



Friday Focus

Carter County Schools

Teaching with the Brain in Mind

Recent advances in the field of brain research have the potential to bring about significant changes in the way teachers deliver instruction. Scientists involved in this research, including everyone from pediatric neurologists to psychologists, have discovered some quite astounding principles about how children learn. As teachers, we have the privilege of examining their findings and implementing these best practices in our classrooms so that our learning objectives can be taught to students in brain-friendly ways.

One of the strongest ways to help that material enter the brain, and stay there is by fostering visualization of curricular content. This practice activates the brain's occipital lobe. The following are some ideas for helping students learn through associating content with strong visual images: **1.** Fill the space with visual stimulus. Make use of educational posters; put them up and refer to them; have students create

posters, magazines, dioramas, models, Webpages, etc. to foster further understanding of the content. **2.** Use videos or television programs to show hard-to-reach places or hard-to-find examples of concepts. If you are studying the ocean, for example, but live in Kansas, you might consult the rich resources of National Geographic to help give students images of things they have never seen before. **3.** Create word walls. Write key vocabulary to a unit on sentence strips and tape them to the wall. Again, when you use the terms in oral discussion, refer to the words on the wall. Encourage students to add words as well. **4.** Be artistic. Whenever possible, try to express concepts in a visual manner. Graphic organizers, mind-mapping, and flow-charts are all brain-friendly ways to represent content. Pull out books to show pictures of your topic; ask kids to imagine or envision being there. **5.** Try teaching in a different location.

Do you always stand at the front of the room at the overhead? Move about a bit! Try reorienting yourself so that material is taught from a unique place. Go outside to complete worksheets or have students turn around as you march to the back of the room to repeat important facts there. Make a point of being unique and unusual in where you teach or have students learn. **6.** Give lots of examples. Abstract concepts, like the notion of persistence, are hard to visualize. In these cases, give examples of what you mean to back up your concepts. What were examples in *The Little Engine That Could* where the main character showed persistence? How does a persistent person act?

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“Enriching” Student Brains through Challenge and Feedback

If you have ever had the chance to hear Eric Jensen speak, you would be eager to try his brain research ideas in your classroom. I had the opportunity to attend one of his sessions and he is focused on including movement and enrichment in classrooms to spur the growth of brain cells. Continue to read this article to see how you can “plant and grow” brain cells this Spring in your classroom garden of students.

Today, research tells us that heredity provides about 30 to 60 percent of our brain's wiring, and 40 to 70 percent is the environmental impact. This means as educators we can influence the “power” of a child's brain. The brain can literally grow new connections with environmental stimulation. When we enrich the environment, we get brains with a thicker cortex, more dendritic branching, and more growth spines and larger cell bodies.” Enrichment can be provided through reading and language, motor stimulation, thinking and problem solving, and through the arts.

Just how much can a school affect the brain? Frequent new learning experiences and challenges are critical to brain growth. The myth for many years was that only certain “gifted and talented” students would most benefit from enrichment programs. Students can graduate from school with a “baseline” or an “enriched brain.” Can we really afford to rob all of the “nongifted” students of their biological destiny to grow an enriched brain?

Two critical ingredients in enrichment are challenge and feedback. Challenge is important; too much or too little and students will give up or get bored. Mental challenge can come about with new material, adding degree of difficulty, or through limiting the resources. This includes varying time, materials, access, expectations, or support in the learning process. Novelty is important, too. Change in the decor on the classroom walls every two to four weeks is valuable, but have the students do it for best enrichment. Change instructional strategies often: use computers, groups, field trips, guest speakers, pairings, games, student teaching, journaling, or multi-age projects. Second, maximize learner feedback. Because feedback reduces uncertainty, it increases coping abilities while lowering the pituitary-adrenal stress responses. For example, after a student writes a paper in the classroom, the peer editing process is a superb way to get feedback. Understandably, other learners can be the greatest asset in the learning environment. Cooperative groups, clearly they do two important things. When we feel valued and cared for, our brain releases the neurotransmitters of pleasure: endorphins and dopamine. This helps us enjoy our work more. Another positive is that groups provide a superb vehicle for social and academic feedback. When students talk to other students they get specific feedback on their ideas as well as their behaviors. Several conditions make feedback more effective. The reaction must be specific, not general. A video game and a computer both give specific feedback, so does peer editing of a student's story. Group interaction provides feedback because it gives so much dramatic evidence, like nonverbals. Building a classroom model or playing a learning game gives interactive feedback. Feedback is ordinarily most useful for learners when it's immediate.

Take the challenge and “plant, grow, and harvest a patch” of brain cells in your classroom this Spring!

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