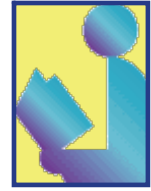




Center for
Excellence in
Learning and
Teaching

Faculty News You Can Use



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The Art of Changing the Brain: Enriching the practice of teaching

by exploring the biology of learning (By James E. Zull)

Would you like to know more about how physiology and anatomy dictates how students learn what you are teaching? Several copies of this book on brain-based learning are available to borrow from CELT. The author, a professor of biochemistry and biology at Case Western Reserve University, explores how best to aid student learning and retention by tying together concepts from the fields of cognitive psychology, neurobiology, neurophysiology and neuroendocrinology.

A summary of Zull's recommendations:

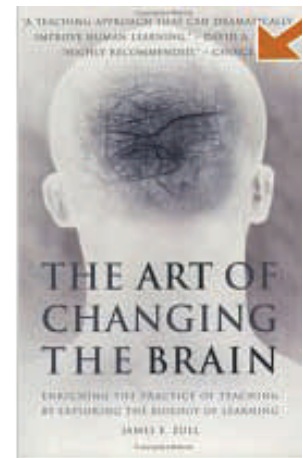
Sell your subject. Emotion is important for learning. Make it matter through the use of multiple senses, stories, cases and application in a way they will use it.

Discover and build on prior knowledge. Memory is built by association with prior knowledge and experiences. Pretests of knowledge can help to ascertain what the students know. Select previously existing neuronal networks and build on them. We can't correct errors in knowledge unless we've uncovered them.

Student reflection is essential to build complexity and connections. Reflection can take time. Even the quickest learners need time to build connections in order to retain information that is more than disconnected and shallow.

Action is necessary to complete the learning cycle. Students need the chance to test out their observations and ideas, demonstrate their knowledge and get feedback. There is a great difference between imagining that we have done something and actually doing it.

People stay motivated to learn by experiencing some success. Students learn better who have some sense of control and achievement.



Using Multimedia In Classroom Presentations: Best Principles

<http://teachpsych.lemoyne.edu/teachpsych/div/docs/classroommultimedia.rtf>

“There is general agreement that multimedia presentations are most effective when the different types of media support one another rather than when superfluous sounds or images are presented for entertainment value—which may induce disorientation and *cognitive overload* that could interfere with learning rather than enhance learning (Mayer, Heiser, & Lonn, 2001). Finally, a number of studies have suggested that student satisfaction and motivation is higher in courses that use multimedia materials (Astleitner & Wiesner, 2004; Yarbrough, 2001).”



More food for the Brain

There is a website called Brain Based Business Brain (<http://www.brainbasedbusiness.com/>) which has many interesting insights on the workings of the brain in education, life, what we eat, what we say, etc. Below is an example of one of the articles on this site.

[Serotonin Rises and Falls from Foods You Eat](http://www.brainbasedbusiness.com/moods_and_food)
by **[Dr. Ellen Weber](#)**
(http://www.brainbasedbusiness.com/moods_and_food)

However, altering serotonin levels through food is not easy to achieve... because both foods and serotonin react differently in each person. How so?

Some people may find a lift in mood after a carbohydrate-rich meal, while others tend to become relaxed or sleepy.

There's also the fact that some foods which increase your serotonin levels are far from healthy food choices. Junk food, for instance, may work well in the short run... but over time unhealthy serotonin-producing foods have the opposite effect you are looking for. For example... chocolate, candy and sweets... which contain simple carbohydrates... have the greatest serotonin impact. However, their well-being or serotonin effect lasts 1 to 2 hours only. Have you noticed this phenomena?

On the other hand, complex carbohydrates found in foods such as certain breads, rice, potato, or pasta may increase serotonin levels only minimally. In fact, the protein content of these foods often tends to inhibit rather than increase serotonin production.

There are some commonalities though.... Try serotonin effects from healthier foods and see which ones work best for you:

To sleep better -- try carbohydrate-rich food and warm milk -- which contains a moderate amount of carbohydrate in the form of lactose

To stay awake during the afternoon -- try adding cheddar cheese or peanut butter to your plain bagel, along with yogurt or cottage cheese for lunch.

For an active day at work, avoid heavier carbohydrates ... and go more for grains, starches, dried beans, peas, fruit, and vegetables in order to get healthier carbohydrates and hold muscle energy.

When you feel hungry... eat good amounts of protein and do include some fat. Great snacks for balanced serotonin include: fruit, low-fat granola bars, nuts, and low-fat crackers

Do remember ... that since each person is unique, it's best to experiment eating different foods ... and then observing how your moods and energy react to each of these.

When altering serotonin through food choices... you'll want to consider your lifestyle choices also— How much sleep you get? Do you exercise regularly? What drugs do you take? What is your stress level?

Your lifestyle alters foods' affect on serotonin... which is why you still feel happy or content on some occasions... and angry or moody at others. What do you think?

