Introduction To Brain-Based Learning

Dr. Jeff Sapp

Every educator uses a variety of tools and strategies. The purpose of this session is to provide key distinctions about which strategies are compatible with our brain’s natural design for learning. The one’s that are compatible, you’ll want to keep and use more often. You’ll want to strongly modify or drop the ones that are “brain-antagonistic.”

Brain-based learning is a system-wide approach that is based on how current research in neuroscience suggests our brain naturally learns best.

It is an important piece of the puzzle of teaching.

It does provide the first-ever comprehensive and biologically-driven framework for learning.

But, it is... a dynamic growing field with few recipes.

It is not static or fixed, its conclusions are tentative and subject to interpretation.

Brain-Compatible Learning

- Is a research based, multidisciplinary approach to the question of how our brain learns best.
- It requires insights from anatomy, biochemistry, genetics, immunology, physiology, neurology, technology, psychology, anthropology, and medicine.
- The sum of these disciplines provide a comprehensive framework for learning.
Basic Information on the Brain

What men do while waiting to download

What women do while waiting to download

MISINFORMATION ON THE BRAIN

Corpus Callosum
DITTOS DO NOT PRODUCE DENDRITES
We’re born with a trillion connections in our brains, but…
The brain weeds out and prunes away what is not being used.

BOREDOM COSTS YOU!
Use it or lose it!

What age has the highest growth of dendrites?

Teenage and Adolescence

How do we achieve long-term memory?
• Is this USEFUL?
• Does it CONNECT TO WHAT I ALREADY KNOW?
• Does it MAKE SENSE to me?
• Can I USE or REHEARSE this information in any way?
• Can I have REPEATED PRACTICE?
• Will someone give me FEEDBACK?
• How do I FEEL about this information?

Let me give you an example of how know the biology of the brain can help you in your teaching...
...after all these years of study...

Peptides
• Peptides are amino acids throughout your body and carry over 98% of all mind/body information. They are the body’s 2nd nervous system and they drive attention, learning and memory.
• Your body IS your brain!
Reticular Activating System or RAS

Are Kids Today Any Different?
(Than those 34 years ago?)
1. Changes in Diet
Higher Fat > Sugar > Carbohydrates

2. Drugs & Medications Usage
Blur the Lines Between Drugs and Medications

3. Less "Crawl-Time" + Physical Activity
(Car Seats, School, P.E. Programs Cut)

4. Change in Social/Economic Structure
Fewer resources available for growing children

5. School Budget Cuts
Fewer Music, Drama & Art classes

6. Greater Threat, Stress & Violence
Television, School, Family

7. More Hours of Television per Week
Greater passivity, Less thinking

Resources:
- Inside the Brain by Kotulak
- Why Kids Can't Think by Healy
The Brain is **Meaning Driven**
Attention is secondary (20% or less). We gain meaning in 3 ways: **patterns, emotions, and relevance**. The brain is poor at learning isolated facts. We learn best with themes, the “big picture,” and interdisciplinary relationships.

**Attention & Learning**

- Utilize more non-conscious learning (Posters, people, music, projects)
  - Content Area Posters
  - Affirmation Posters
  - Symbolic Posters
  - Preaching Posters
- Use cross laterals to wake up the brain - [www.braingym.org](http://www.braingym.org)

Resource: Brain-Based 6-Day Level #1 Training Manual by Eric Jensen

**The Brain Is Designed To Learn Fastest From Feedback**

But It Rarely Does...Why?
Most of our feedback is
- Too Late
- Too Little
- Lacks impact
- Too Vague
- In the Wrong Form

**Affirmation Poster (Chemistry)**

What did I do well?
What can I improve on next time?
**Choice & Variety**

(Always use both...)

The younger the learners, the more the variety... They need the exposure to enrich the brain.

The older the learners, the more the choice... They need to do what they are good at.

Both groups need both! It's the way they're used that counts!

Resource: Brain-Based 6-Day Level #1 Training Manual by Eric Jensen

---

**The Great Gatsby Menu Planner**

Menu For: __________________ Date: ______________

All items in the main dish and the specified number of side dishes must be completed by the due date. You may select among the side dishes and you may decide to do some of the dessert items, as well.

---

**Main Dishes (Required, Complete All)**

1. Design a menu for the novel, based on your own interpretation of the themes.
2. Write a letter to Daisy as if you are Gatsby—or view Daisy.
3. Re-create the dialogue we never hear between Gatsby and Tom, after Daisy runs over Myrtle.

---

**Side Dishes (Required, Choose One)**

1. Create an ABC book—the ABCs of The Great Gatsby. Choose 15 letters of the alphabet to write the "ABC" of the novel. eg: G is the green light that represents Gatsby’s hope and love for Daisy (you will need a visual representation in every page).
2. Create a soundtrack to the novel, using music from the era and music that captures the theme of “The American Dream.” justify why each song should be included in the soundtrack.
3. Create a "Great Gatsby" dictionary with definitions of terms, examples of their usage, and visuals.
   *This will require a little bit of research on your part!

---

**Desserts (Optional, Extra Credit)**

1. Watch the film version. Afterwards, write a persuasive essay in which you define whether or not you believe the film does the novel justice.
2. Interview an immigrant to the United States and ask them about their perceptions of “The American Dream.” Compare and contrast their perceptions of the “The American Dream” with that of the era in the novel.
3. Write a mini-research paper that addresses the following question: How did the idea of “The American Dream” help contribute to the Great Depression?
All Behavior is **State Dependent**

States are simply the “mind-body moment” composed of your:

**Thoughts**
- Mental pictures (visual)
- Sounds (internal dialogue)
- Feelings (kinesthetic)

**Physiology and States**
- Eye patterns, breathing patterns, postures, gestures
- Temperature, digestion, etc.

---

7 Most Common Participant States

- Disappointment
- Curiosity/Anticipation
- Fear
- Confusion
- Apathy/Boredom
- Frustration
- Self-Convincer

---

**STATES**

- Key Questions
  - “In what state are your learners?”
  - “Are those states appropriate for the task?”
  - “What are you going to do about it?”

---

**How Does the Brain Make Meaning?**

The brain is a natural for seeking and making meaning. As learning catalysts, we can either impede or facilitate the process. Here are the three primary variables:

1) **Relevance**
   - Connect information with other known information
   - Use associations with prior knowledge to make in meaningful

2) **Emotion**
   - The stronger the emotion, the more the meaning.
   - All emotional experiences “code” our learning as important.

3) **Context/Pattems**
   - Information in isolation has little meaning. Each “puzzle piece” is always part of something larger.
   - Meaning comes from understanding the larger pattern.

---

**RELEVANCY is a critical ingredient for meaning.**

RELEVANCY is how the learner personally connects with the material not how you connect (although that helps)…
Start with the personal and move to the academic.

- Family
- Romance
- Learning
- Health
- Peers/Friends
- Money/Finance

**EMOTIONS ARE CRITICAL**

While excessive emotions can impair rational thinking, the ABSENCE of emotion is equally damaging.

Positive emotions create an excitement and love of learning. They spur motivation to learn and let us know that we know, creating a confidence in ourselves and in our abilities.

Learning is more than mental... our learning, beliefs and meaning, are run by feelings.

Feelings & Emotions in the Learning Context...

**Too Intense or Excessive**

- Rage/Aggression/Violence
- Abuse/Insult/Hostility/Sarcasm
- Humiliation/Embarrassment/Fear
- Threat/High Stress/Hunger

**Healthy & Appropriate Ones**

- Frustration/Worry/Concern
- Anxiety/Tension/Satisfaction
- Low-Moderate Stress
- Excitement/Joy/Bliss
- Optimism/Hope/Love
- Disappointment/Discouragement
- Rejection/Sadness/Grief

When They’re Lacking...

- Apathy/Disconnected/Inertia
- Hopelessness/Resignation
- Deep Despair/Suicidal

The number one factor for brain-compatible learning is...

**RELATIONSHIPS**

We teach people, not content!