EFFECTIVENESS OF MIND MAPPING IN HIGHER EDUCATION

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ABSTRACT

One of the main objectives of educators is to identifying inspiring and interactive approach to learning, and to encourage students to be more receptive and cooperative in the classroom. To help educators in achieving these goals we employed Visual learning techniques. Visual learning is a proven teaching method in which diagrams such as concept maps, mind maps, tree diagrams, organization charts and spider diagrams are used to help students of all ages think and learn more effectively. They are all used for storing, processing, organizing and presenting information graphically. These techniques are used across the curriculum and at all Key Stages in the UK. The most popular is Mind Mapping. Mind maps have been used in all facets of education, training and business. With the fundamental goal of fostering learning they have been shown to be an effective tool for displaying students’ prior knowledge, summarizing what has been learned, note taking, aiding study, planning, scaffolding for understanding, consolidating educational experiences, improving affective conditions for learning, teaching critical thinking, supporting cooperation and collaboration, and organizing unstructured knowledge content. This paper emphasis the effectiveness of mind mapping in higher education which make a huge difference here as it offers students with different learning styles an alternative to the more traditional ways of teaching and learning that some find difficult to master.

Key words: Mind Mapping, Visual Learning.

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1. INTRODUCTION

Visual learning is a proven teaching method in which diagrams such as concept maps, mind maps, tree diagrams, organization charts and spider diagrams are used to help students of all ages think and learn more effectively. They are all used for storing, processing, organizing
and presenting information graphically. These techniques are used across the curriculum and at all Key Stages in the UK. The most popular is Mind Mapping.

The use of visual learning techniques, such as mind mapping, is achieving growing recognition in education. Whether we believe that the mind is organized into left and right-hand sides, or whether it is a less organized structure of various skills, mapping utilizes a greater part of the brain, resulting in more effective thinking. Imagination and association are the keys to high-level memory and creative thinking and mapping supports this. With many students being visual or kinaesthetic learners, this approach makes the teaching more enjoyable and effective and the learning more successful and fun. It is an educational win–win that multiplies its benefits over time and with use.

A mind map is a visual representation of hierarchical information that includes a central idea surrounded by connected branches of associated topics. A mind map is a diagram used to visually organize information. A mind map is often created around a single concept, drawn as an image in the center of a blank landscape page, to which associated representations of ideas such as images, words and parts of words are added. Major ideas are connected directly to the central concept, and other ideas branch out from those. Mind maps can be drawn by hand, either as "rough notes" during a lecture, meeting or planning session, for example, or as higher quality pictures when more time is available.

Mind mapping is a visual form of note taking that offers an overview of a topic and its complex information, allowing students to comprehend, create new ideas and build connections. Through the use of colors, images and words, mind mapping encourages students to begin with a central idea and expand outward to more in-depth sub-topics. Mind mapping is a beneficial learning tool to help students brainstorm any topic and think creatively. Mind maps are particularly helpful in the writing process and provide students with a natural way of thinking and building thoughts on a story plot or theme.

Mind maps also provide teachers with insight into their students’ thought process regarding a specific topic. By asking students to create mind maps demonstrating their comprehension of a concept, teachers are able to understand what a student’s prior knowledge was and how well the student understands the assignment or the material being taught. This is a very effective way of evaluating students’ understanding.

2. HOW MIND MAPS FACILITATE THE LEARNING PROCESS

Evidence shows that Mind Maps can facilitate the learning process in a variety of ways:

Interesting and engaging: Goodnough and Woods (2002) discovered that partakers in their study perceived Mind Mapping as a fun, interesting and motivating approach to learning. Several of these participants attributed the fun aspect to the opportunity to be creative when creating Mind Maps through lots of choice in colour, symbols, key words and design.

Organization and understanding: Research by D’Antoni and Pinto Zipp (2005) found that, from a pool of 14 physical therapy students, 10 out of 14 agreed that the Mind Map technique enabled them to better organize and integrate the material presented in their course.

Concentration: A study conducted at New church Community Primary School in Warrington showed a variety of improvements in pupils’ learning after Mind Mapping was introduced. Evidence includes improved concentration, staying on task for longer periods of time, improved questioning and answering during class discussions and improved independence. Cain (2001/2002)

Mind Maps also promote active learning, foster motivation, improve confidence, and support a diverse range of learning styles and levels of ability – all in a fun way!
Mind Maps as a teaching aid: Mind Mapping provides an effective approach for promoting better understanding in learning and training. Its flexibility also means that it possesses several uses when teaching.

Using Mind Mapping for lesson planning can help teachers or trainers identify a logical plan or teaching route and increases recall of the subject matter. This can boost teaching confidence and facilitate the smooth running of programmes. Boyson (2009)

Furthermore Mento et al (1999) affirm that Mind Mapping is a powerful cognitive tool which can be used in a variety of ways because of its ability to evoke associative and non-linear thinking. And finally, researchers, Goodenough and Long (2002) found Mind Mapping to be a useful strategy for introducing new concepts, providing a whole-class focus for a large research project, assessing learning of individuals and offering greater choice in how people chose to complete assignments and projects.

3. REVIEW OF LITERATURE
A study by Holland et al (2003/2004) established Mind Mapping to be a valuable technique for helping someone plan and structure projects and assignments more effectively. The experimental subjects in this study were able to improve the structure, coherence and, consequently, the quality of their written work and were able to draw value from the technique for project managing practical work. Testimony that a Mind Map is an invaluable tool for planning and organizing your thinking for any project! Boyson, G. (2009), ‘The Use of Mind Mapping in Teaching and Learning’. The Learning Institute, Assignment

Mento et al (1999) observed that a number of executives made clear and compelling presentations using only a transparency of their Mind Map, without fumbling about with notes. They were also able to handle challenging questions with confidence. Their ability to handle the presented material in such an effective way was attributed to better recall of the information because it had been captured and stored in an integrated, radiating manner rather than linearly. They could also internalise it better because it was their unique representation of the information.

A Mind Map is an excellent tool for collaborating with others to develop plans or implement key projects. It allows you to harness the input of all members of a group in a dynamic and creative way. When used for group brainstorming sessions, Mind Mapping was seen to enhance critical thinking and co-operation as well as providing a solid basis for collaborative problem-solving. Groups involved in the sessions reported that they enjoyed expressing their opinions in a participative and open climate (Paykoc et al, 2004)12.

A Mind Map can help you think with greater clarity to explore relationships between ideas and elements of an argument and to generate solutions to problems. It puts a new perspective on things by allowing you to see all the relevant issues and analyze choices in light of the big picture. It also becomes easier to integrate new knowledge and organize information logically as you aren’t tied to a rigid structure.

A study by Farrand, Hussain and Hennessey (2002) found that Mind Mapping improved the long-term memory of factual information in medical students by 10%. They reported that “Mind Maps provide an effective study technique when applied to written material” and are likely to “encourage a deeper level of processing” for better memory formation.

Wickramisinghe et al (2007) discovered that the majority of medical students who had been newly introduced to Mind Mapping perceived it to be helpful for memorising information in an organised way compared to their previous self-study techniques.

Research by Toi (2009) shows that Mind Mapping can help children recall words more effectively than using lists, with improvements in memory of up to 32%.
Incorporating Mind Mapping into the teaching of comprehension skills enhances students’ understanding and memory of comprehension passages (Wong-Ang Gek Moi and Ong Lee Lian, 2007)

Mind Mapping is a helpful method for remembering the relationships and steps that are necessary for mathematical processes (Entrekin, 1992)

Mind Mapping was selected as an effective strategy for encouraging creativity development in engineering students and was applied with encouraging results. It allowed creativity development to be introduced into the curriculum in a way that made best use of the time available (Zampetakis et al, 2007)

A study by Al-Jarf (2009) proves that Mind Mapping software offers a powerful approach for improving the ability of students to generate, visualise and organise ideas. The students involved reported that the Mind Mapping tool encouraged creative thinking and they became faster at generating and organising ideas for their writing.

4. MIND MAPPING ENHANCES LEARNING

Evidence shows that Mind Mapping offers a powerful system for learning. It harnesses visual appeal through colour, symbols and images, and encourages students to make sense out of ideas by constructing them in meaningful ways. This makes it ideal for promoting active learning, fostering motivation, improving confidence, and for supporting a diverse range of learning styles and levels of ability. Students also find it to be great fun!

A study by Abi-El-Mona and Adb-El-Khalick (2008) revealed that science students who used Mind Mapping achieved substantially higher gains in conceptual understanding and practical reasoning than students using conventional study techniques. The personal, student-created structure and nature of Mind Mapping allowed students of different achievement levels to apply it in ways that best corresponded with how they recall information and assimilate their understanding of content.

Mind Mapping has been shown to bring a renewed sense of enthusiasm to the classroom because it increases student confidence and sense of skill in mastering assigned materials (Mento et al, 1999).

In a study conducted by Polsen (2003/2004), the majority of students emphasized the flexibility that Mind Mapping offered in their learning. In particular, they appreciated the creative aspects of the technique and the assistance it gave them in understanding concepts and ideas. Improved confidence and more positive attitudes towards learning were also apparent.

5. MIND MAPPING SUPPORTS EFFECTIVE TEACHING

As a pedagogical tool, the visibility of Mind Mapping provides an effective approach for promoting better understanding in students. Its flexibility also means that it possesses several uses in the classroom.

Using Mind Mapping for lesson planning can help teachers identify a logical teaching route and increases recall of the subject matter. This can boost teaching confidence and facilitate the smooth running of lessons (Boyson, 2009)

A study by Polsen (2003/2004) proved that using Mind Mapping as a pedagogical strategy led to improvements in pupils learning. This was primarily built on helping them to develop sound categorization skills and then supporting them in depicting this information within a visual format. The study also revealed that the applications and advantages of Mind Mapping have cross curricular qualities, and can be potentially applied across all age ranges and learning abilities.
D’Antoni and Pinto Zipp (2005) recommend that educators incorporate Mind Mapping into their curricula since it is easy to use and involves no cost. There are several options for utilising the technique - 1) pre-lecture format – integrating concepts from assigned readings prior to review by instructor; 2) post-lecture format – integrating concepts from assigned readings and material previously reviewed by instructor; and 3) case presentations.

6. MIND MAPPING ENHANCES PRESENTATION SKILLS
While researching the applications of Mind Mapping in executive education, Mento et al (1999) observed that a number of executive students made clear and compelling presentations using only a transparency of their Mind Map, without fumbling about with notes. These students were able to handle challenging questions with confidence. Their ability to handle the presented material in such an effective way was attributed to better recall of the information because it had been captured and stored in an integrated, radiating manner rather than linearly. Students could internalize it better because it was their unique representation of the information.

7. MIND MAPPING ENCOURAGES CRITICAL THINKING AND PROBLEM-SOLVING
Mind Map can help you think with greater clarity to explore relationships between ideas and elements of an argument and to generate solutions to problems. It puts a new perspective on things by allowing you to see all the relevant issues and analyse choices in light of the big picture. It also becomes easier to integrate new knowledge and organise information logically as you aren’t tied to a rigid structure.

Mueller et al (2002) describe how the use of Mind Maps to plan patient care at Front Range Community College has resulted in enhanced thinking skills including critical thinking, whole-brain thinking and comprehensive thinking. The strategy promotes holistic care planning through focusing on the patient as the centre of the care plan and by enabling interconnections to be made between related nursing diagnoses and patient care data.

8. MIND MAPS AS A CLASSROOM EXERCISE
Mind Mapping is an active and collaborative learning tool that allows an educator to move beyond the traditional ‘chalk and talk’ style of teaching.

Results from an in-class exercise (Budd, J. 2004) which introduced a group of students to Mind Maps and then a topic to Mind Map, supported the idea that students are engaged in active learning. Students were divided into groups of three to facilitate more in-depth analysis of the topic and to collaborate with others. In particular, students with higher scores for a ‘doing’ learning style agreed that they learned a lot from the Mind Map exercise.

9. CONCLUSION
This study provides some preliminary evidence for the value of Mind Mapping, despite only being conducted on a small scale. The majority of students liked using Mind Mapping and was able to point out several ways in which it enhanced their learning of science. The insight acquired during the research suggests that Mind Mapping will only gain standing in classrooms when it is reinforced either on a yearly basis or across grade level curricula. It was concluded that “Mind Maps provide an effective study technique when applied to written material” and are likely to “encourage a deeper level of processing” for better memory formation. The increased use of Mind Maps within medical 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.

REFERENCES


Effectiveness of Mind Mapping in Higher Education

