hussain, Fearzana and Hennessy, Enid (May 2002). "The efficacy of the 'mind map' study technique". *Medical Education***36** (5): 426–431. doi:10.1046/j.1365-2923.2002.01205.x. PMID 12028392