



Promoting Student Success

PRESENTER HORACIO SANCHEZ

Self-regulation

Self-regulation relies on the prefrontal cortex controlling the subcortical regions associated with reward and emotion

- Predictive
 - Emotional stability
 - Social success
 - Academic performance

The Prefrontal Cortex Needs

- Predictable environments
- Positive social interactions
- Continued learning
 - Teachers as lifelong learners

Temperament

“How you react”

How One Reacts to Stimuli

Based on your understanding of temperament

“All infants are born in a state of psychedelic splendor similar to an acid trip. Sights and sounds and touches are all being activated together, and the infant cannot tell what sensory organ they are coming from.”

Professor Daniel Levitin – McGill University

- Learn
 - Based on what we know
- Ritualize
 - To help chemical balance
 - Melatonin reassessed an hour later in teens
- Parenting helps reshape chemical reactions
 - Vagal tone does not decrease preventing the heart to appropriately respond to stress
 - A variant of DRD2 dopamine receptors
 - Exposure to sensitive parenting counteracts some effects



STEP 1: RITUALIZE MAJOR TRANSITION

Rules for Designing a Ritual

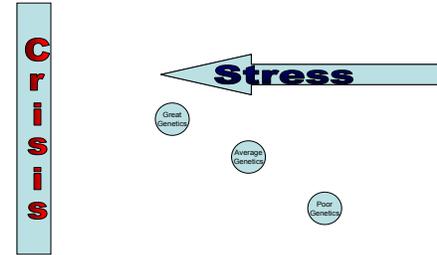
- Taught
- Practiced
- Consistently Reinforced
 - Thank you

High Emotional Experiences

“What you do when stressed”

The Amygdala

- Amygdala is the pharmacist of the brain
 - Our brain works by chemical transference
- There are automated chemical responses
 - Certain gestures or movements result from certain chemical configurations
 - Certain responses to identified stimuli are so hardwired that it is predictive of the emotional condition
- Amygdala is in charge of crisis response
- Because the amygdala’s role is survival, all stimuli pass through it



Simply Put – All Stimuli Are Seen through the Filter of Emotion (Amygdala)

- Every expression seen or done is processed through the amygdala, triggering different levels of emotional response and dictating behaviors
- Posture, gesture, movement, touch, sound, and taste are all processed through the amygdala
- The level of emotion dictates behaviors

Before the Evolution of the Cortex

- The cortex is the part of the brain that allows for learned behaviors as opposed to just emotional response
- Cortex is the part of the brain that makes us rational; it has undergone massive growth
 - Leading some to believe that man has become a rational being
- Two problems w/ the theory
 - Anthropologists have noted that our nonverbal communication is also still evolving (*Bateson 1968:614*)
 - While man has the biggest cortex – making him the most rational creature on the face of the earth
 - Man also has the biggest amygdala – making him the most emotional and impulsive creature on the face of the earth
- Amygdala seizes control of all behaviors when the stimuli are perceived emotionally – *hypersensitive*

The Science of Change

Start with something simple that has a neurological impact

- Don’t begin with world peace
 - One successful change enables future change
- 20 - 60 - 20 rule

STEP 2: PROMOTE SOCIAL COMFORT

Every Social Interaction Is a Mystery	
<ul style="list-style-type: none">▪ Amygdala<ul style="list-style-type: none">○ Accurately reads the nonverbals of others○ Tends to project less threatening nonverbals▪ Insula<ul style="list-style-type: none">○ Predicts the actions of others○ Predicts your own actions	<ul style="list-style-type: none">▪ Amygdala<ul style="list-style-type: none">○ Lacks the ability to read the nonverbals of others○ Tends to project threatening nonverbals▪ Insula<ul style="list-style-type: none">○ Does not predict the actions of others○ Predicts your own actions

The Amygdala

- Stores emotional memories
- Alerted to differences
- Eased by commonality

“Thin Slices”

Humans generate a range of instantaneous judgments on things like character, personality, and intentions

- Based on 30-second video clip observations
 - Complete strangers were able to accurately predict the ratings of teachers by students who had interacted with the professor over the course of a whole semester
- Meta-analysis 44 studies
 - Nalini Ambady and Robert Rosenthal 1992

The Question Is Why Do People Subconsciously Make Instantaneous Decisions about Other People?

In Every Encounter, the Emotional Brain Seeks

- Safety
 - The absence of those cues can raise immediate suspicions
- Familiar
 - Familiarity is predictive of agreement

Greeting Rituals

- The clear message that they are wanted
 - Smile

STEP 3: SHIFT THE PARADIGM FROM RULES AND CONSEQUENCES TO SUCCESS

Discipline

- 60% of people in the world inherently follow rules
- 20% of people in the world need the rules to be consistently present and enforced

- 10% of the world need the rules to be consistently present and enforced for an extended period of time
- 10% of people in the world are prone to violate rules and norms

Why Not Just Rules and Consequences	
<p>People Who Tend Not to Violate Social</p> <ul style="list-style-type: none"> ▪ Norms <ul style="list-style-type: none"> ○ Rule and a threat of punishment if violated <ul style="list-style-type: none"> • Brain activity in a region of the frontal lobe - orbitofrontal cortex • Lights up when there is a potential for punishment ▪ Triggering extreme activity in a second brain region - the dorsolateral prefrontal cortex <ul style="list-style-type: none"> ○ Responsible for inhibiting behavior that might lead to punishment 	<p>People Who Tend to Violate Social Norms</p> <ul style="list-style-type: none"> ▪ Rule and a threat of punishment if violated <ul style="list-style-type: none"> ○ Intense brain activity in the orbitofrontal cortex <ul style="list-style-type: none"> • Awareness of rule and focus on consequence ▪ Low activity in the dorsolateral prefrontal cortex <ul style="list-style-type: none"> ○ The brain never shifted to inhibition to avoid punishment <ul style="list-style-type: none"> • (Spitzer, 2008)

Machiavellism Studies

- Measured participants'
 - Selfishness
 - Opportunism
 - The tendency to manipulate other people for personal gain
- Individuals who tended not to follow social norms consistently scored the highest on avoiding punishment

Drop in Ability to Focus

- The ability to focus has been a casualty of technology.
 - Small, Moody, Siddarth and Booheimer 2009
- Internet searching appears much more stimulating than reading.
- Due to extensive exposure, the brain attends more to visual information.
- Constant use has the potential for impaired attention.

Focus Improves Brain Function

- Longitudinal study
 - 20 years of focus training produced intricate connections between prefrontal and parietal cortex, and insula
 - More efficient communication between regions
 - Eileen Luder 2012
- This connection is responsible for
 - Improved understanding of nonverbal cues
 - Improved monitoring of body functions
 - Improved perception of self-image

Focus Improves Performance

- Study of 51 marines
 - Half did 12 minutes of focus exercises for eight weeks
- Marines that did exercises
 - Improved memory capacity
 - Better mood stability
 - Better ability to perform under pressure
 - P. Jha 2010

Focus Improves Emotional Stability

- Meta-analysis of six studies with a total of 593 patients who did focus exercises or placebo
 - Patients who had three or more episodes of major depression had significantly lower rates of relapse if they were in the focus group.
 - Piet and Hougaard 2011
- Focus training has also been found to alleviate
 - Anxiety
 - Panic disorders
 - Phobias

Two Key Steps

- Restore the belief that they can succeed.
- Help them experience a sequence of successes.
 - While still challenging them

Why Some Students Are Avoiding Learning

- Students who struggle with emotional regulation also utilize a larger number of brain regions when performing memory tasks, making cognitive tasks more taxing (Mensebach et al. 2009).
 - This is one reason why these students act out to avoid learning.
 - Quick drills to improve focus and memory are highly recommended.

Teach Students About Their Brains

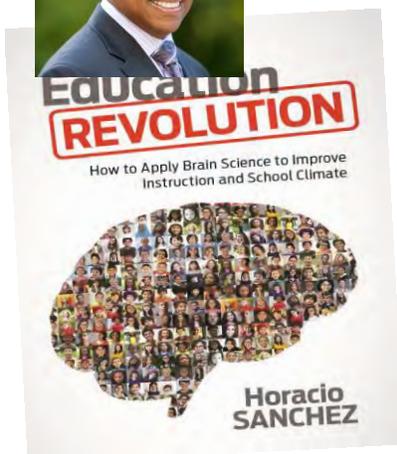
- One hour unplugged every day
- Do focus drills
- Do important tasks as a single task activity



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The Education Revolution is a timely book because it takes relevant findings in neuroscience and bridges the gap between brain science and education. The book illustrates how discoveries in neuroscience can be directly used to modify instruction and improve school climates to advance academic achievement and

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5

student behavior. The Education Revolution not only provides a clear explanation of relevant findings in neuroscience but also provides guidance through lesson plans that illustrate how the science can be incorporated into classroom management and instruction. The practical application of neuroscience illustrates that it is time for every teacher to join the Education Revolution!

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