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BRAIN BASED LEARNING, AN INNOVATIVE STRATEGY FOR EFFECTIVE LEARNING

Dr. Pradeep Kumar S.L

Associate Professor, N.S.S. Training College, Changanacherry, Kerala, South India.

ABSTRACT

Brain-based learning refers to teaching methods, lesson designs, and school programs that are based on the latest scientific research about how the brain learns, including such factors as cognitive development—how students learn differently as they age, grow and mature socially, emotionally, and cognitively.Brain based learning draws upon the functioning of the brain and takes into consideration the rules of the brain for meaningful learning. Brain-based learning is supported by the general belief that learning can be accelerated and improved if educators base how and what they teach, rather than on past educational practices, established conventions, or assumptions about the learning process.

Key word: Brain based learning, neuron, resiliency, relaxed alertness

INTRODUCTION

Brain based learning is a learning theory based on the structure and function of thebrain. As long as the brain is not prohibited from fulfilling its normal processes learning will occur.The brain is a vastly complex and adaptive system with billions of neutrons and inter-neutrons that can generatean astronomical number of neural nets, or groupsof neurons acting in concert, from which our daily experiences are constructed.Brain-based learning refers to teaching methods, lesson designs, and school programs that are based on the latest scientific research about how the brain learns, including such factors as cognitive development—how students learn differently as they age, grow and mature socially, emotionally, and cognitively. Every person is born with a brain that functions as an immensely powerful processor. How the brain works has a significant impact on what kind of learning activities are most effective. The best age to learning language is during early childhood. All brains are unique and are products of interactions with different environments generating a lifetime of different and varied experiences, which scientists call plasticity. New neural pathways are created every time we use our brain in linking through problems, but are lost foreverif we do not use them.
Gardner's Multiple intelligence is just one of a number of equally valid theories about intelligence and brain based learning, Brain based learning requires a more systematic way of conceptualizing how learning takes place and how to facilitate it.

Brain-based learning is supported by the general belief that learning can be accelerated and improved if educators base how and what they teach on the science of learning, rather than on past educational practices, established conventions, or assumptions about the learning process. For example, it was commonly believed that intelligence is a fixed characteristic that remains largely unchanged throughout a person's life. However, recent discoveries in cognitive science have revealed that the human brain physically changes when it learns, and that after practicing certain skills it becomes increasingly easier to continue learning and improving those skills. This finding that learning effectively improves brain functioning,

resiliency, and working intelligence—has potentially far reaching implications for how schools can design their academic programs and how teachers could structure educational experiences in the classroom.

Brain research suggests that the brain learns best when confronted with a balance between stress and comfort, high challenge and low threat. The brain needs some challenges or environmental pressures that generate stress to activate emotions and learning. Stress motivates a survival imperative in the brain. Too much anxiety shuts down opportunities for learning. If it is too little, the brain becomes too relaxed and comfortable to become actually engaged. The phase used to describe the brain state for optimal learning is that of relaxed alertness. Practically speaking, this means as designers and educators; teachers have to arrange places that are not only safe to learn but also spark some emotional interest in learners.

Brain is a pattern maker. Pattern making is pleasing for the brain. The brain takes great pleasure in taking random and chaotic information and ordering it. The implication for learning and instruction is that presenting a learner with random and unordered information provides the maximum opportunity for the brain to order this information and form meaningful patterns that will be remembered and learned. Setting up a learning environment in this way mirrors real life that is often random and chaotic.

Learning will be much more effective and efficient when the learner is relaxed. The brain cells give much priority to emotional memory. An emotion is a thought or idea accompanied by a bodily sensation. It is experienced as a force of energy. There are no bad emotions; only desirable and undesirable ones. Emotions are unique to humans. These emotions are messengers of valuable information.

Brain based learning draws upon the functioning of the brain and takes into consideration the rules of the brain for meaningful learning. According to Caine and Caine (1994), the brain is like our other organs and one of its important job is to learn. Brain has an unlimited capacity for learning. Brain based learning is based on knowing how the brain works and in discovering the ways of maximum learning. Making connections among knowledge is essential for meaningful learning. Brain based learning is centered on meaningful learning in the context of life related, enriching experiences and on providing students with opportunities for meaningful learning.

The Twelve Principles of Brain based learning

1. Uniqueness – Every single brain is totally unique and becomes more unique as we get older.
2. A threatening environment or stress can alter and impair learning and even destroy brain cells.
3. Emotions are critical to learning – They drive our attention, health, learning, meaning and memory.
4. Information is stored and retrieved through multiple memory and neural pathways that are continually being formed.
5. All learning involves the mind and body – Movement, food, attention cycles, drugs, and chemicals all have powerful modulating effects on learning.
6. The brain is a complex and adaptive system – Effective change involves the entire complex system.
7. Patterns and programs drive our understanding – Intelligence is the ability to elicit and to construct useful patterns.

8. The brain is meaning-driven – Meaning is more important to the brain than information.
9. Learning is often rich and non-conscious – We process both parts and wholes simultaneously and are affected a great deal by peripheral influences.
10. The brain develops better in concert with other brains – Intelligence is valued in the context of the society in which we live.
11. The brain develops with various stages of readiness.
12. Enrichment – The brain can grow new connections at any age. Complex, challenging experiences with feedback are best. Cognitive skills develop better with music and motor skills.

Instructional techniques associated with Brain Based Learning

The threeinstructional techniques associated with Brain based learning are

1. Orchestrated Immersion

Orchestrated Immersion is creating learning environments that fully immerse students in educational experiences. This implies an environment where a student feels like he / she is the part of a process and is living it. Teachers must immerse learners in complex, interactive experiences that are both rich and real. One best example is immersing students in a foreign culture to teach them a second language. Teachers must take advantage of the brain's ability to parallel process.

2 Relaxed alertness

This involves trying to eliminate fear in learners while maintaining a highly challenging environment. This should be highly related to subject matter and meaningful. Such challenges stimulates students mind to the desired state of alertness.

3 Active processing

Active processing is concerned with allowing the learner to consolidate and internalize information by actively processing it. It is the means by which a student is the given the opportunity to continually and actively process information to internalize, consolidate and relate it. 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.

Strategies of Brain Based Learning

1 Talking

Talking internalizes what students have learned. Teachers should provide students with bits of information and then they have to turn and talk about what they have learned.

2 Emotions

The strong emotions are closely related to strong emotional experiences both positive and negative. The brain performs better in a positive emotional state. Students must feel physically and emotionally secured before their brains are ready to learn. Teachers can create a positive environment in this regard by encouraging and praising their students' efforts.

3 Vision

Vision is the strongest of the senses. Teachers should use colorful pictures, posters, drawings, cartoons and videos in order to make teaching learning process interesting.

4 Chunking
This means students need chunk of information, and then an opportunity to process that information is some way. The brain learns new information in chunks. Brain related studies show that children between the ages of five and thirteen learn best when given information in chunks or bits.

5 Movements
Combining movement with learning guarantees effective learning. Changing of positions in the classroom, participating in indoor games etc. arevery much supportive to effective learning

6 Change in environment
If students are asked to do the same thing exactly the same way, it becomes boring and the brain turns out. Fieldtrips, Study tours, Change in classrooms, different seating arrangement al are supportive to effective learning.

7 Brain brakes
The brain cannot take much information at a time. Learners need to have time to process new learning in order to make room for more. Teachers should give students ample opportunities for Brain based learning activities. This could be in the form of a movement activity, brain storming session, use of humour, games etc.

8 Make connections
Connections are very important for the brain. Brain cannot hold random information, it needs to connect to something else that is already stored. Teachers can make connections through their own experiences.

9 Feed back
Proper feedback is a must for effective learning as per Brain based learning theory

10 Music
Music is a powerful tool for effective learning. Different areas could be taught through music interestingly

11 Positive environment
Positive and supportive classroom environment is a must for learning. The brain cannot learn well under stress. It is the duty of the concerned teacher to create and maintain positive learning environment.

12 Optimism
An optimistic attitude should be maintained every day. Teachers play a key role in developing optimism in students. Teachers should model and make students understand about optimism.

13 Creating personal space
Teachers have to provide adequate personal space for students. More personal space reduces stress of students.

14 Meaningful learning
The brain is more likely to retain information that is relevant and meaningful. Students need to know why and what they are learning matters to them.

15 Time for reflection

The brain also works on a time schedule. Teachers should provide time for students to think about and discuss the topic. Understanding may not take place immediately; it may occur later. Processing time and reflection are very important.

Role of teachers in implementing Brain based learning

Teachers should immerse students in complex interactive experiences which are rich and realistic. They should take advantage of brain's ability to parallel processing. Learning should be designed around student's interest and make learning contextual.Teachers have to let students learn in teams and use peripheral learning. They have to structure learning activities around real problems.

Designing successful brain compatible learning environment requires educators to transform traditional disciplinary thinking and challenge us to think in much more interdisciplinary ways.When designing optimal learning environments, design must be selected in a holistic and systematic way. The social, pedagogical and emotional environments are to be considered with the physical settings.Students should be provided with personally meaningful challenges. Such challenges stimulate a student's mind in the desired state of alertness.

CONCLUSION

Brain based learning is a comprehensive instructional strategy which is based on the notion that if the brain is functioning properly and is able to carry out its normal processes, learning will occur. In fact, it is precisely these 'normal processes' that allow for learning to occur. Learning is best accomplished when the learning environment is connected to direct physical experiences of the students. It can be facilitated in an environment of total immersion in a multitude of complex interactive experiences. With careful planning, knowledge about brain based research findings and creative thinking teachers can engage students in Brain based learning activities that can encourage exploration and effective learning.

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