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CREATION OF BRAIN-FRIENDLY ENVIRONMENT AND LEARNING

Rajeshree Gahininath Jaybhaye, Ph.D.

Associate Professor, Adarsha Comprehensive College of Education and Research, Pune.

Abstract

Creation of Brain-friendly environment and Learningis a comprehensive approach to instruction using current research from neuroscience. 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. Using the latest neural research, educational techniques that are brain friendly provide a biologically driven framework for creating effective instruction.Designers of educational tools must be artistic in their creation of brain-friendly environments. Teachers need to realize that the best way to learn is not through lecture, but by participation in realistic environments that let learners try new things safely

INTRODUCTION

Every person is born with a brain that functions as an immensely powerful processor. Traditional schooling, however, often inhibits learning by discouraging, ignoring, or punishing the brain's natural learning processes. Every brain is different, educators should allow learners to customize their own environments. How the brain works has a significant impact on what kinds of learning activities are most effective. Teachers need to help students have appropriate experiences and capitalize on those experiences Teachers must immerse learners in complex, interactive experiences that are both rich and real.

The three instructional techniques associated Creation of Brain-friendly environment and Learningare:

1. Orchestrated immersion–Creating learning environments that fully immerse students in an educational experience
2. Relaxed alertness–Trying to eliminate fear in learners, while maintaining a highly challenging environment
3. Active processing–Allowing the learner to consolidate and internalize information by actively processing it

Creation of Brain-friendly environment and Learningis a comprehensive approach to instruction using current research from neuroscience. 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. Using the latest neural research, educational techniques that are brain friendly provide a biologically driven framework for creating effective instruction. This theory also helps explain recurring learning behaviors, and is a meta-concept that includes an eclectic mix of techniques. Currently, related techniques stress allowing teachers to connect learning to students' real lives and emotional experiences, as well as their personal histories and experiences. This form of learning also encompasses such newer educational concepts like:

- mastery learning,
- experiential learning,
- learning styles,
- multiple intelligences,
- cooperative learning,
- practical simulations,
- experiential learning,
- problem-based learning,
- movement education.

Designers of educational tools must be artistic in their creation of brain-friendly environments. Teachers need to realize that the best way to learn is not through lecture, but by participation in realistic environments that let learners try new things safely.

PHILOSOPHICAL & PSYCHOLOGICAL FOUNDATION

For 2,000 years there have been primitive models of how the brain works. Up until the mid 1900s the brain was compared to a citys switchboard. Brain theory in the 1970s spoke of the right and left-brain. Later, Paul McClean developed a concept of the Triune Brain which refers to the evolution of the human brain in three parts. In this theory McClean hypothesized that survival learning is in the lower brain, emotions were in the mid-brain, and higher order thinking took place in the upper brain. Currently, brain-based education embraces a more holistic view of the brain -- one that is more systems-based and gestalt -- the whole being greater than the sum of its parts.

During the last two decades neuroscientists have be doing research that has implications for improved teaching practices as they have obtained much information on how the brain works

from autopsies, experiments, and different types of scans -- MRIs, EEGs, PET and CAT scans. Information has been gleaned as neuroscientists construct clinical studies that use double blind, large, diverse, multi-age, multicultural groups of people to gather reliable information. This information has helped determine how human learning actually occurs. In essence, these scientists have been peering into the little black box in order to determine how the brain processes and retains information. Thus, technology in medicine has paved the way for many new learning innovations.

Specifically based on conclusions from research in neuroscience, professors from major universities have taken this information and incorporated it into books about learning. In accordance with these suggestions classroom practices can be modified by teachers applying new theories of teaching and learning based on recent findings. Some noted authors in this area are Marian Diamond, U. C., Berkeley; Howard Gardner, Harvard University; Renate and Geoffrey Caine; Thomas Armstrong; Candace Pert, Eric Jensen; etc.

APPLICATION- STEPS:-

. If you don't teach students HOW to LEARN, were you hoping that every student, in every class, already had some teacher who did this already? Not likely. Be an advocate for students every day.

10 steps of the brain based learning from the student's point of view for :-

Step 1: Draw the problem and draw the learning. This key strategy helps with labeling of the problem, classifying the content and understanding key relationships. The research is building that this strategy helps many who are not very good at teasing apart the facets of a problem. Students should do two drawings: 1) preliminary, just as they starting to get an understanding, and 2) once they have a more complete understanding.

Step 2: Alternate worked example solutions with problem-solving exercises. Have students alternate between reading already worked solutions and trying to solve problems on their own. As students develop greater expertise, reduce the number of worked examples provided and increase the number of problems that students solve independently.

Step 3: Find pictures, models and graphics with verbal descriptions.Use graphical presentations (e.g., graphs, figures) that illustrate key processes and procedures. This integration leads to better learning than simply presenting text alone. When possible, present the verbal description in an audio format rather than as written text. Students can then use visual and auditory processing capacities of the brain separately rather than potentially

overloading the visual processing capacity by viewing both the visualization and the written text. Find the model of how the problems are to be solved.

Step 4: Connect and integrate abstract (especially metaphors) and concrete representations of concepts. Connect and integrate abstract representations of a concept with concrete representations of the same concept. Make sure to highlight the relevant features across all forms of the representation. Tie the learning into a person, idea or theme that is already familiar. This allows students to make the connections their brains need.

Step 5: Use quizzing to promote learning. Prepare pre-questions, and require students to answer the questions, before introducing a new topic. Conduct regular study sessions where students are taught how to judge whether or not they have learned key concepts in order to promote effective study habits. Use quizzes for retrieval practice and spaced exposure, thereby reducing forgetting. Use a variety of quiz formats as a fun way to provide additional exposure to material to prevent boredom. Provide corrective feedback to students, or show students where to find the answers to questions, when they are not able to generate correct answers independently.

Step 6: Help students prioritize and allocate study time efficiently. Teach students that the best time to figure out if they have learned something is not immediately after they have finished studying, but rather after a delay. Only after some time away from the material will they be able to determine if the key concepts are well learned or require further study. Remind students to complete judgments of learning without the answers in front of them.

Step 7: Ask deep explanatory questions and use "think out loud" processing. These methods force better quality thinking and greater accountability. Encourage students to "think out loud" in speaking or writing their explanations as they study; feedback is beneficial. Ask deep questions when teaching, and provide students with opportunities to answer deep questions, such as: What caused Y? How did X occur? What if …? How does X compare to Y? Challenge students with problems that stimulate thought, encourage explanations, and support the consideration of deep questions. Ensure students learn more than just the "labels" (key words). Ensure they understand the "properties" (unique qualities and differentiating features of the terms, processes and events).

Step 8: Space learning over time. Identify key concepts, terms, and skills to be taught and learned. Arrange for students to be exposed to each main element of material on at least two occasions, separated by a period of at least several weeks—and preferably several months.

Arrange homework, quizzes, and exams in a way that promotes delayed reviewing of important course content.

Step 9: Move the hands and body. A new body of evidence suggests that when we use our hands to gesture the learning, we learn MUCH better. We also know that when we act on the learning to try it out, we remember the learning better. This means do activities like "Think, pair, share and DRAW" instead of just talking it through.

Step 10. Use other people's brains (OPB). Teach students to make learning more social. This means 1) find an online expert in the topic and ask them questions, 2) teach the content to another person, or 3) find a web file, DVD or YouTube clip on the topic to learn from. Stop trying to learn everything alone. The world has much to share.

In closing, let's cut to the chase: everything you do in your classroom is likely to have someeffect on the brain. Brain-based education says, "Be purposeful about it." Now, go have some fun and make another miracle happen!

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