Using Mind Maps as a tool to foster Brain Based learning in the Changing World

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Abstract
Since the beginning of times there have been various assumptions and misconceptions about the three pound universe within our skull. Today this wondrous, mysterious and powerful human brain has emerged as a new field of study and this new paradigm has helped educationists in establishing connections between brain functions and traditional educational practices. Brain based learning is organized around some visual pattern and graphic organizers help in bringing up this associated information. In this paper the author focuses on one such graphic organizer i.e. Mind Mapping technique that can help foster this cognitive instruction along with some other effective principles of brain based learning.

Key words: Brain Based Learning  Mind Maps

Introduction: Scientists once believed that the brain becomes rigid with age but neuroscience has proved that the brain is dynamic and flexible, even as one ages which means that the brain is plastic. The brain is the CPU of the body that processes information in our body. In addition to being extremely complex it is capable of multitasking.

Many learners who should do well in a subject actually underperform because the new material seems irrelevant. Unless connections are made to students’ prior learning, comprehension and meaning may be dramatically lessened. Brain Based Learning, which draws insight from neurology, psychology, technology and other fields, promises to help teachers by engaging diverse learners and creating a rich learning environment in the classroom that would attend to students’ social and emotional needs along with their developing brains. Thus, by
understanding how the brain works, educators are in a better position to help the students with everything from focusing attention to increasing retention.

**What is Brain Based Learning?** According to Jensen (2000), brain based learning is “learning in accordance with the way the brain is naturally designed to learn.”

Learning puts demands on the brain and the brain responds by developing new circuits to connect new information to current or past knowledge. According to Fishback (1999)“ the creation of neural networks and synapses are what constitutes learning.”

**Core Principles of Brain Based Learning:**

- The brain is a parallel processor.
- Learning engages the whole physiology.
- The search for meaning is innate.
- The search for meaning comes through patterning.
- Emotions are critical to patterning.
- The brain processes both whole and parts simultaneously.
- Learning involves both focused attention and peripheral perception.
- Learning involves both conscious and unconscious processes.
- We understand best when facts are embedded in natural, spatial memory.
- Learning is enhanced by challenge and inhibited by threat.
- Each brain is unique.
- The big picture cannot be separated from the details.

Because every brain is different, educators should allow learners to customize their own environments.

**Brain Based Learning: The New Paradigm of Teaching:** The instructional techniques associated with brain based learning are:

1. **Orchestrated Immersion:** This means creating a learning environment that fully immerse the students in an educational experience that is both rich and real. Teachers should
therefore take advantage of the brain’s ability to parallel process and should lead students to make meaningful and authentic connections.

2. **Relaxed Alertness:** This emphasizes trying to eliminate fear in learners, while maintaining a highly challenging environment. Thus teachers should give students a personally meaningful challenge which stimulates the students mind to a desired state of alertness. Any kind of stress scrambles the learning circuits and the brain responds by blocking information to the learning centres of the brain. Anger, fear, sadness or anxiety disrupt thinking, memory and learning.

3. **Active Processing:** This means allowing the learner to consolidate and internalize information by actively processing it. The brain craves novelty and in order for a student to gain insight about a problem there must be intensive analysis of the different ways to approach it and about learning in general. This is what is known as “active processing of experience”. Thus the teachers should make meaning of what the students are learning in the classroom.

Thus, we can conclude that the brain is poorly designed for formal instruction and not at all designed for efficiency or order. It rather develops best through selection and survival. Our brain is highly adaptable and designed to respond to environmental input.

Left brain and Right brain dominant learners more often than not, may………..

<table>
<thead>
<tr>
<th>Left Brain Dominant Learners, may</th>
<th>Right Brain Dominant Learners, may</th>
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<tbody>
<tr>
<td>Prefer things in sequence</td>
<td>Be more comfortable with randomness</td>
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<tr>
<td>Learn best from parts to wholes</td>
<td>Learn best from whole to parts</td>
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<tr>
<td>Prefer a phonetic reading system</td>
<td>Prefer a whole language reading system</td>
</tr>
<tr>
<td>Like words, symbols and letters</td>
<td>Like pictures, graphs and charts</td>
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<tr>
<td>Rather read about a subject first</td>
<td>Rather see or experience a subject first</td>
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<tr>
<td>Want to gather related factual information</td>
<td>Want to gather information about relationships among things</td>
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<tr>
<td>Prefer detailed orderly instructions</td>
<td>Prefer spontaneous, go with-the-flow, learning environments</td>
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<tr>
<td>Experience more internal focus</td>
<td>Experience more external focus</td>
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Brain based learning encompasses many other educational concepts like: Mastery Learning, Learning styles, Multiple Intelligences, Cooperative Learning, Practical Simulations, Experiential Learning, Problem – Based Learning, etc.

Thus,

If these things are in fact true about the brain, what should we do differently?

What resources of time, people and money could be redirected?

In what ways might you suggest we start doing this?

If you were to plan your next step for making your classroom teaching more brain based what would that be?

Though there are many tools for achieving this lets discuss one of the most effective tool - Mind Mapping. It is a colourful visual form of notetaking that can be worked on by one person or a team of people. At its heart is a central image or idea. This is then explored by means of branches representing more ideas, which all connect to this central idea.

Mind Mapping mimics the way our brains naturally works. Unfortunately most of the teachers are the products of a linear pattern of education that have learned that teaching must be sequential and linear to be effective. This result in bored and frustrated learners because brain based research has proved that clues best assembled by the brain are those presented in a Gestalt format, rather than a sequential, linear format. Pattern recognition depends heavily on what experience one brings to a situation and that is why the cognitive understanding of young children is limited.
Mind mapping pre exposes the learners to a topic through the use of colours, movement, drawing, contrast and many other information and thus giving a foundation on which to build connections. The more background is provided the better and faster learning occurs. The process of creating a mind map helps learners to create meanings and shape their thinking and thus better understand what they do know and what they don’t. Even more importantly they have a feeling that the learning is really their own and our brain knows and learns something only when we represent the information in our own meaningful way.

- **Similarities between Brain Based Learning and Mind Mapping Theories:**
  - Key characteristics of the cortex is the ability to detect and create patterns of meaning.
  - The clues best assembled by the brain are those presented in a Gestalt form rather than a sequential, linear format.
  - Pattern recognition depends heavily on what experience one brings to a situation.
  - We never really cognitively understand something until we can create a model or metaphor that is derived from our unique personal world.

- **What can a teacher do to foster Brain Based Learning apart from using Mind Maps?**

  We are all biologically trained to seek out new learning as the human brain loves to learn. Our very survival is dependent on learning. In addition to this our traditional educational system does not teach learners to think and thus the learners get out of shape not just physically but also mentally. As an educator we need to make sure that we are not just teaching or training but we are growing better brains.
- Utilise a two part approach in the classroom by holding classroom discussions, decision making scenarios, case studies and exercises that requires logical thinking, brainstorming and mind mapping thus focusing on whole-brain learning.

- Teacher should provide with the big picture of the content in the beginning followed by details representing the subtopics. Thus following from whole to part.

- Teachers should provide learners with choice and a diverse menu of activities to suit their cognitive cycles and learning styles. Teachers should repeat the content using different method and at various timing and at the same time also help the student become aware of their best time for learning.

- Teachers should incorporate energizers and should plan activities in a way that it gives learners a scope to move around, stretch or change postures so that they can monitor and manage their own energy levels. So the teachers should offer novel activities, learning locations and choice that require moving. Teachers may also discuss about sleeping patterns with the learners because some learners may just need either more sleep or better quality sleep.

- Teachers should encourage student generated learning goals, ideas and experiences.

- Provide learners with the necessary resources that they need to complete their assignments and also to reduce undue stress.

- Use colour handouts and vary colour widely on your other visual displays instead of the same backgrounds.

- While making lectures or presentations teachers should use objects, photographs, graphics, charts, slides, video segments, bulletin board display, colours, posters, mind maps, drawings, etc. so that the students may be challenged to generate images through visualization. Teachers should create a more multisensory environment.

- Encourage cooperative as well as individual learning among students.

- As a teacher we should assume that everything we do or say will create some kind of meaning - good or bad – for the students because our brain is designed to make meaning out of experiences.

- Before beginning a new topic, ask the students to discuss it orally or to represent it graphically using a mind map thus giving the brain a visual storage space for the new information. During teaching ask the students to continually make maps, graphic
organizers, etc and at the end of the course/ topic ask them to make a play or a large sized map of their learning. The reason is to relate the learning to their own lives.

- Teachers should never assume that because something is relevant to you it is relevant to your students too. Teachers should help them discover their own connections rather than imposing their own. Thus teachers should give students time to link their prior learning with current learning through various ways of exploration and introspection.

Current neuroscience describes memory as dynamic and not fixed. There is no area of the brain that is solely responsible for memory. Most of our memories are well distributed throughout the cortex. There are many learners who may actually know the material they are being tested but they may not be able to demonstrate it well during the examination time. Learning is stored in distinctive pathways and if one cannot retrieve it through one pathway it may be accessible via another. Brain based learning advocates that learners should be evaluated with a wide range of methods and instruments, thus emphasizing multiple intelligences.

**Conclusion:** Thus we need to plan our teaching with the brain in mind and the more we address our brain to the whole, the more easily the parts will fall in place. We also need to change our assessment strategies because comparing one student to another is one of the most damaging assessment strategies that has been devised. Thus lets all together make an authentic learning environment and the web of mind mapping can help us in this regard to a large extent and every stage of teaching. Lets join hands to make a brain friendly teaching learning environment for our students.

**References:**