Teaching Strategies

Aneela Bushra Maqbool
anila.bushra@gmail.com
Forman Christian College (Pakistan)

Abstract

Brain-Based learning is a comprehensive approach to instruction based on how current research in neuroscience suggests our brain learns naturally. During the last two decades neuroscientists have be doing research that has implications for improved teaching practices. Their information has helped determine how human learning actually occurs. Therefore, the purpose of this paper is to share what is brain-based theory? What are its tenets? And how it can be applied to teaching? Furthermore, brain-based teaching strategies will be shared too.

1. Introduction

Effective teachers never stop exploring different ways to improve student achievement. As there is no single, perfect solution, educators look to research to guide their practice. Recent innovations in science have allowed an unprecedented look into the way the brain works. The exciting findings about brain function and its effects on learning have the potential to revolutionize teaching and learning.
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. Brain research has provided new knowledge about the many ways that humans learn. Brain-based learning has resulted from educators and researchers applying the findings of brain research to guide teaching practice.

2. Historical context

Up until the mid 1900's the brain was compared to a city's switchboard. Brain theory in the 1970's spoke of the right and left-brain. Brain theory of the 1970s told us that we just needed more right-brained learning. The 1990s may be remembered as the emergence of the "chemical learner" [1]. Those with just the right "brain chemicals" will succeed while those whose chemistry is not quite right will be inattentive, unmotivated, or violent.
Currently, we embrace a whole system, complex brain model. During the last forty decades neuroscientists have been doing research that has implications for improved teaching practices. Neuroscientists construct clinical studies to gather reliable information. This information has helped determine how human learning actually occurs. In essence these scientists have been peering into the "black box" in order to determine how the brain processes and retains information.
Specifically based on conclusions from research in neuroscience, classroom practices can be modified by teachers accordingly. The purpose of this paper is to share what is brain-based theory? What are its tenets? And how it can be applied to teaching? Furthermore, some brain-based teaching strategies will be shared which can help brain in processing and retaining information.

2.1 Key principles directing brain-based teaching

Following are some key principles of brain-based teaching:

1. Low-anxiety, threat-free and challenging environment is a brain-compatible classroom
2. Brain is spatial, visual, auditory, and kinesthetic in nature

3. Learning comes through patterning like mind maps
4. Engaging emotions in the learning process helps engraving meaning in the memory
5. Meaning is more important than just information
6. Learning involves focused attention
7. Meaningful learning goes in the long term memory
8. Memorizing and usage of the memory is a building block in the learning process
9. Stress, monotony and uniformity kills motivation, learning and creativity
10. Brain responds to creative environments
11. Team work drives competitive spirit and brain triggers through competition
12. Effective learning is the result of trial and error process
13. Timely feedback is an important learning booster

3. Brain-based teaching strategies

Following are some of the brain-based teaching activities which can facilitate effective learning:

1. **Classroom environment**: Classroom is a place which provides safety, security and confidence to the students. Stress-free class is a brain-compatible place to instill interest. Short jumps, breathe in and out, stretches, an imaginary punch to a friend, or a comic video can lower the stress level and attracts them towards learning.

2. **Learning style:** How do learners learn best? Learners possess different learning styles like visual, oral, auditory, or kinesthetic. Therefore, teachers should note the learning style of the learners to device activities accordingly. With each new day different learning styles can be incorporated to engage variety of learning styles.

3. **Mind maps**: Mind maps are graphic representations of material. They hold information in a fashion that is similar to how the brain holds information, scattered in different areas. Each area is a thought or representation of a bit of information. When the bits are put together, you have the whole idea. Why use mind maps? Mind maps give the learner the ability to easily and quickly visualize the material being taught. The single most powerful element in memory is visual memory which will be retained in the long-term memory. With mind maps, we are creating pictures that will enable the student to remember 80 to 100 percent of what we have taught. Many strong visual learners love to create a mind map, and once they complete it, they never refer to it again.

4. **Use of color-markers or chalk**: Brain is receptive to colors. A visual picture created on board can help students register information, store and later retrieve it.

5. **Seating arrangement**: Teacher should change the seating arrangement regularly. Students should not sit daily at the same position because it lowers their emotional involvement, keeps them lethargic and de-motivated. Regular change can keep them active, dynamic and responsive.

6. **Provide time for reflection:** After the lecture, give your students time to reflect and take notes. Reflection uses different areas of the brain and allows some overworked areas to get much-needed rest. It is a 5-minute total silent time in the class where students reflect. First, the students were asked to write how they felt about the learning experience. To do this, they had to recall the learning and thus were automatically rehearsing the information.

7. **Teaching synthesis:** Synthesis involves summarizing, paraphrasing, and comparing and contrasting [2]. Synthesizing is like putting together pieces of a puzzle. We ask students to take new information, connect it to what they already know, and create something new. Every

time we activate prior knowledge in our students' brains, we begin the synthesizing process. Some teachers have students use a "synthesis journal." This can be set up in many ways, including the following:

• The journal may be notebook paper divided into the following three sections: What We Did, What I Learned, and How I Can Apply It.
• The journal may take the form of filling out a visual map, such as a mind map or other graphic organizer.

In Bloom's taxonomy, synthesis was the second highest level of thinking. The ability to create was on the list of abilities under synthesis. Here are some ideas for assignments that involve synthesizing:

• Based on the latest information about what is healthy for us, find a recipe that you consider "unhealthy" and replace the unhealthy ingredients with healthy ones.
• Take the information you have read in your text and in articles you have found and write an essay or article combining the authors' ideas.
• Create a movie poster for a film that combines information about the Civil War that you read in your history book and other information you found online.
• Using a story or a joke told by your teacher, paraphrase, summarize, or simply retell the story to a partner. Have the partner "fill in" any parts that he felt were missed and important enough to include.
• Using a story told or read to you by your teacher, write a moral, a theme, or a conclusion about the story.

8. **Humor:** Humor is an important element in lowering the affective filter of the class. It can create fun, amusement and laughter in the class. Particular time can be allotted in cracking jokes and creating inferences.

9. **Creative assignments:** Creativity is the ability to produce new ideas and then implement them. Students require the experiences to build upon to spark creativity. Student ideas play off each other as they work together on projects and products. Choice is a vital component of creativity. Students must have options in order for the creative process to develop. If we follow their ideas, some possible assignments for students might include the following:

• Create a different ending to the novel The Alchemist by Paulo Coelho
• Imagine what would happen if you become a celebrity

10. **Memorizing:** Memorizing has become a survival skill. Memories make us smarter and give us the tools to be creative, to synthesize, and to build relationships. Somehow, some of the information we teach them has to make connections in their brains and become long-term memories. Our students have gotten out of the habit of using their memories. How many of our students memorize poems, short pithy verses or quotations from drama, novel, preambles, or any short pieces of text?

11. **How tech-savvy are you?:** Be aware of what is going on in the digital world. Technology offers multiple ways of engaging students with the material. PowerPoint presentations, memory games, video games, computerized flashcards, blogging, and texting can help a lot.

12. **Trial and error:** Let the learner make mistakes. Discouraging attitude towards mistakes hamper learning process. Put yourself in learner's position.

13. **Team Work:** Team work is a fast learning process. Make teams of five or six members each and ask them to keep a name of their team like Eagle, Black Water, Dabang, Phoenix, Earth or any title of their choice. Divide week and strong students equally among groups. Then arrange discussion once a week on interesting topics like; love or arrange marriage, Osama Bin Laden and United States, uniform or casual dress at university level, among the teams and declare a winning team. The sense of competition, peer learning, and team titles add energy to the classroom environment.

14. **Formative assessment**: The form of assessment that causes much stress and appears to be taking over more time than necessary is summative assessment. It includes chapter and unit tests, end-of-year tests, and standardized tests. Formative assessment is a process used by teachers and students before, during, and after instruction that provides feedback to adjust ongoing teaching and learning to improve student achievement. Formative assessment is a powerful means to improve student learning—but summative assessments such as standardized exams can have a harmful effect. Once in one week is a better way of assessment because the results of assessment can help in adjusting, designing and redesigning the next week task and lectures. Moreover, timely feedback is very important. Very next day assessments with detailed feedback must be returned. Delay in doing so loses the purpose of assessment which is to measure timely learning process.

4. Conclusion

To conclude, brain-based teaching focuses on the natural learning process which incorporates multiple brain-compatible strategies. Classroom environment, learning styles, mind maps, use of colored markers or chalk, seating arrangement, reflection time, teaching synthesis, humor, creative assignments, memorizing, use of technology, and formative assessment promote brain-based teaching.

References

[1] Caine, G., & Caine, R. (1994). Making Connections: Teaching and the Human Brain. New York: Innovative Learning Publications.
[2] Jensen, E. (2005). Teaching with Brain in the Mind. (2nd ed.). Alexandria, VA: ASCD.