

Developing creative thinking of children by mind mapping technique

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Abstract

Mind mapping is a learning technique that was developed by Tony Buzan (1970). A Mind Map is a powerful graphic technique which provides a universal key to unlock the potential of the brain. It harnesses the full range of cortical skills — word, image, number, logic, rhythm, colour and spatial awareness—in a single, uniquely powerful manner. Application of mind map is to construct “Divergent Thinking” in the brain. While applying mind mapping, the ability of logical analysis, reasoning of left brain, creative thinking and memory of right brain can be maximized. Thus, this study reviews related researches to figure out whether mind mapping can be applied by children to develop their creative thinking.

Keywords: Mind Mapping, Children, Creativity.

Introduction:

In so doing, it gives an individual the freedom to roam around the infinite expanses of an individual's brain. Through mind maps, one's attention, coordination ability, logic, reasoning, thinking, power of analysis, creativity, imagination, memory, ability of planning and integration, speed reading, character, number, visuality, hearing, kinesthetic sense, sensation, etc. can be enhanced significantly. “Picture” is not limited by nationality and language and it is the best tool for young children to explore new things and learning. The Mind Mapping can be applied to every aspect of life where improved

learning and clearer thinking will increase human performance. Mind mapping is a technique for delivering effective and creative thinking (Buzan, 1989; Mento, Martinelli & Jones, 1999; Buzan & Buzan, 1996; Buzan, 2005). The technique helps in arranging and presenting research concepts visually around a central keyword or idea (Borchardt, 2011; Burgess-Allen & Owen-Smith, 2010; Buzan, 1995, Kern, Bush & McCleish, 2006; Crowe & Sheppard, 2012; Meier, 2007; Mueller, Johnston & Bligh, 2002; Wheeldon, 2011). This visual presentation helps to organise thoughts (Mattos, Mateus Junior & Merino, 2012), create ideas (Cheng, Hu & Chen, 2012), focus discussions (Chang & Chen, 2015), solve problems (Buzan, 2005), make decisions (Borchardt, 2011) and achieve learning (Mattos, Mateus Junior & Merino, 2012).

It takes some practice in defining locations and placement of topics and details. It has been noted that the use of colors and symbols can positively influence the information retention of the presented information. If the maps are to be shared, the photocopying or scanning must be used which can slow the transfer of the map to others. It also makes the maps a reference document, not a living document for changes. Cain (2001/2002) found that 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. Goodnough and Long (2002) found that Mind Mapping is 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 choose to complete assignments and projects. It is easy to recall multi coloured, multi-dimensional mind maps rather than traditional linear notes (Buzan & Buzan, 2006).

Creativity is one of the most significant human activities. It is a dynamic concept exceptionally complex and undergoing transformations. It is a mental process through which one comes to accurate, unique and innovative results. Torrance (1974) suggested four components of Creativity,

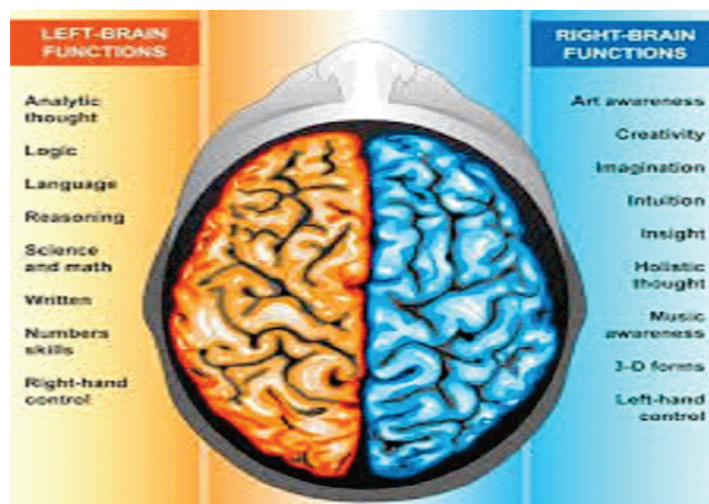
- A. Fluency – the continuity of ideas, flow of associations and use of basic and universal knowledge;
- B. Flexibility- changing ideas, approaching a problem in various ways and producing a variety of solutions;
- C. Originality– this is at the heart of all creative thinking, and represents your ability to produce ideas that are unique, unusual, and ‘eccentric’, literally ‘away from the centre’. Although

many people think such a person is ‘uncontrolled’, exactly the opposite is true: originality often results from a great deal of directed intellectual energy, and it generally shows a capacity for high levels of concentration.

- D. Elaboration – the ability to describe, illuminate and generalize ideas. Creativity can be general or specific. General creativity as explained by Leikin (2009) is associated with using problem solving patterns from one field, in solving problems in another field and specific creativity brings about creativity in a particular field by taking into account the logical deductive nature of the field.

The creative thinker is able to build up, develop, embroider, embellish, and generally elaborate and expand upon ideas.

Creative thinking involves the use of the full range of left-brain and right-brain mental skills, which is shown in the following picture. If the total brain of an individual functions at the same time then it will be termed as mind mapping.



Education systems tend to focus on left-brain skills and place less emphasis on right-brain skills, which immediately impacts on our capacity to think creatively. Academic background tends to develop one's verbal, mathematical, and analytical abilities but neglects skills such as drawing, painting, and music. But there are chances for tapping into a fraction of one's creative capabilities. What do we get when we combine the skills of left and right hemisphere of the brain? A Mind Map! A Mind Map includes each aspect of the left and right cortex and is therefore a superb whole-brain thinking tool.

Mind Maps are an excellent tool for strengthening ability of an individual to make associations and create images in the Mind Maps of individual's thoughts. Mind Maps encourage creativity. If an individual wants to come up with brilliant ideas, find inspired solutions to any problem or find new ways to motivate himself and others, he needs to set his imagination free with Mind Maps.

Furthermore, mind maps present information and data in an organic and visual format that many of the proponents of the technique claim can increase the ability to retain informations (Buzan, 1976; Meier, 2007; Buzan, 1993; Buzan, 2005). When originally developing the technique, research attempted to gain an understanding of how people learn and remember resulting in gaining insights on how the brain operates (Mento, Martinelli & Jones, 1999). For instance, Zampetakis, Tsironis and Moustakis (2007) convey that the brain works by focusing on a central point from which outward ideas can be added and organised. Additional research uncovers the brain's division into two hemispheres which are connected together facilitating different intellectual functions (Buzan, 1991; Buzan & Buzan, 1995;

Buzan & Buzan, 1996; Buzan & Buzan, 2006). By using both hemispheres, humans are able to think effectively and creatively (Mento, Martinelli & Jones, 1999; Nast, 2006). Buzan and Buzan (1995, 2006) demonstrate this creativity by providing examples of the working notes of great thinkers such as Leonardo da Vinci and Picasso which reflect the use of the mental capabilities which exist in both hemispheres. Leonardo da Vinci realized the power of using images and associations in order to unleash his brain's infinite capacity.

It is a skill to develop the whole brain, applying characters, images, numbers, logics, rhythm, colors and unique observation method, providing a limitless and free imaginary space to the brain. Briefly, mind map is a map for the brain (Buzan & Buzan, 1996). Application of mind map is to construct "Divergent Thinking" in the brain. While applying mind mapping, ability of logical analyzing and reasoning of left brain and creative thinking and memory of right brain can be maximized. Mind maps are considered to be a type of spider diagram.

Objectives:

1. To explore the theoretical concepts and functions of mind mapping.
2. To describe how to develop creative thinking in children by mind mapping technique.

Functions of mind map:

1. Build a concept or viewpoint in a broader scope or topic.
2. It provides a direction while planning or making decisions, helping users to collect and organize large amount information.
3. It encourages users to solve problems by a new and creative way and thus enhances the effectiveness.
4. It attracts and controls one's attention and thinking.
5. It makes observation, reading, thinking or memorizing interesting.

Benefits of Mind Maps:

- Help students brainstorm and explore any idea, concept, or problem
- Facilitate better understanding of relationships and connections between ideas and concepts
- Make it easy to communicate new ideas and thought processes
- Allow students to easily recall information
- Help students take notes and plan tasks
- Make it easy to organize ideas and concepts

1. Mind mapping



Related works on application of mind mapping in developing creativity of children:

Goodnough and Woods (2002) discovered that Mind Mapping is 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. 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 organise and integrate the material presented in their course. 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. According to Dalke (1998), young 3 years old children showed some ability to make and use maps but performed poorly on the false belief tests. Children were more likely to use an incorrect map to predict behavior if the represented object was missing instead of in a wrong location. Many children were also able to predict that someone who used an incorrect map would not "Find" the object. In particular, it would be useful for at least two individuals to go through the mind map independently to help ensure objectivity when reporting the number and strength of the relationships and connections listed (Cresswell, 1998). Mundy and Gilmore (2009) used a novel task to assess children's mapping ability. They showed that children can map in both directions between symbolic and nonsymbolic numerical representations and that this ability develops between 6 and 8 years of age. Chen (2007) examined the role of experience on 2.5- to 5-year-old children's discovery of spatial mapping strategies. With experience 3- to 4-year-olds discovered a strategy for mapping corresponding locations that shared both featural and spatial similarities. When featural and spatial correspondences were placed in conflict, requiring children to negotiate both object-centered and location-centered mapping possibilities, 4- to 5-year-olds proved capable of discovering a novel mapping strategy, abandoning an ineffective strategy, and generalizing the acquired strategy across analogous tasks. It has been successfully used in community serving programs and could be similarly applied in youth serving agencies (Wells & Arthur-Banning, 2007).

Conclusion:

Mind Maps are therefore the best way to express our brain's infinite creative potential. Mind mapping is a thinking method which stimulates thinking and helps to integrate thoughts and

information, and it is also a strategy of thinking visualizing concepts (Buzan & Buzan, 1996). This mind mapping utilizes lines, colors, characters, numbers, symbols and pictures to quickly record information and thoughts. It clearly and easily record large amount of information or ideas which originally require magnitude of words to record on a mind map. The structure becomes open and organized, allowing one to organize a variety of information and evoke more new ideas. Finally, we propose some guidelines for later researches to improve course design of information education for young children. This allows one to find that picture is helpful for young children on learning and interaction. However, there are still some unanswered questions such as: how to implement mind mapping in teaching, how to train the teachers to become master on this method, etc., that needs further investigation.

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