**Amended from “Brain-Based Learning Strategies”, by *Eric Jensen*,**

**Website:** [**http://feaweb.org/brain-based-learning-strategies**](http://feaweb.org/brain-based-learning-strategies) **and**

**“Brain-based Learning” by T. Cave, J. Ludwar, W. Williams, Dr. D. Townsend,** [**http://education.alberta.ca/apps/aisi/literature/pdfs/bbased\_learning.pdf**](http://education.alberta.ca/apps/aisi/literature/pdfs/bbased_learning.pdf)

**What is Brain-Based Learning?**

**Brain-Based Education is the purposeful engagement of strategies that apply to how our brain works in the context of education.**

**Strategy Number One: Movement**

It’s confirmed: Physical education, recess and movement are critical to learning. Build in movement in classes to stimulate neurons. College, applied, essential, and ‘needy’ classes – schedule in class breaks, in which they must get up and move about, have some games handy to promote physical movement (not computer games).

The use of natural movement in the classroom, such as dancing, clapping, manipulatives, and role play can help promote students’ achievement

**Strategy Number Two: Safe Zone**

Explicitly teach social skills: do not allow random social groupings for more than 10-20 percent of the school day. Use targeted, planned, diverse social groupings with mentoring, teams and buddy systems. Work to strengthen pro-social conditions. Teacher-to-student relationships matter, as do student-to-student relationships.

Strategy Number Three: Processing

You can upgrade a student’s capacity for memory, processing, sequencing, attention and impulsivity regulation. Why not teach these skills to give students the tools to succeed?

Practical school application: Teach attentional skills, memory skills and processing skills. Progress requires focus, “buy-in” and sustained practice.

Design a variety of learning activities to stimulate the brain’s ability to remember visually and emotionally. Encourage students to take risks.

Strategy Number Four: Stress

Dealing with chronic stress: teach students better coping skills, increase student perception of choice, build coping skills, strengthen arts, physical activity and mentoring. All of these can reduce the impact of stressors.

**Strategy Number Five: Differentiation**

There is no ‘normal’: Make differences the rule, not the exception at your school. Validate differences. Never expect all students (fourth-graders, for instance) to be on the same page in the same book on the same day. That runs counter to an extraordinary research databases that shows

variations in maturation rates and other brain differences. Allow kids to celebrate diversity, unique abilities, talents and interests. Give them the skill sets, relationships and hope to succeed.

Guide students to create some of their assignments and rubrics for marking. Assessment should be designed to fit the students.

Strategy Number Six: Content

Our mid-term “holding tank” for content, the hippocampus, has a limitation on how much it can hold. It is overloaded quickly, based partly on learner background and subject complexity.

The brain is meaning-driven – meaning is more important to the brain than information

Teachers should teach in small chunks, process the learning, and then rest the brain. Too much content taught in too small of a time span means the brain cannot process it, so we simply don’t learn it. Breaks, recess and downtime make more sense than content, content and more content. Here’s the guideline: the less background the learner has and the greater the complexity of the content, make the time chunk of content shorter

Strategy Number Seven: the Arts

They show that certain arts boost attention, working memory, and visual spatial skills. Other arts such as dance, theater and drama boost social skills, empathy, timing, patience, verbal memory and other transferable life skills.

Strategy Number Eight: Cooperative learning

One, we must teach appropriate emotional states as life skills (e.g. honor, patience, forgiveness and empathy) and, second, it’s important to read and manage the other emotional states in the classroom. In good states, students learn well and behave better. Insist that teachers build social skills into every lesson. Ask that they use the social structures that are advocated in cooperative learning programs every day.

When students can share their own knowledge and skills with others, not only do the “receivers” gain because they learn something new, but the student who is acting as the teacher will solidify his or her knowledge teaching it to others.

Strategy Number Nine: Special education

Innovations suggest that special education students may be able to improve far more than we earlier thought.

Practical school application: Make sure all teachers (not just special ed) learn the latest in dealing with special education learners.

Strategy Number Ten: Cycling

Every time students review, they might change their memory (and often do). Yet, without review, they are less likely to recall their learning. It suggests that teachers use several strategies to continually strengthen memory over time instead of assuming that once learned, the memory is preserved.

**Websites of interest**

www.brains.org

This site contains practical classroom applications of current brain research. It provides access to suggested readings, hot topics, layered curriculum instruction, newsletters, and workshops. It also contains helpful links to other brain-based websites, and strategies for parents and educators.

www.designshare.com/Research/BrainBasedLearn98.html

This site initially presents 12 design principles based on brain-based learning research. It has access to articles, innovative school designs, e-newsletters and links to national education organizations and publications.

www.jlcbrain.com/truth.html

This is the official Jensen Learning Corporation website. This website contains articles, suggestions on how to stay current with latest brain research, a catalogue of resources and even a brain-based quiz.

www.patwolfe.com

The official site of Mind Matters, Inc. whose mission is to translate brain research to classroom practice. Provides links to articles, training referrals, and workshops.

www.thebrainstore.com/store/

Has a free catalogue of resources available for purchase and teaching tips.

www.unocoe.unomaha.edu/brainbased.htm

Contains information on brain-based learning and its implications for educators.

**Eric Jensen’s Brain-Based Learning Quiz**

http://www.jensenlearning.com/quiz.php

**True or False?**

1. Early childhood experiences cause our synaptic count to multiply rapidly.

2. The amygdala’s only job is to be our fear detector.

3. Low **stress learning** is best for all **learning**.

4. Research clearly proves the critical need to capitalize on early windows of opportunity.

5. Rote memorization is brain-antagonistic.

6. The use of videos and lectures are anti-brain-based.

7. Environments determine 40% of learner success.

8. Most learners use only 5-10% of their **brain**.

9. **Emotion and intelligence** are separate brain functions.

10. Mozart is the best music for **enhancing learning**.

11. Learning Styles, Cooperative Learning, Differentiated Instruction and Multiple Intelligences are **all brain-based**.

12. The **adult brain** cannot grow brand new cells.

13. Someone who can get the correct answer quickly is an **intelligent learner**.

14. An enriched environment is one with posters, mobiles, manipulatives, pets and music.

15. Students who have more focused attention on the teacher show improved learning.

16. Teaching more content per hour, per day, per week, per year is best.

17. The left side is the logical side of the **brain**.

18. It is now known how to best assess **student learning**.

19. Increased synapses formed in the **brain** lead to **increased intelligence**.

20. Teachers should start class with new content within the first 5 minutes.

21. The **right side of the brain** is the **creative side**.

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**“THE EFFECTIVENESS OF THE BRAIN BASED TEACHING APPROACH DEALING WITH STUDENTS' CONCEPTUAL UNDERSTANDING OF NEWTONIAN PHYSICS”**

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<http://web.usm.my/education/publication/APJEE_26_06_Salmiza%20(91-106).pdf>

There was a significant difference between the achievements of conceptual understanding for students that followed the Brain Based Teaching Approach as compared to those who followed the conventional teaching method. The brain based learning group obtained a significantly higher Newtonian Physics conceptual understanding score as compared to the conventional group.

For example, to teach the concept of impulse force, students initially were given a big picture of the surrounding phenomena that applies the idea, such as why the front or rear part of a car crumpled easily during an accident. Based on the image given, students were guided to develop the concept of impulse force, defined as the force acting on objects in collision or explosion whereby *F* = (*mv* – *mu*)/*t*.

Then students were encouraged to make the connection between the learned concept and their own daily experience activities, such as why they have to move back their hand to catch a ball flying towards them at high speed in order to reduce the impact of the impulsive force. The phase of orchestrated immersion in the BBTA provided an opportunity for students to experience various learning activities related to the concept of impulse force. Here students were provided with a variety of visualization, auditory and kinesthetic learning activities based on their preferred learning style. Among the activities that students conducted during this phase were analyzing the related video or simulated material, carrying out experiments to explore the concept of impulse force, solving the related problems, and listing and discussing in depth phenomena related to impulse force.

This active learning strategy, supported with a good rapport between teacher-student and student-student, indirectly stimulated students' active processing to assimilate and process the information effectively and develop their conceptual understanding.

The application of a pulse learning style, active learning and a student-centred strategy, emotions and real life experiences, and the use of aroma and music, were also found very effective in ensuring the optimum brain state of students. It was also observed that by practicing these types of techniques, students seemed to enjoy their learning process even more. The variety of choices provided by this teaching method made concept learning much more assessable and easier for

students to grasp.

Evidently, through the brain based teaching technique, students were exposed

to various concrete learning experiences to explore the abstract concept learned.

According to Brain Neuroplasticity (Diamond, 1988; Jacobs, Schall, & Scheibel,

1993) and Proster Theory (Hart, 1983), these learning experiences indirectly

increase synapse connections and neuron complexities to help form the right

connection for internalising concepts. The process eventually encouraged

students' conceptual understanding of the matter and the right pattern of meaning

was then formed.