The Neurology of Leadership Navigating the Adult Nervous System in Schools

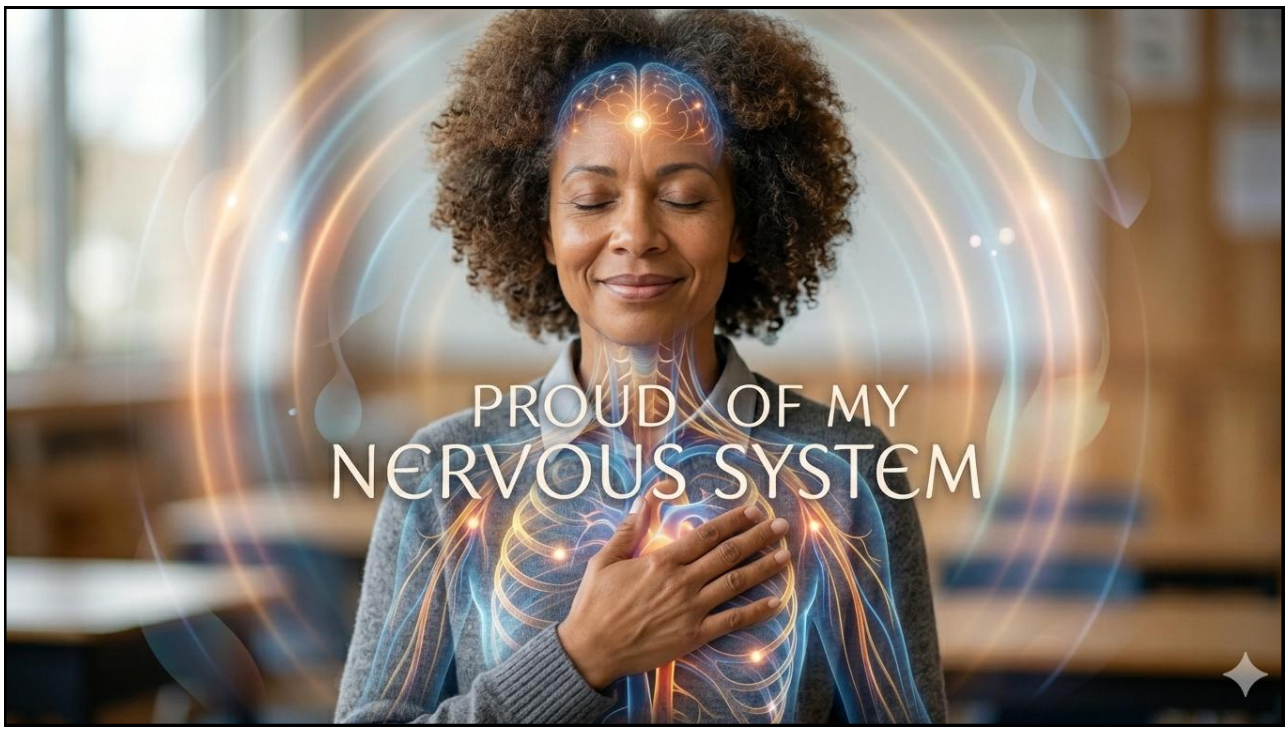
Dr. Lori Desautels

College of Education and Human Development

Butler University

USA

1



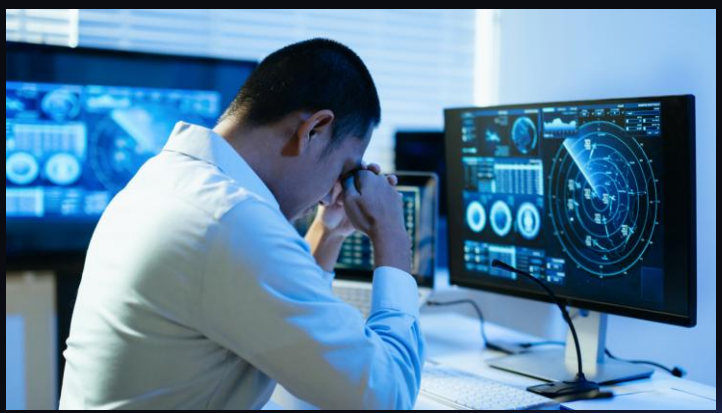
2

What is factual about this small aerial view of this body of water?



3

Nervous System Overload





4

Anxiety/ Panic Attack





5

THE THINGS WE CHOOSE TO FOCUS
UPON CHANGE OUR COGNITIVE REAL
ESTATE! WE NEED TO BE REMINDED
OF THIS WHEN OUR CHILDREN AND
YOUTH ARE DYSREGULATED. THEY
DON'T HAVE THE COGNITIVE
BANDWIDTH WITHOUT THE
COREGULATION FROM ADULTS!
(TRUE FOR ADULTS TOO)
DR LORI DESAUTELS

REVELATIONS IN EDUCATION

6

Feelings Are Physical
Antonio Damasio

Emotions are not mental events or constructs, but PHYSICAL events that arise in the body as patterns of physiological change... sensations! A racing heart, lightening in the belly, a tight chest, shallow breathing! These are not symptoms of emotions, they are emotions registered in the body and read by the brain! What the nervous system responds to is a genuine felt sense. The practice of "feeling" is not a mental exercise it is a somatic exercise!

Our older limiting belief systems are persistent because these prior experiences were encoded by the amygdala with lots of charge from emotions like fear, shame, and pain possibly when we were younger and without awareness!

We have the ability to cultivate our new desires, intentions, or beliefs with the same emotional charge we cultivated years earlier when we did not have awakened awareness and a felt sense of ease and safety. This is the plasticity of the nervous system!

7



Educator Nervous System State

- What is my ACE score?
- Am I Neurodivergent?
- How does my implicit bias impact my ability to provide co-regulation that is steadying, helping our students access the cortex!
- @ Mindful-Leaders.org

8



High ACEs in Adults

- More likely to have an authoritarian discipline style
- Engage in exclusionary practices
- Experience career burn-out
- Less likely to have healthy boundaries
- - Dr. Niki Elliott

9

Understanding the Neurodivergent Nervous System

- Educators who are neurodivergent offer invaluable skills working in classrooms, especially when connecting with students receiving special education services. But the value of representation also comes at a cost for some — from struggling through unsupportive environments to leaving the profession altogether due to burnout.



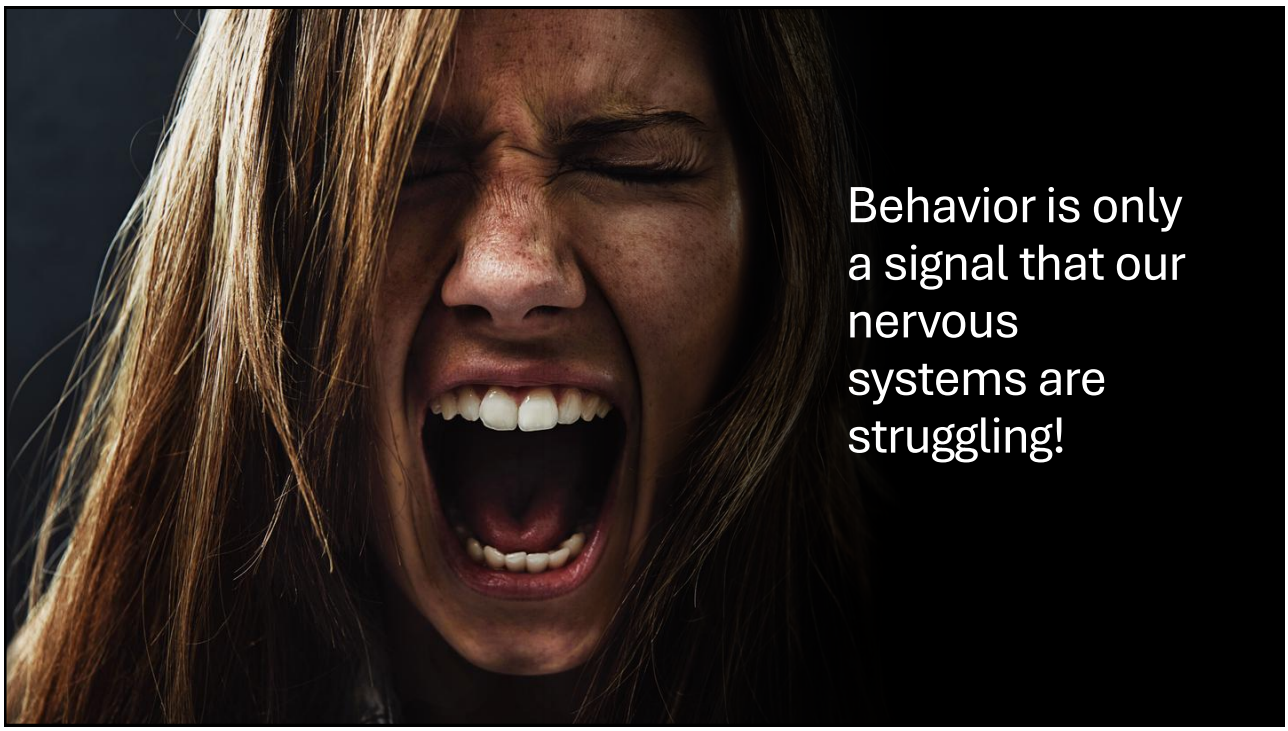
10



Implicit Bias

How does my unexamined implicit bias affect my ability to co-regulate with all students?

11

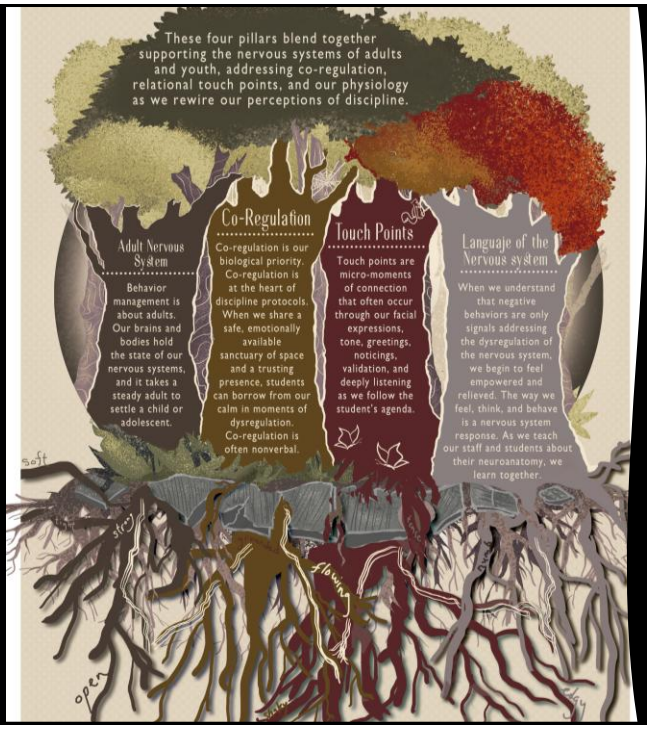


12



We broadcast our physiological states through our touch, faces, gestures, postures and through the intonation of our voices.

13



14

My sixth grade co-teacher and administrator



15

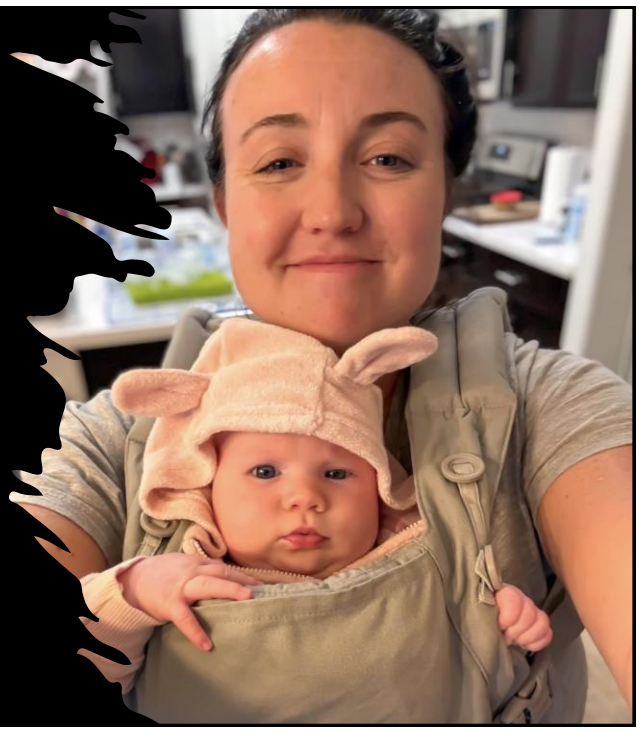


16



17

We Carry In Who We Are!



18

When the Adult Shifts the Child Shifts

- Two decades worth of research from Dr. Niki Elliott reports 70 to 80%of a child's behavioral issues and learning difficulties can be resolved or at least greatly improved , when the adult chooses to show up differently!



19

Neuroscience and Contemplative Sciences Build a Much-Desired Bridge



20

Academic Synthesis Matrix

Researcher	Core Academic Field	Primary Physiological / Neural Target	Key Theoretical Contribution
Dr. Stephen Porges	Neuropsychiatry / ANS	Vagus Nerve (Ventral / Dorsal Complex)	Polyvagal Theory & Neuroception
Dr. Kevin Tracey	Bioelectronic Medicine	Inflammatory Reflex & Cholinergic Pathway	Neural Control of Cytokine Cascades
Dr. Dan Siegel	Psychiatry / IPNB	Inter-brain & Intra-brain Integration	Interpersonal Neurobiology Paradigm
Dr. Ellen Langer	Social Psychology	Epigenetics & Mind-Body Continuum	Mind-Body Unity & Active Mindfulness
Drs. Doty, Swart, Leaf, Wong	Applied Neuroscience & Somatics	Cortico-limbic & Somatosensory Networks	Self-Directed Neuroplasticity & Embodiment

21

The Science of Psychological Safety

- This science can best be described as sharing space with someone who is steady and relates to us without judgment and with a depth of compassion.
- We are then empowered to meet ourselves in the same way.



22

"Every educator has an internal curriculum." This profile helps leaders discover it.

The Nervous System-Informed Educator Map

Description:

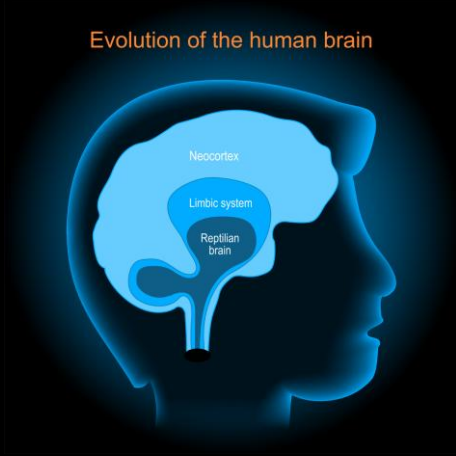
A reflective portrait of the educator's nervous system landscape…exploring strengths, resources, stress signals, passions, purpose, and practices that support regulation and resilience. Leaders use this understanding to create environments where adults and children can access curiosity, connection, and their highest capacities.

DATA!!

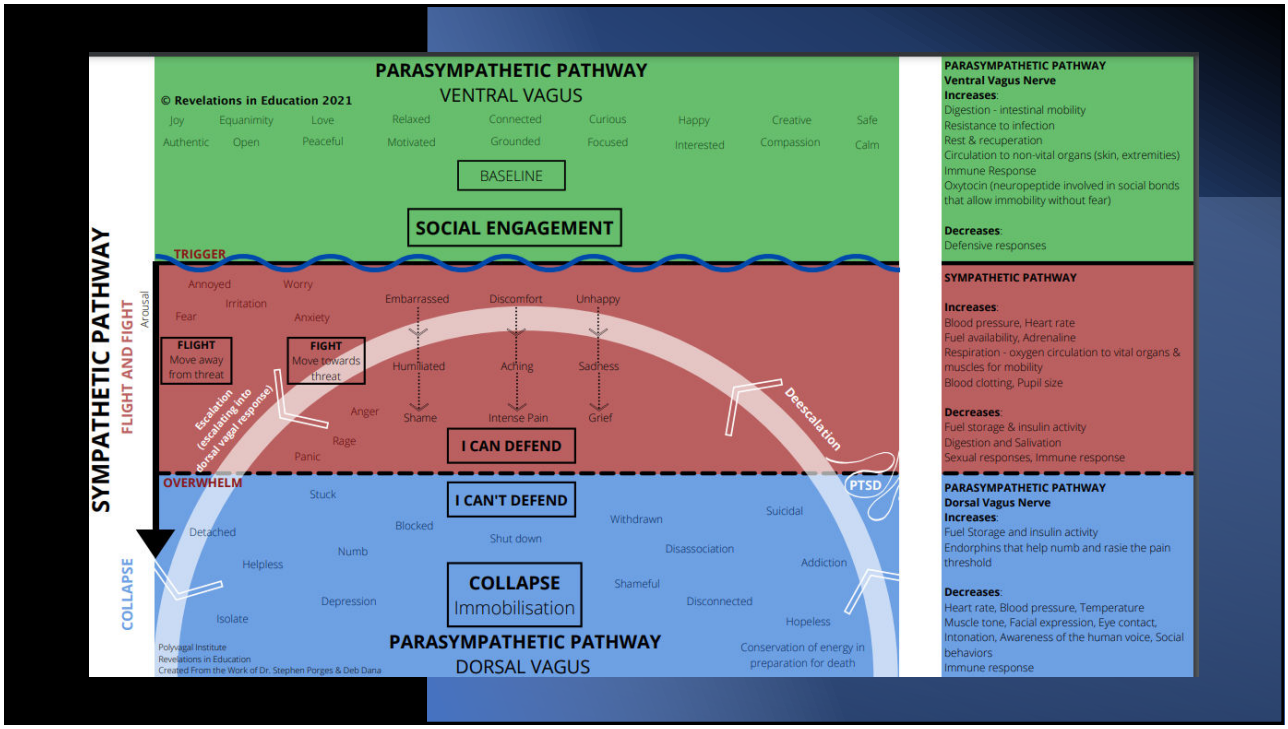
23

Developing Brain

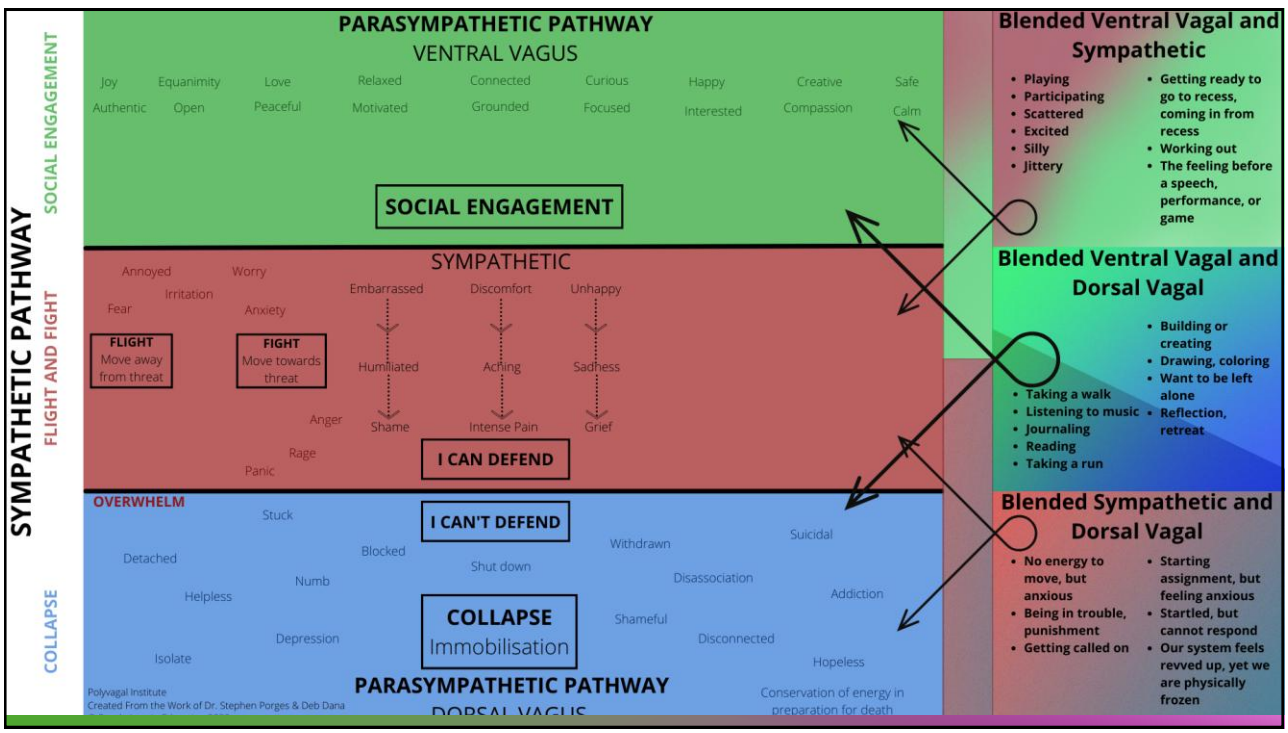
- Brainstem- Ancient, Regulatory functions (sweat , shiver, heart rate, digestion, etc.) releasing hormones, survival and safety – Regulation
- Limbic System- Love, Fear, Emotional part of the brain, Anxiety- develops early and quickly –Relational
- Cortex- Newest part, we share this region with primates and apes, and it holds our executive functions. – Reasoning



24


PARASYMPATHETIC PATHWAY
VENTRAL VAGUS
© Revelations in Education 2021
Joy Equanimity Love Relaxed Connected Curious Happy Creative Safe
Authentic Open Peaceful Motivated Grounded Focused Interested Compassion Calm
BASELINE
SOCIAL ENGAGEMENT
TRIGGER
SYMPATHETIC PATHWAY
FLIGHT AND FIGHT
Arousal
Annoyed Worry Irritation Fear Anxiety
Embarrassed Discomfort Unhappy
FLIGHT Move away from threat
FIGHT Move towards threat
Humiliated Aching Sadness
Escalation (escalating into dorsal vagal response)
Anger Shame Intense Pain Grief
Rage Panic
I CAN DEFEND
Deescalation
OVERWHELM
Stuck
I CAN'T DEFEND
PTSD
Withdrawn Suicidal
Detached Blocked Shut down
Numb Disassociation
Helpless Addiction
COLLAPSE
Shameful
Depression Disconnected
Isolate Hopeless
COLLAPSE
Immobilisation
PARASYMPATHETIC PATHWAY
DORSAL VAGUS
Conservation of energy in preparation for death
Polyvagal Institute
Revelations in Education
Created From the Work of Dr. Stephen Porges & Deb Dana
PARASYMPATHETIC PATHWAY
Ventral Vagus Nerve
Increases:
Digestion - intestinal mobility
Resistance to infection
Rest & recuperation
Circulation to non-vital organs (skin, extremities)
Immune Response
Oxytocin (neuropeptide involved in social bonds that allow immobility without fear)
Decreases:
Defensive responses
SYMPATHETIC PATHWAY
Increases:
Blood pressure, Heart rate
Fuel availability, Adrenaline
Respiration - oxygen circulation to vital organs & muscles for mobility
Blood clotting, Pupil size
Decreases:
Fuel storage & insulin activity
Digestion and Salivation
Sexual responses, Immune response
PARASYMPATHETIC PATHWAY
Dorsal Vagus Nerve
Increases:
Fuel Storage and insulin activity
Endorphins that help numb and rasie the pain threshold
Decreases:
Heart rate, Blood pressure, Temperature
Muscle tone, Facial expression, Eye contact,
Intonation, Awareness of the human voice, Social behaviors
Immune response

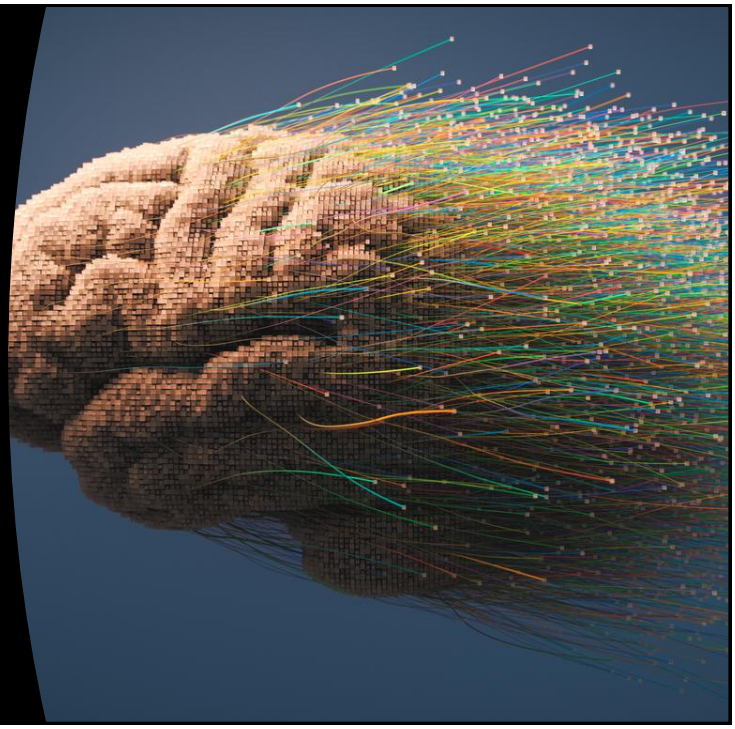
25


SYMPATHETIC PATHWAY
SOCIAL ENGAGEMENT
FLIGHT AND FIGHT
COLLAPSE
PARASYMPATHETIC PATHWAY
VENTRAL VAGUS
Joy Equanimity Love Relaxed Connected Curious Happy Creative Safe
Authentic Open Peaceful Motivated Grounded Focused Interested Compassion Calm
SOCIAL ENGAGEMENT
SYMPATHETIC
Annoyed Worry Irritation Fear Anxiety
Embarrassed Discomfort Unhappy
FLIGHT Move away from threat
FIGHT Move towards threat
Humiliated Aching Sadness
Anger Shame Intense Pain Grief
Rage Panic
I CAN DEFEND
OVERWHELM
Stuck
I CAN'T DEFEND
Withdrawn Suicidal
Detached Blocked Shut down
Numb Disassociation
Helpless Addiction
Shameful
Depression Disconnected
Isolate Hopeless
COLLAPSE
Immobilisation
PARASYMPATHETIC PATHWAY
Conservation of energy in preparation for death
Polyvagal Institute
Created From the Work of Dr. Stephen Porges & Deb Dana
Blended Ventral Vagal and Sympathetic
Playing
Participating
Scattered
Excited
Silly
Jittery
Getting ready to go to recess, coming in from recess
Working out
The feeling before a speech, performance, or game
Blended Ventral Vagal and Dorsal Vagal
Building or creating
Drawing, coloring
Want to be left alone
Taking a walk
Listening to music
Journaling
Reading
Taking a run
Reflection, retreat
Blended Sympathetic and Dorsal Vagal
No energy to move, but anxious
Being in trouble, punishment
Getting called on
Starting assignment, but feeling anxious
Startled, but cannot respond
Our system feels revved up, yet we are physically frozen

26

Nonconscious Processing Unconscious/ Subconscious

- Unconscious= Readily accessible but not currently in our awareness
- Subconscious
- Nonconscious Processing occurring outside of awareness and throughout the body!



27

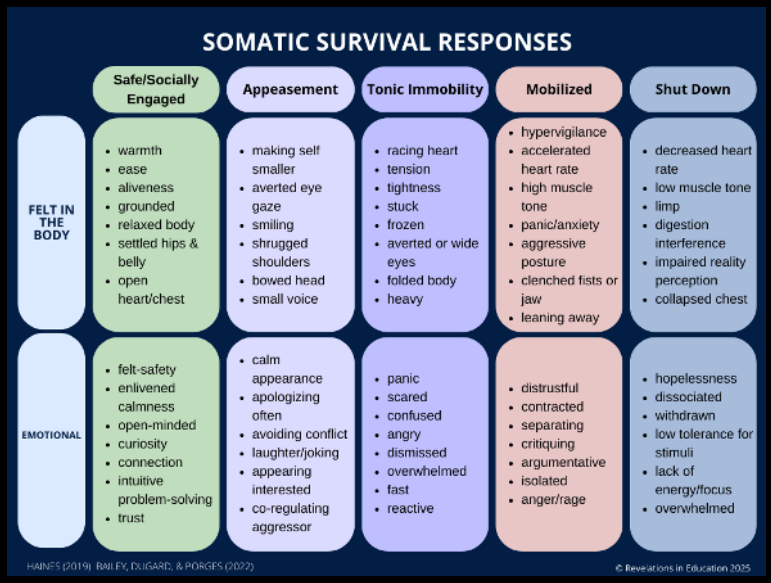
Unconscious Processing

- Refers to a vast collection of brain and body processes that occur outside conscious awareness but continually influence our perceptions, all bias, emotions, beliefs, decisions, habits and sense of self.



28

Survival is an Adaptive Response.



29

The Biology of the Room

- Emotions aren’t just "feelings"—they are biological instructions, and in a classroom, they are contagious.

30

Honoring Our Stories

- We live in a fast, reactive, often fearful and quick solution focused world and we have lost our ability to think deeply.
- We have forgotten the art of deep and focused “mind or mental fitness.”



31

Warming Up the Nervous System for Learning!

- Getting to the Cortex
- Just because an adult walks in and they are physically here, does not mean they are emotionally and mentally present.
- If we do not warm up, our nervous systems, our performance is impacted negatively. (Injuries, lack of focus, attention and critical mental skills)



32

world and how we perceive the world.

Name the feeling out loud, and within seconds, amygdala activation lessens!
Am I steady enough?
Am I ready enough?
Am I settled enough?



© Revelations in Education 2024

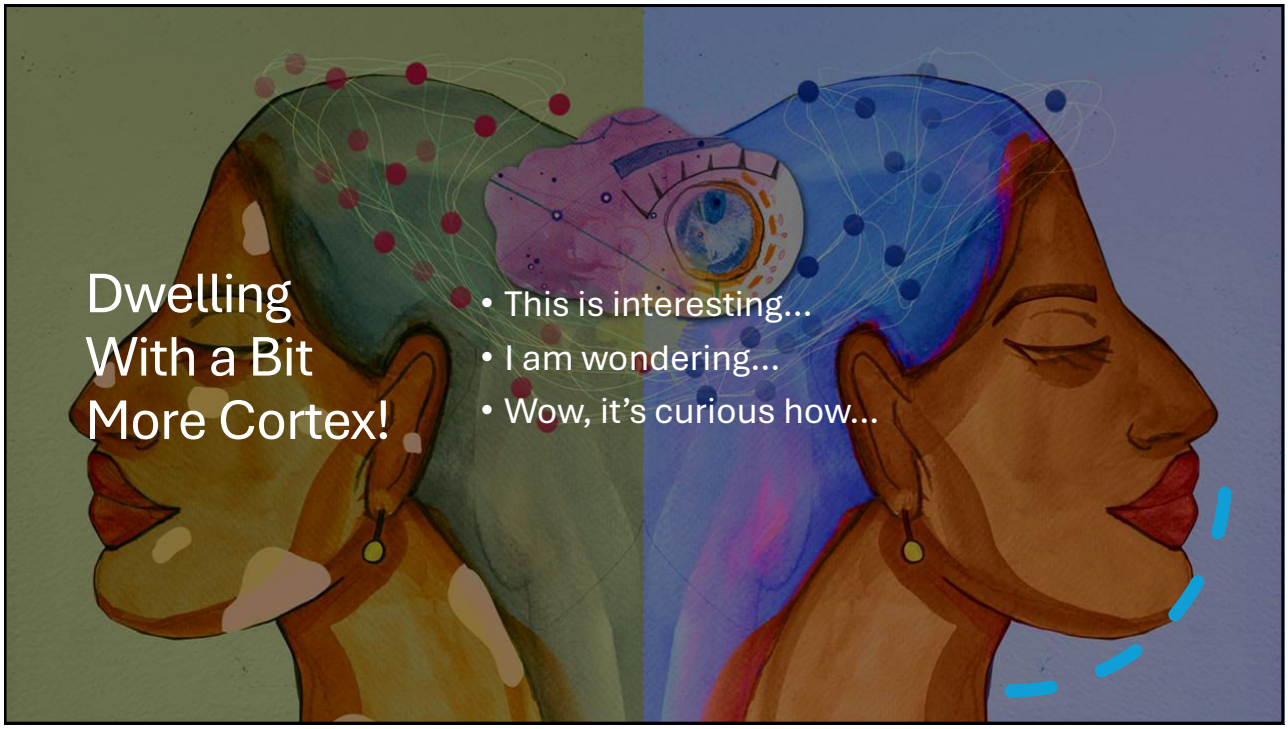
33

Allow Awareness Lead Us to Action

- It's more than OK to feel safe enough…
- Ready enough
- Rested enough
- What state am I experiencing?
- SHIFTING
- Movement, Breath and Sound
- It is not about regulating, it is shifting!



34



35

Check In With Your Colleagues

- There, There
- Container Hold
- Audible sighing, singing, humming, and gargling
- Pausing with wonder, curiosity, or interesting
- Name how you are feeling out loud, write it down or draw the big feelings as this practice dampens down the amygdala and keeps our pre-frontal cortex online!
- Golden Minutes- setting up momentum for the day!

36

Science of Synchronization = Emotional Contagion

- We are social
- We are wired to synch up!
- Everything we do impacts the child's physiology!
- Research shows that a student's heart rate, brain waves, and even the amount of cortisol in their saliva can be impacted by whatever is happening in their teacher's body! (The way we greet them, our body language, our tones, the ways we set up space, the ways we design lessons, provide choices, and the ways we apologize and validate.)



37

Stress is Contagious

- **Stress is 'contagious' and 'shows up on our skin'**
- Dr Tara Swart says stress is contagious as it can leak from one person's sweat and affect others. She explains that this contagious stress could cause others to experience heightened levels of stress, impacting their overall mental and physical health.



38

Emotional Contagion

- A dysregulated adult will unconsciously "invite" the children around them into a state of survival. Conversely, a regulated adult acts as a biological anchor.

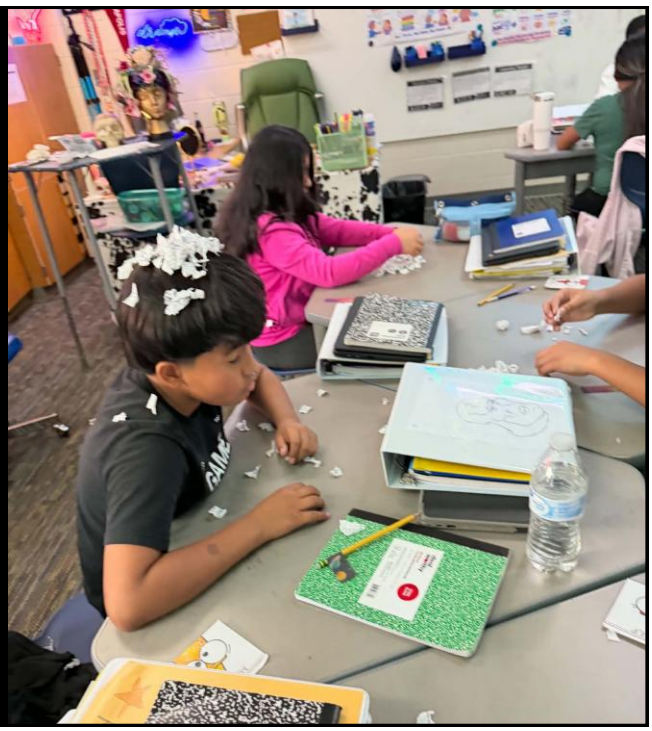


39

Our Nervous System Leads the Way!

- What if the issue is not the student's unwillingness to learn, but our unwillingness to change our teaching methods?

- Dr. Niki Elliott



40

Our Nervous Systems Time In

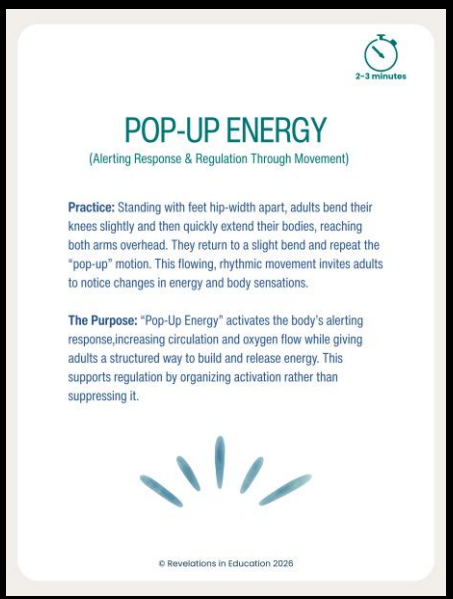
- Your nervous system was designed for “time in,” and not to react to our external worlds.
- Reflection
- Recalibration
- Pausing
- Attention to our internal environment



41

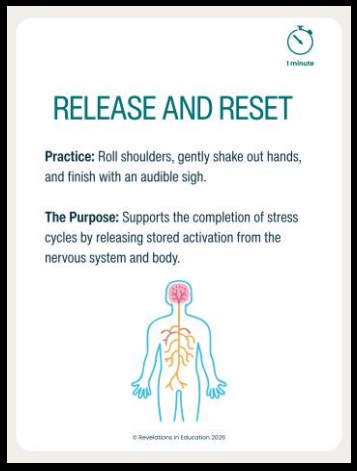
Predictable Moments Matter!

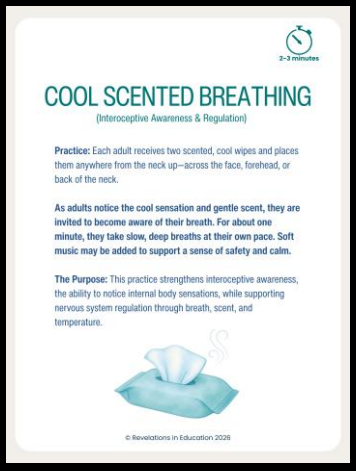
- It is about creating micro-moments of internal predictability right here…
- In challenging times, we want to prepare our nervous systems to remember what safe feels like, for even a few seconds so our ANS is not entirely consumed by chronic stress.



42

Micro Rituals and Moments Add Up





43

Focus Inventory

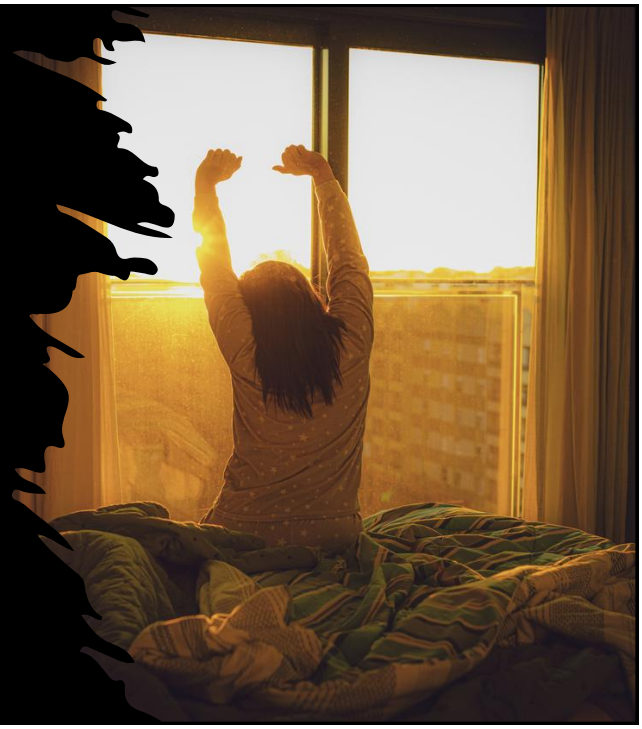
- What does your focus look like in the first hour of the day when you wake up?
- What are you watching on social media, shows, movies, or entertainment? What music are you listening to?
- What does conversation with others feel like and who is a part of your daily conversation? Are new thoughts and ideas shared, or does it feel robotic and much the same each day?



44

Golden Minutes

- The instant your eyes open in the morning, something remarkable happens. The world hasn't reached us yet!
- A brief silent window with a fresh chance to decide our mood, mindset, and approach to the day.
- Wake up in a nervous system state of steady and the day unfolds through this lens. Wake up planting seeds (thoughts) of worry (emotional leftovers from the day before) and our nervous system begins to reach for more of the same.



45

Morning

- Morning becomes a ritual rather than a habit.
- We are laying the groundwork for the day.
- Dr. Rahul Jandial

46

What You Say to Yourself Matters More Than Any Other Practice!

future moments and reality!

Cortex, Limbic structures and other brain regions

Cortex:	Limbic Structures:	Immobilized/Shut Down:
I've got this! This feeling will pass. This is just a moment. I am really trying! I have taken a small step. At least, I am aware.	This is so unfair! I am going to lose it. How could this happen to me again? WTF? Irritated is an understatement. This just proves it, people suck.	I'm so done. I'm over it! I need everyone to go away! This is hopeless. I can't do this today. I don't have the energy for this.

Day of the Week: Monday **Date:**

Time of Day: *This could be a situation that occurs at that time of the day.*	**Inner Speech: What exact words are you telling yourself?** *Try to list at least 2 per time of day.*	**Sensations that Arise:** *What am I physically feeling in this moment, and where do I feel it in my body?*
Morning Routine 5am-8am		
Morning 9am-11am		
After Lunch 12pm-2pm		
Afternoon 3pm-5pm		
Evening Routine 6pm-8pm		
Bedtime/ Nightly Rituals After 9pm		

Self-Talk Reflection: What thoughts am I feeding myself? Does anything emerge as a theme or pattern? Are there any opportunities for reframing?

Themes/Patterns:

Reframed thoughts/words:

Page 1 / 3

47



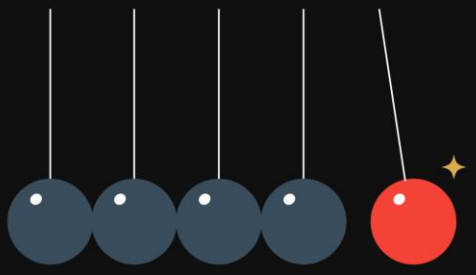
Our Imagination is One of Our Greatest Resources

- "One of the key practical lessons of modern neuroscience is that the power to direct our attention has within it the power to shape our brain's firing patterns, as well as the power to shape the architecture of the brain itself." — **Daniel J. Siegel, Mindsight: The New Science of Personal Transformation**

48

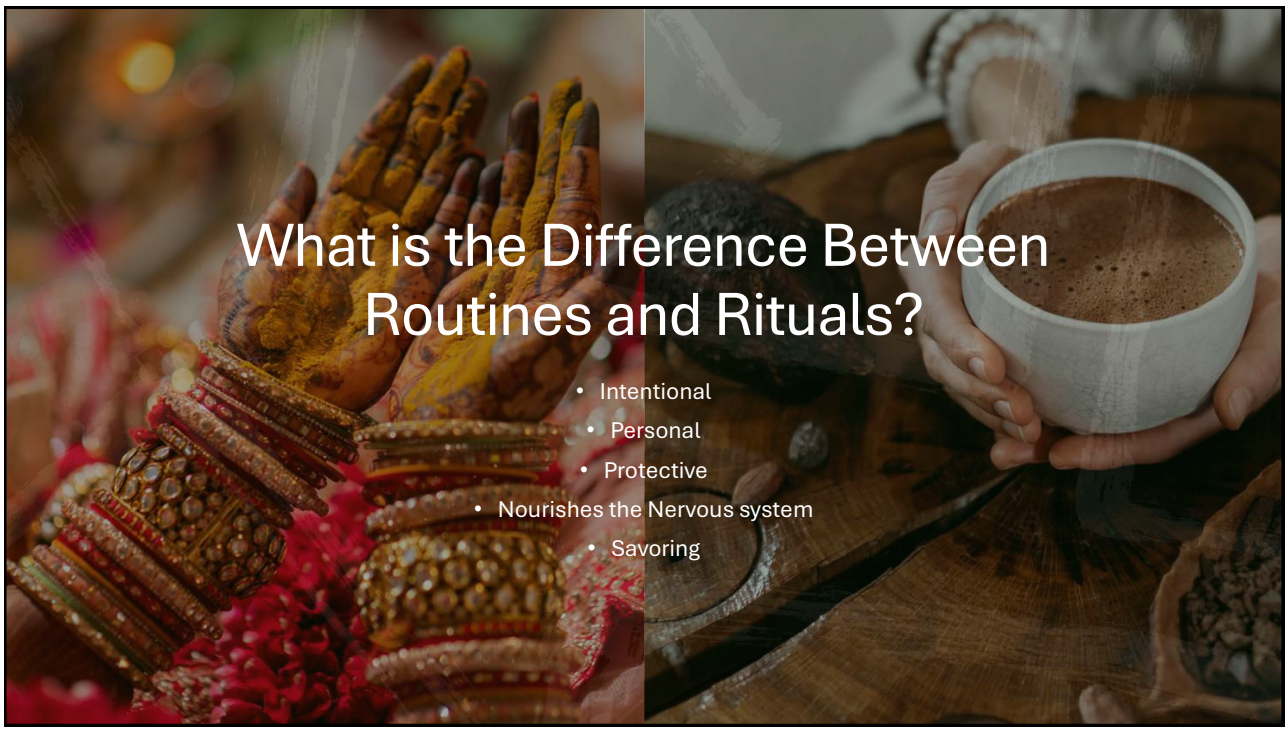
Momentum/ Positive or Negative!

- We are energy beings! Attention and intention to any experience, condition, or situation grows!
- Awareness- Our nervous systems are always communicating our momentum and the emotional grids or ANS states in the moments we awaken.
- Momentum gets faster, has force and collects everything in its path!
- Get Out Ahead of the Momentum
- Understanding = a movement of energy
- 17 seconds !



All it takes is one action to build a momentum

49



50

The Power of Rituals

- The subconscious/ nonconscious mind responds deeply to strong emotions associated with a particular behavior- this is why ritual practices are repeated and savored.
- Rituals are one of the most potent ways of aligning our conscious and subconscious minds into focus, allowing us to enter a flow state.
- Write an affirming letter to ourselves and carry this around with you for a week or more as we begin the processes of awareness, focus, visualization, and cultivating new desires.



51

Redefining Agency

- Viktor Frankl discovered the ultimate truth of contemplative science long before fMRI's existed!
- "Everything can be taken from a man but one thing: the last of the human freedoms…to choose one's attitude in any given set of circumstances, to choose one's own way."
- When our external agency is stripped away, our internal agency becomes a gateway and a precious gift from our nervous systems.



52


CERTIFICATE IN
APPLIED EDUCATIONAL NEUROSCIENCE
BUTLER UNIVERSITY
INDIANAPOLIS 1855
APPLY NOW TO START IN JUNE
2026

53


BUTLER | COLLEGE of EDUCATION GRADUATE PROGRAMS
Online Master of Education in Trauma Responsive Teaching and Leadership
LEAD WITH INSIGHT. RESPOND WITH IMPACT.
In Butler University's online MEd in Trauma Responsive Teaching and Leadership program, you will prepare for career advancement by studying leadership principles, trauma-informed instruction, nervous system development, and more. This program features a curriculum developed in collaboration with industry partners such as the Crisis Prevention Institute (CPI). Additionally, alumni from Butler's Applied Educational Neuroscience Certificate program can apply credits to save time and money.
A PRACTICAL CURRICULUM, BUILT TO OPEN DOORS
Coursework in the online MEd in Trauma Responsive Teaching and Leadership program is focused on educational neuroscience, exploring how trauma and adversity can impact the developing nervous system and affect behavior. Throughout your 20-month program, you will complete five asynchronous courses, four courses with optional synchronous meetings, and one elective in a modality of your choosing.
REQUIRED COURSES
ED 455 Research, Strategies and Principles of Education Neuroscience – 3 CREDITS
ED 450 Informed Trauma and Brain Instruction/ Social and Emotional Learning – 3 CREDITS
ED 497 Trauma & the Brain Integrated into Educational/Behavioral Practices & School Leadership Practicum – 3 CREDITS
ED 510 Principles of Trauma- Responsive Leadership – 3 CREDITS
ED 513 Trauma-Responsive School Discipline – 3 CREDITS
ED 610 Seminar in TRTL: Adult Nervous System Health/Wellbeing – 3 CREDITS
ED 611 TRTL Seminar: Youth Nervous System Health/Wellbeing – 3 CREDITS
ED 672 Research in Human Services – 3 CREDITS
ED 682 Capstone in TRTL – 3 CREDITS
Elective General Elective – 3 CREDITS
PROGRAM AT A GLANCE
100% Online | 20 Months
30 Credits | No GRE Required
MAKE A REAL IMPACT IN THE LIVES OF OTHERS
LEARN MORE
855-480-7431
EDUCATIONONLINE.BUTLER.EDU
WHAT SETS US APART
Real-World Application
Flexible practicum in your current setting plus an applied capstone.
COURSEWORK
The trauma response training you need to grow in your current position or open doors to new opportunities.
FACULTY
Led by experienced professionals across education, mental health, and social services.
AFFORDABILITY
Quality education at an affordable cost. Apply up to 9 transfer credits.

54

Connect With Me

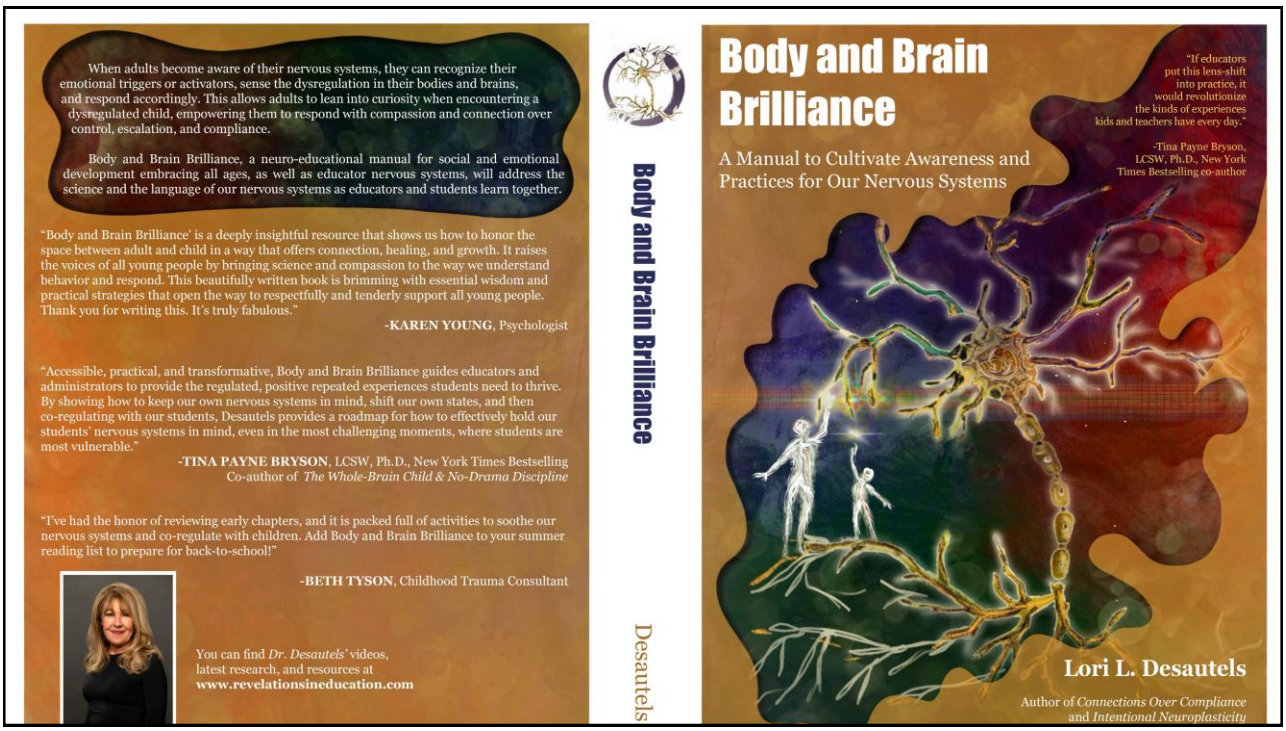
- To understand our neurobiology is to know the secret of life!
- https://www.facebook.com/lori.l.desautels
- Desautels_phd
- ldesaute@butler.edu
- www.revelationsineducation.com
- Desautels_phd – twitter
- Instagram – lori.Desautels
- Linked In- https://www.linkedin.com/in/lori-desautels-a5b65016/

- Who are YOU?" said the Caterpillar.
- This was not an encouraging opening for a conversation.
- Alice replied, rather shyly,
- "I-I hardly know, sir, just at present - at least I know who I WAS when I got up this morning, but I think I must have been changed several times since then."

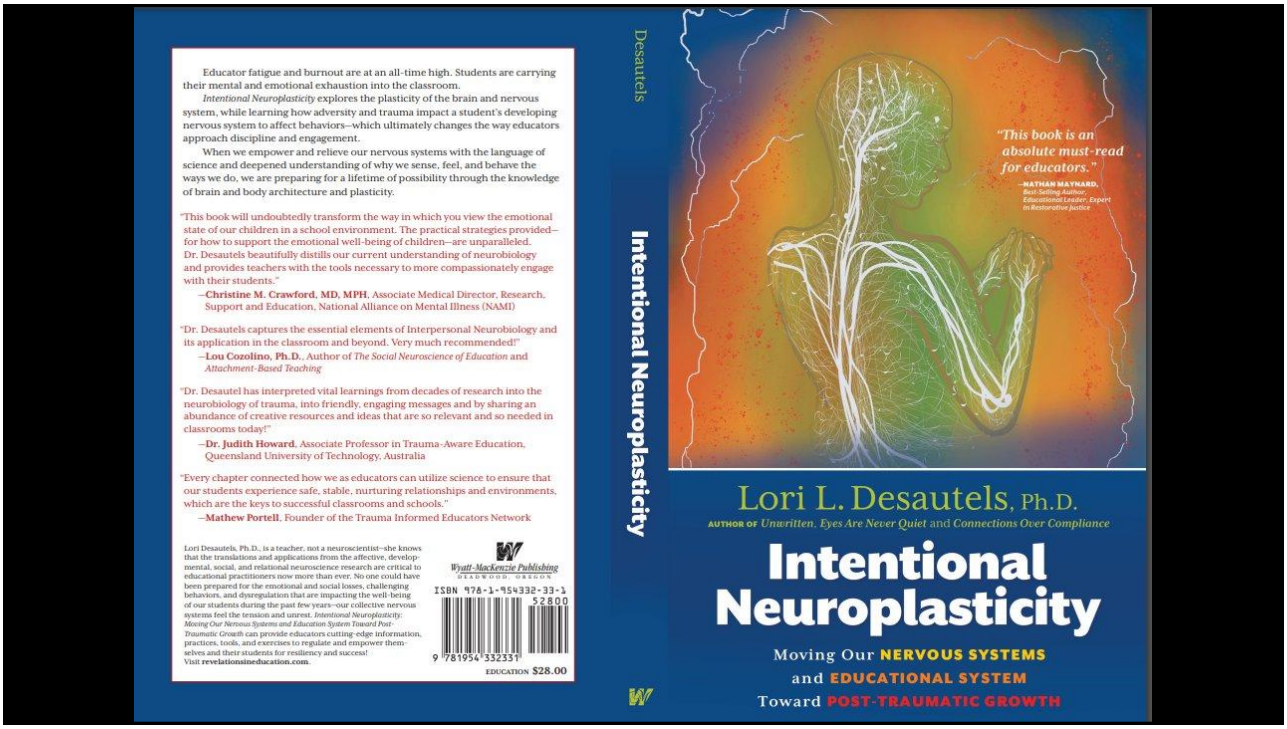
  - Alice's Adventures in Wonderland, Lewis Carroll

© Revelations in Education 2024

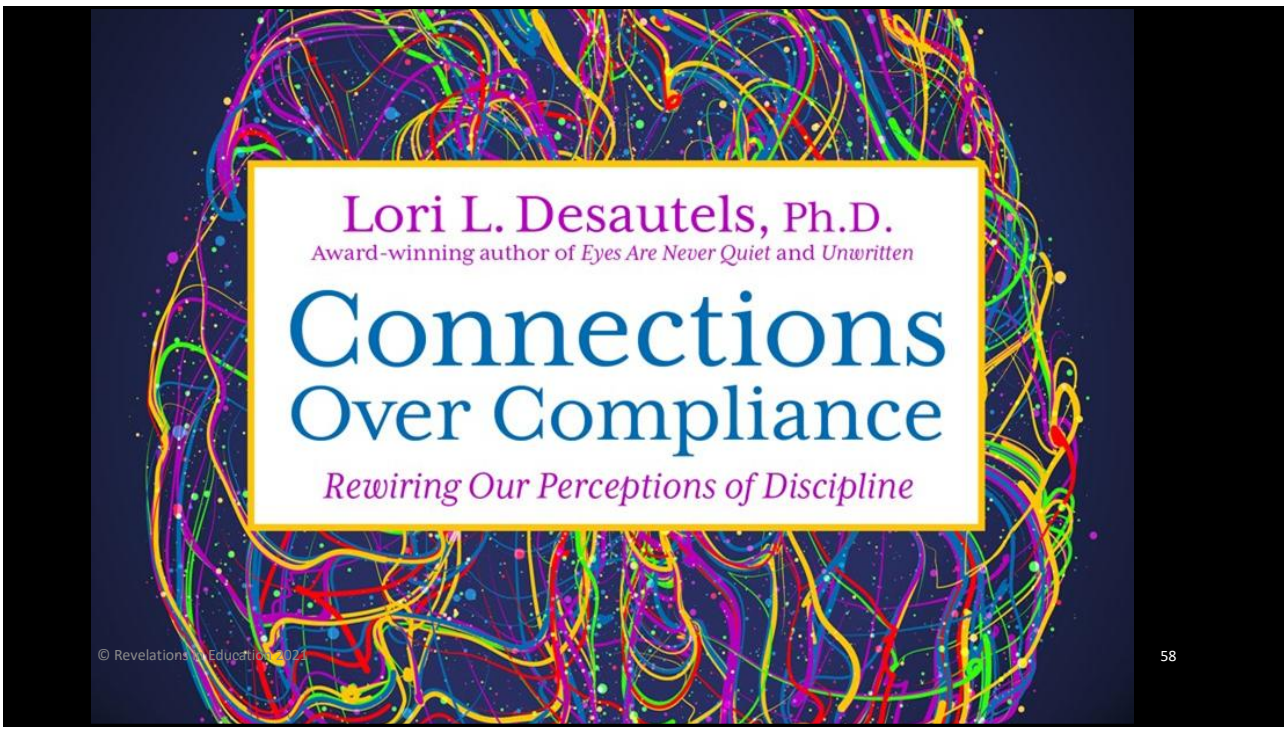
55



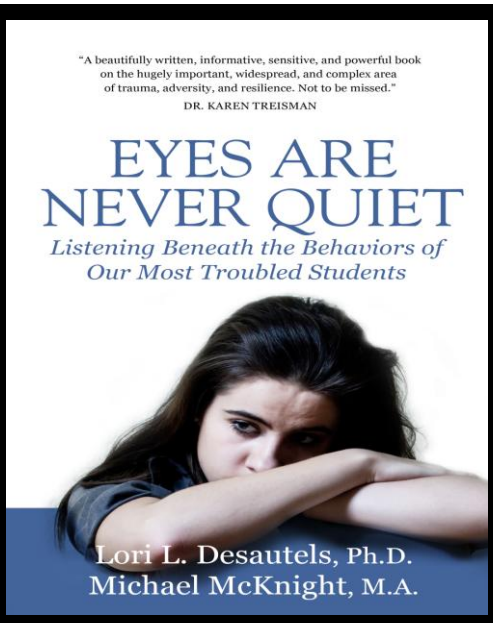
56


Educator fatigue and burnout are at an all-time high. Students are carrying their mental and emotional exhaustion into the classroom.
Intentional Neuroplasticity explores the plasticity of the brain and nervous system, while learning how adversity and trauma impact a student's developing nervous system to affect behaviors—which ultimately changes the way educators approach discipline and engagement.
When we empower and relieve our nervous systems with the language of science and deepened understanding of why we sense, feel, and behave the ways we do, we are preparing for a lifetime of possibility through the knowledge of brain and body architecture and plasticity.
"This book will undoubtedly transform the way in which you view the emotional state of our children in a school environment. The practical strategies provided—for how to support the emotional well-being of children—are unparalleled. Dr. Desautels beautifully distills our current understanding of neurobiology and provides teachers with the tools necessary to more compassionately engage with their students."
—Christine M. Crawford, MD, MPH, Associate Medical Director, Research, Support and Education, National Alliance on Mental Illness (NAMI)
"Dr. Desautels captures the essential elements of Interpersonal Neurobiology and its application in the classroom and beyond. Very much recommended!"
—Lou Cozolino, Ph.D., Author of The Social Neuroscience of Education and Attachment-Based Teaching
"Dr. Desautel has interpreted vital learnings from decades of research into the neurobiology of trauma, into friendly, engaging messages and by sharing an abundance of creative resources and ideas that are so relevant and so needed in classrooms today!"
—Dr. Judith Howard, Associate Professor in Trauma-Aware Education, Queensland University of Technology, Australia
"Every chapter connected how we as educators can utilize science to ensure that our students experience safe, stable, nurturing relationships and environments, which are the keys to successful classrooms and schools."
—Mathew Portell, Founder of the Trauma Informed Educators Network
Lori Desautels, Ph.D., is a teacher, not a neuroscientist—she knows that the translations and applications from the affective, developmental, social, and relational neuroscience research are critical to educational practitioners now more than ever. No one could have been prepared for the emotional and social losses, challenging behaviors, and dysregulation that are impacting the well-being of our students during the past few years—our collective nervous systems feel the tension and unrest. Intentional Neuroplasticity: Moving Our Nervous Systems and Education System Toward Post-Traumatic Growth can provide educators cutting-edge information, practices, tools, and exercises to regulate and empower themselves and their students for resiliency and success!
Visit revelationsineducation.com.
Wyatt-MacKenzie Publishing
ISBN 978-1-954332-33-1
52800
9 781954 332331
EDUCATION $28.00
Desautels
Intentional Neuroplasticity
"This book is an absolute must-read for educators."
—NATHAN MAYNARD, Best-Selling Author, Educational Leader, Expert in Restorative Justice
Lori L. Desautels, Ph.D.
AUTHOR OF Unwritten, Eyes Are Never Quiet and Connections Over Compliance
Intentional Neuroplasticity
Moving Our NERVOUS SYSTEMS and EDUCATIONAL SYSTEM Toward POST-TRAUMATIC GROWTH

57


Lori L. Desautels, Ph.D.
Award-winning author of Eyes Are Never Quiet and Unwritten
Connections Over Compliance
Rewiring Our Perceptions of Discipline
© Revelations in Education 2023
58

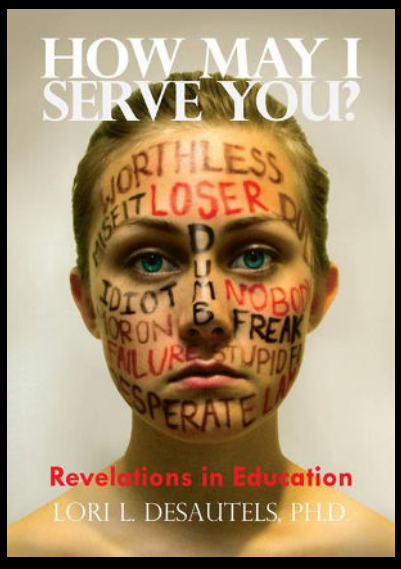
58

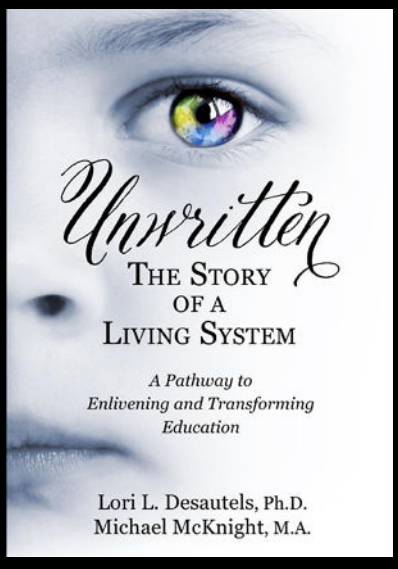


© Revelations in Education 2024

59

59





Thank you!

© Revelations in Education 2021

60

60