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WHERE CUTTING-EDGE SCIENCE MEETS  
EVERYDAY PARENTING

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# Teaching with the Developing Brain in Mind:



**STUDENTS AND TEACHERS  
LEARNING TOGETHER**

## Why should you care about the brain?



- Experience shapes the brain → the brain is always changing and developing.
- Teachers are primary sculptors of child's brain.
  - We should know about what we are sculpting

# Experience Shapes the Brain

- Brain is shaped by:  
**GENES &  
EXPERIENCE**
- Neurons that fire together → wire together
- Parents and teachers are brain architects.



# Horizontal Integration



## Left Hemisphere

- Logic
- Linear
- Linguistic
- Literal



## Right Hemisphere

- Emotion/Intuition
- Whole
- Random
- Non-verbal
- View of Self
- Autobiographical data

## SO WHAT?

### 1. HELP THEM TELL THEIR STORY:

- L: explain, put things in order, and assign words +
- R: autobiographical info, whole context & emotional info



### 2. CONNECT & REDIRECT

(Connect with emotions before redirecting behavior)

- R: nonverbal comfort—touch, tone of voice, facial expression, empathic talk,
- L: solutions, words, planning, logical explanations.

INTEGRATION

# Applying Right-Left Integration



- What is an activity/assignment you are already using that integrates right/left?
- What is something you are doing in the classroom that you like, but that you think could be improved if you brought in aspects of right/left integration?
- How can you help a student who's in the right use their left? Or who's in the left use their right?
- How well do you do at using both sides of your brain when interacting with students?

# Why is Integration Important?



- No integration = Chaos/rigidity
- Integration = FACES  
(Flexible, Adaptive, Coherent, Energized,  
Stable)

FACES = a good definition of mental health,  
and a good goal for our students.

(Daniel J. Siegel—*Mindsight*)

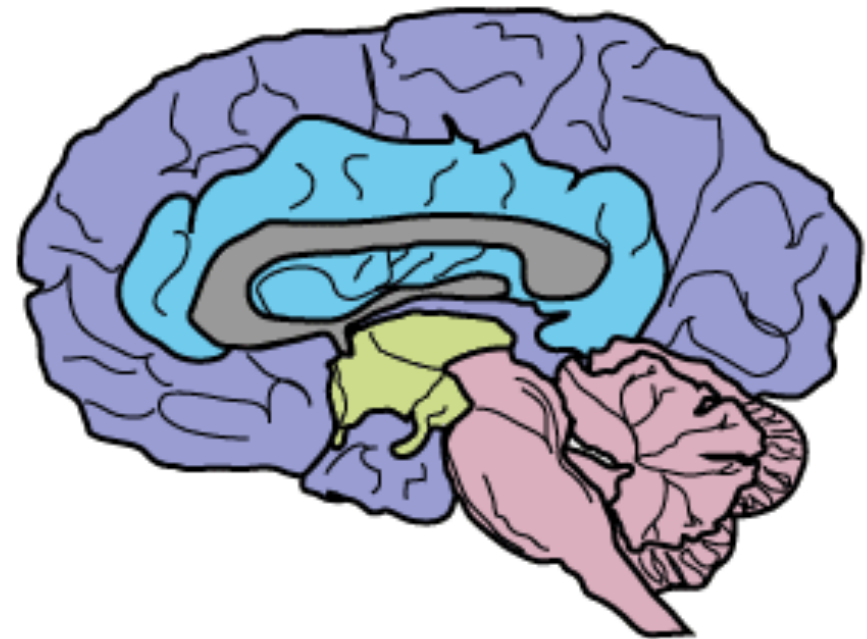


# Brain 101



## The Human Brain

- Brain Stem
- Limbic Region
- Cortex
  - Frontal Lobe
    - ✦ Middle prefrontal cortex (MPFC)



- Neocortex
- Limbic
- Diencephalon
- Brainstem

B. Perry, MD

# Vertical Integration



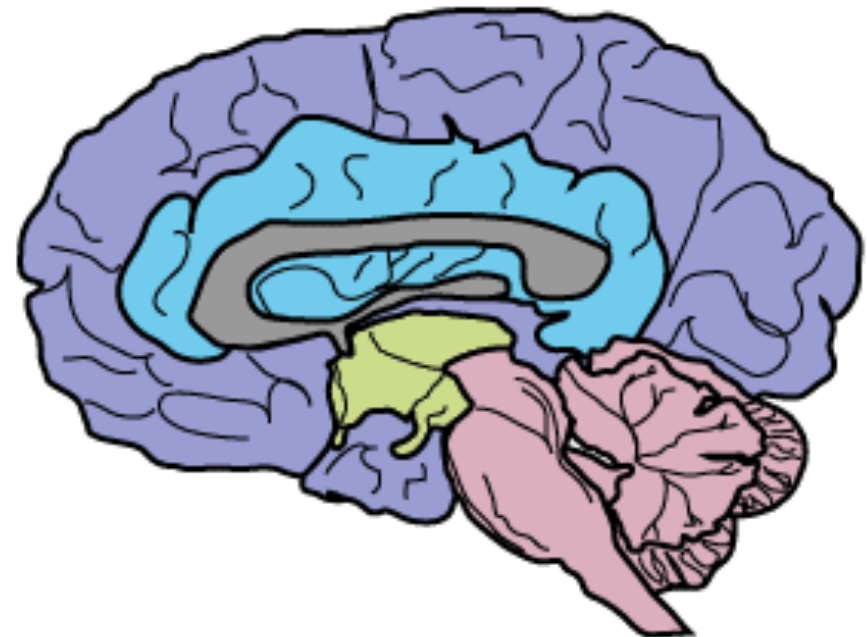
**The Human Brain**

## DOWNSTAIRS:

- Brain Stem
- Limbic Region

## UPSTAIRS:

- Cortex
  - Frontal Lobe
    - ✦ Middle prefrontal cortex (MPFC)



- Neocortex
- Limbic
- Diencephalon
- Brainstem

B. Perry, MD

# Middle Prefrontal Cortex



- Regulates body (autonomic nervous system)
- Regulates emotions
- Sound decision making
- Attuned communication
- Empathy
- Flexibility
- Personal Insight
- Unlearning of fear
- Intuition
- Morality




# My Amygdala Made me do it.



- **Downstairs Hijack!**  
(intense emotions,  
impulsive reactions,  
rigid/repetitive  
responses)

I had hoped Frank would outgrow his tantrum phase once he reached 40...





Beyond  
“Reading,  
Writing  
and  
‘Rithmetic’”

So what can we do to develop  
this upstairs brain?

- Reflection
- Relationships

The 4<sup>th</sup> and 5<sup>th</sup> “R”s that are good  
for the brain.

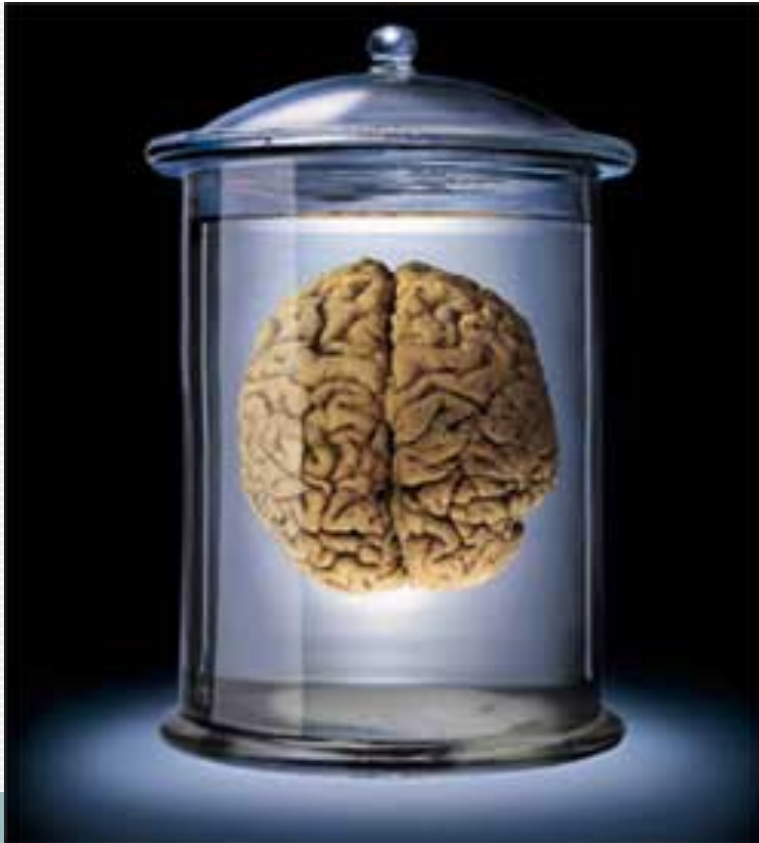
# Applying Vertical Integration



*1 what's an activity you're using that helps develop upstairs brain and/or integration between up and downstairs? (e.g. helping them deal w/fear or test-taking anxiety that will keep them from going upstairs?)*

*2 What's something (activity) that you like but that you think could be improved if you brought in some way to integrate up/down more clearly. (Maybe you emphasize the upstairs so much that you don't help your kids develop their emotions, their guts.)*

# The Classroom with the Social Brain in Mind



*"That's amazing—I was just thinking the same thing."*



# The Relational Brain



- NATURE NEEDS NURTURE!
- Middle Prefrontal Cortex developed through relationship
- Mirror neurons





# Mirror neurons



- We are captive to one another's nervous system
- What are the implications for this for what children are exposed to?
- What are the implications for us for a classroom environment?
- What are the implications for us in a school environment?
- Why modeling is powerful in classroom.
- Why **READING & VISUALIZATION** is powerful.

# Categories of Attachment



“state of mind with regard to attachment”

- Secure
- Dismissing
- Preoccupied
- Disorganized/Unresolved



# Self-Theories



- How we're using praise in the classroom.
- Mark of successful individuals—love learning, seek challenges, value effort, persist in face of obstacles (Dweck)
- Fixed intelligence vs. malleable intelligence
  - Set different types of goals (performance vs. learning)
  - Affect decisions about what challenges to take on
  - How they handle difficult challenges
  - How they view peers
  - How they feel about themselves

# Why What you do is so Important



- Obviously—teaching important information and skills
- Laying the groundwork for future development
- Being the second chance, the safety net
- Teaching kids about their brains
- You are the means to transpirational integration—teach them that they are connected to the world as a whole.

# Online Resources



- Neuroscience for Kids:  
<http://faculty.washington.edu/chudler/neurok.html>
- Teacher and Kid Resources on the Brain  
<http://www.brainsrule.com/index.htm>
- <http://www.brainconnection.com/>
- <http://www.allthedaze.com/> (click on child development)
- [www.Mindsightinstitute.com](http://www.Mindsightinstitute.com)

## Books to Read



- *Mindsight* by Siegel
- *The Power of Mindful Learning* by Langer
- *Mindset* by Dweck
- *Teaching with the Brain in Mind* by Jensen
- *Parenting from the Inside Out* by Siegel and Hartzell
- *Made to Stick* by Heath
- *The Brain that Changes Itself* by Norman Doidge

# The Impact of a Teacher



- Perceiving and meeting your students needs (providing secure attachment) develops their brains.
- When students feel valued and cared for, brain releases pleasure chemicals → students enjoy their work more and can better learn

# How does the brain change?



## THE FIVE LAWS OF NEURAL PLASTICITY

- Mass practice
- Novelty
- Focal Attention
- Unlearning old way
- Sleep, exercise



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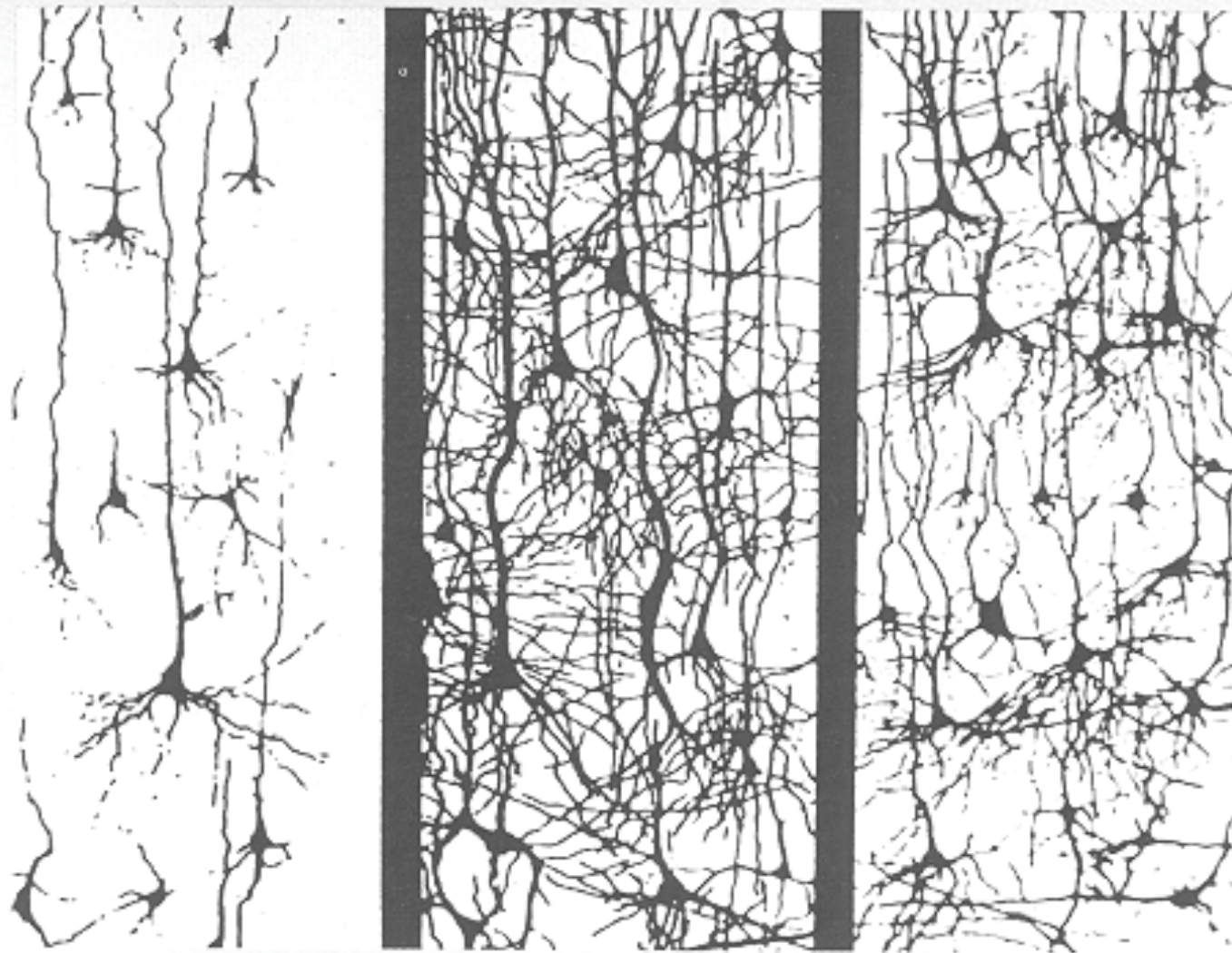
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At Birth

6 Years Old

14 Years Old



Lise Elliot—*What's Going on in There*