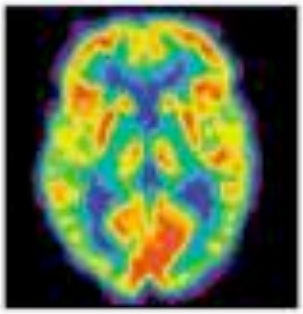
The BRAIN WAY Newsletter

September 23, 2008 Volume 2

This newsletter will keep you posted on the latest research in **BRAIN SCIENCE** and how it can be put to **IMMEDIATE** use in your classroom. AND...exciting new resources that help make everyday a brain-friendly day in your classroom.

Do you want to maximize student achievement in your school or classroom? Are you interest in optimizing student learning? If so, then you also might be surprised at the special ingredient needed to cook up great learning: **MISTAKES!** The latest research indicates that the brain actually contains "neural machinery" for identifying mistakes, fixing those mishaps, and altering behavior. In imaging studies the **medial frontal cortex** and the **anterior cingulate** "light up" when the brain recognizes that an error has occurred. Furthermore, the anterior cingulate relays information obtained from negative feedback to other regions of the brain to determine the behavior that produces positive feedback.



But wait, there's more! This does not happen after one mistake or a single piece of negative feedback. The anterior cingulate also keeps a record of previous trials as a reference for future decisions. **Summary: the brain is made to make mistakes and learn from them!**

So, what does this mean for the classroom:

1. The student brain is wired for making mistakes.
2. Mistakes often provide the best learning moments.

3.Positive and negative feedback is key to learning.

4.Repeated trials or trial-and-error learning, is the great for the brain.

Try these strategies in your classroom to capitalize on this amazing brain characteristic:

- Offer partner correction and discussion of homework assignments.
- Utilize entrance and exit tickets to check student thinking.
- Offer short review activities everyday.
- Provide opportunities for guided practice, a little bit spread out over time. NOT DRILL AND KILL.

BRAIN CHEMICAL NEEDED FOR CONCENTRATION

Researchers from Newcastle University and the University College of London have identified the neural basis for attention and concentration. The chemical acetylcholine is necessary for the brain to pay attention. The neurons in the brain have receptor sites that are activated by the chemicals in the brain. To get the brain into a state of full attention and awareness, a shot of acetylcholine is needed to activate the receptors of neurons.

One of the ways to increase the levels of acetylcholine in the brain is by providing relevancy. When students find learning relevant, a region of the brain called the nucleus basalis is activated. The nucleus basalis then triggers the releaser of acetylcholine. For example, if students understand the "why" behind what they are learning or the "what's in it for me" part of the learning, acetylcholine levels will go up.

Ways to increase ACETYLCHOLINE:

- **Relevancy.**
- **Successful problem solving activities.**
- **Healthy activities such as aerobic exercise.**
- **Foods such as egg yolks, salmon, wheat, soybeans, and lean beef.**

MORAL OF THE STORY: To get students to concentrate and pay attention requires resources in the brain. There are specific strategies that gather up these resources.

BRAIN BUSTER!

Are you maximizing student memory?

A single memory can be broken down into different components. The names, dates, and facts of a memory are called semantic memories. The context of the memory is referred to as episodic memory. Learned tasks or skills is called procedural memory. And finally, how you feel is referred to as emotional memory. If each component of a memory is stored in a different location of the brain, then using each of the components for a piece of information stores that information in multiple locations.

Next month's newsletter focuses on the above mentioned memory components. In the mean time, brainstorm about this...is it easier to recall a memory stored in one location or multiple locations?

Pick a piece of content that you teach.
Do you use multiple memory components in your teaching?

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