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Abstract

The brain and learning strategies incorporates the latest scientific research about the brain and how students learn and mature socially, emotionally, and cognitively. It uses curriculum, instructional methods, and programs to increase students' ability to make connections and retain new information. The idea behind the concept is that learning is innate and linked to biological and chemical processes in the human brain. Brain-based education emphasizes how the brain learns naturally and is based on what we currently know about the actual structure and function of the human brain at varying developmental stages. How the brain works has a significant impact on what kinds of learning activities are most effective. Teacher need to help students have appropriate experiences and capitalize on those strategies. Knowing how the brain works best allows teacher to create an environment that gives the student most success in learning.

Key Words: *Brain based learning, Strategies.*



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INTRODUCTION

Brain Based Learning theory is based on the structure and function of the brain. Brain-Based Education is the purposeful engagement of strategies that apply to how our brain works in the context of education. "Brain-based" learning activities engage both hemispheres of the brain simultaneously, resulting in stronger, more meaningful learning experiences and permanent brain connections. As long as the brain is not prohibited from fulfilling its normal processes, learning will occur. People often say that everyone can learn. Yet the reality is that everyone does learn.

Creating brain-based learning is actually relatively easy, especially when following the acronym **B.R.A.I.N. B.A.S.E.D.** (Hielman, 2006) used as strategies of learning.

B: Brains time clock: The human brain runs on 90 to 120 cycles called ultradian rhythms, which influence attention, interest, cognition, memory, visual perception, arousal, performance, moods, and behavior. To accommodate these cycles, it is important to vary instructional activities and spend no more than 12 to 15 minutes of focused attention on passive learning.

R: Repetition: Don't expect your learners to go through content once, pass the assessment and remember it forever. Repetition of information strengthens connections in the brain and the brain encodes information most efficiently when content is repeated in multiple ways. Therefore, the most effective Learning repeat information through a variety of ways such as video, images, charts, and graphic organizers.

A: Active Learning: Rather than allowing learners to become passive recipients of information, it need to get students actively involved through physical or mental performance. When people learn by doing, they become energized, they stick with the content, and they learn more. This increases the blood flow around the body, improving learners' memory, retrieval, and confidence.

I: Images: The brain responds best to visual content: of all the information it absorbs, around 80 to 90 percent is visual. Studies on memory have found that one of the easiest ways to ensure that learners store information in their long-term memory is to pair concepts with meaningful images. Visuals help people make sense out of the content and direct attention, increasing the possibilities that the learners will remember. This implies that it would do best to match chunks of text with graphics, diagrams, and videos whenever possible.

N: Novelty: When learners see something new, dopamine levels increase in the brain as students know the stimuli has the potential to reward them in some way. This motivates learners to seek out the reward. There are a huge number of opportunities to introduce novelty simply by being creative; for instance, developers can use fresh examples, surprise learners with new data or present a scenario that's completely unpredictable.

B: Be colour: As colour connects neuropath ways, people remember colors better than verbal or textual cues alone; for instance, it can improve learning from 55 percent to 78 percent as well as comprehensive by as much as 73 percent.

Yellow and pink wavelength can improve memory, green and blue help students relax and lead to increased concentration, red leads to a release of adrenaline and can be aggravating. Researchers have found that blue or black on a white background is the best for overall comprehension and retention.

A: Automatic Learning: Scientists believe that around 95 percent of learning is non-conscious, which means non-verbal communication is of central importance in Learning. Designers need to create a positive environment with sufficient resources and stimuli where students will enjoy learning.

S: Social Brain: Recent neuroscience research underlines the brain's inherently social nature. Humans are social animals, and working together can enhance learning.

E: Elicit Emotions: Emotions are pivotal to attention, perception, memory, and problem solving. Learners remember this stimuli more easily. Storytelling is one of the best ways to evoke emotions such as risk, excitement, urgency, and pleasure.

D: Develop Thinking Skill: It develop thinking of students to gather information, conceptualize a problem, generate possible outcomes, and publicly present the final results can enhance learning. The following figure shows brain based strategies:

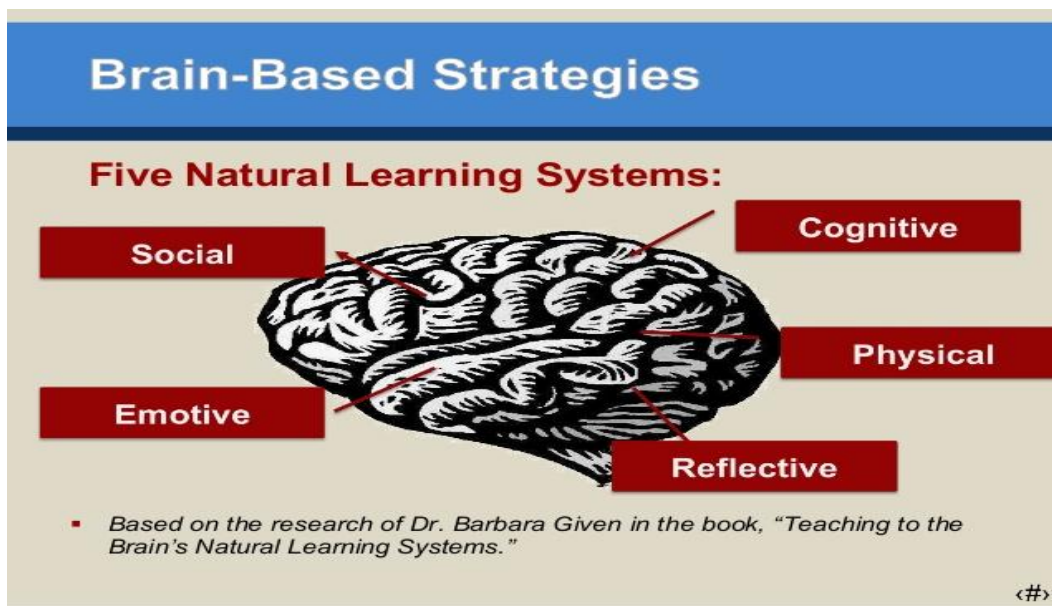


Fig:1: Brain Based learning strategies (Barbara,2001)

AS A TEACHER FOLLOWING BRAIN BASED LEARNING STRATEGIES USE IN CLASSROOM TEACHING LEARNING PROCESS:

How the brain works has a significant impact on what kinds of learning activities are most effective. Teacher need to help students have appropriate experiences and capitalize on those experiences. Knowing how the brain works best allows teacher to create an environment that gives the student a higher probability of success in learning.

1. Colour: Teacher can used coloured chalks also used colourful presentations while teaching that enhanced learning of students. Researchers have found that blue or black on a white background is the best for overall comprehension and retention.

2. Self Learning: Scientists believe that around 95 percent of learning is non-conscious, which means non-verbal communication is of central importance in Learning. Student can learn itself, teacher only guide the student.

3. Ask Questions: Teacher ask innovative or creative questions to develop thinking of students, also ask students to gather information, conceptualize a problem, generate possible outcomes, and present the final results that can enhance learning.

4. Chunking: That means they need a chunk of information, then an opportunity to process that in some way. Here's where "turn and talk" works, as well as an opportunity to write, draw, or even move. The brain learns new information in chunks. Teachers should plan for these limits and teach material in small chunks.

5. Movement: Combining movement with the learning almost guarantees stronger learning.

6. Shake it up: If you do exactly the same thing, exactly the same way, it becomes boring and the brain tunes out. Have a backwards day, turning the whole schedule around. Change the seating arrangement, do one part of the day completely different.

7. Oxygen: They say 20% of all the oxygen used in the body is used by the brain. That means we need to get the students up out of their seats regularly and moving! Students need a moment to “rest their brain” from a task. For example, allow students to take time to stand up and stretch, provide a 2-minute talk break, Brain Gym exercises, etc. By providing these moments, the brain will be more ready to stay on task and store information.

8. Breaks: The brain can only take in so much information at a time. Think of the brain as a cup, once it is full, nothing else can fit and just runs down the side. You have to empty the cup to allow it to be filled again. The brain is similar. Students need to have time to process new learning in order to make room for more. Be sure to give your students a brain break every five to 10 minutes. This could be in the form of a think-share-pair, a movement activity, a well-placed joke...the possibilities are endless. Be creative.

9. Make connections: Connections are important for the brain. It can't hold random information; it needs to connect to something else that's already there. You can make connections through your own experience and stories. Children learn best when teachers teach new material first and review previously learned material at the end of instruction.

10. Feedback: Practice doesn't make anything better unless the practice is accurate. Students need to hear they are on the right track. It works pretty well for motivation, as well. It is best for teachers to teach in short units and then provide a student led activity time. Students need time to practice the skills they are learning.

11. Music: Music can be a powerful tool. We can learn the difficult aspects through music.

12. Acronyms: Create acronyms for your students, or let them create their own

13. Hydration: Allow students to drink water during learning time. Research shows that dehydration causes higher salt levels in the blood which in turn raises blood pressure and stress. Dehydration also causes a loss in attentiveness and lethargy. Ideally, students should drink 6 to 8 glasses of water a day to be properly hydrated.

14. Time for reflection: The brain also works on a time schedule. Children ages 5 to 13 learn best in 5 -10 minute increments. Children 14 and older learn in increments up to 10 – 20 minutes. Sometimes, teachers may extend time limits through positive reinforcement. Provide time at the end of a lesson to think about and discuss the topic. Understanding may not take place immediately, it may occur later. Processing time and reflection are vital to the learning environment.

15. Energy Level: Take advantage of students' high energy time. There is a high-low energy level cycle that occurs during the school day. For example, most students have lower energy in the morning (especially during adolescence) and higher energy levels after lunch. A higher energy level correlates to an increased level of attention. Teachers should take advantage of the times during the day when the students' energy levels are higher by teaching the most important material during these times.

16. Space: Provide adequate personal space for the student. More personal space reduces stress for a learner.

17. Location: Another easy thing to implement is location. Memory is very location based. You can vary where you stand in your class as you introduce new content, and/or vary where the students sit or stand.

18. Environment: First, it is imperative to set a positive and supportive classroom environment. The brain cannot learn well under stress. Higher-level thinking functions are rerouted to basic survival needs. Mirror neurons in our brains cause us to feel similar stress to those around us, causing the learning ability of the entire class to drop. Be sure to maintain a positive learning environment.

19. Optimism: An optimistic attitude should be modelled every day. Teacher may be the only optimistic person in a student's life. Be sure to model and talk about optimism their future may depend on it.

20. Choice: Choice is another important and easy strategy. Students love to have choice. Their brains are more engaged when they have some sort of stake in the task at hand. If you are limited by your district and cannot offer some sort of content, book, or subject choices, siting choice.

21. Anticipation: Before beginning a lesson, give students some specific information to listen for. Alternatively, let them know they will need to retell some information to a fellow student. They will pay close attention and retain more.

22. Meaningful learning: The brain is more likely to retain information that is relevant and meaningful. Students need to know why what they are learning should matter to them. This is especially relevant to challenged learners.

23. Talking: The talking internalizes what they've learned. Give the children a few tidbits of information, and then they have "turn and talk" time, where they discuss what they've learned.

24. Emotions: The strong memories are closely related to strong emotional experiences, both positive and negative. Students must feel physically and emotionally safe before their brains are ready to learn. Teachers can create a positive environment by encouraging and praising their students' efforts.

25. Visuals: Vision is the strongest of the senses. Use posters, drawings, videos, pictures, and even some guided imagery with the children to help them learn. 50% are visual learners and prefer pictures, charts, and written text over lectures. 30% are kinaesthetic learners and need more tactile (hands-on) and movement-based activities. 20% are auditory learners and do best when they talk about what they are learning.

CONCLUSION:

Brain-based teaching strategies can be useful for active and creative learning of students. Also, teachers can offer engaging, brain-based activities that encourage exploration and learning. Teachers and students can build a strong community of learners who see learning as an opportunity to be successful problem solvers. Brain-based teaching strategies can be useful for both teacher and students in a healthy classroom teaching learning environment.

CONTRIBUTION OF THE STUDY TO THE FIELD OF EDUCATION:

The present study is helpful to the Teacher -

1. To understand the theoretical and practical aspects of the Brain Based learning.
2. To acquaint with various Brain Based learning strategies.
3. To plan their teaching by including Brain Based teaching.

The present study is helpful to the students -

1. To get an idea about learning through Brain Based Learning ways.
2. To learn the things with group, peers, family and society.
3. To do self study by using various Brain Based learning strategies or techniques.

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