THE IMPACT OF INTERGENERATIONAL TRAUMA AND STRESS

JOURNEY TO THE CENTRE OF THE BRAIN

with STUART SHANKER, Founder & Visionary

The MEHRIT Centre

The Link Between Trauma and Outcomes

Service providers and those who work with parents and children need to understand the effects of trauma on the brain

Black & Indigenous Mothers are 40% more likely to develop a perinatal mood and anxiety disorder, often because of personal or intergenerational trauma

We also know the impact of trauma on socio-economic outcomes and the trajectory of the child

The goal of Self-Reg is to provide better, more empathic, and culturally sensitive care

To provide children with the best possible start to life

Recent Advances in Neuroscience

Those who have suffered trauma are at a heightened risk of anxiety disorders

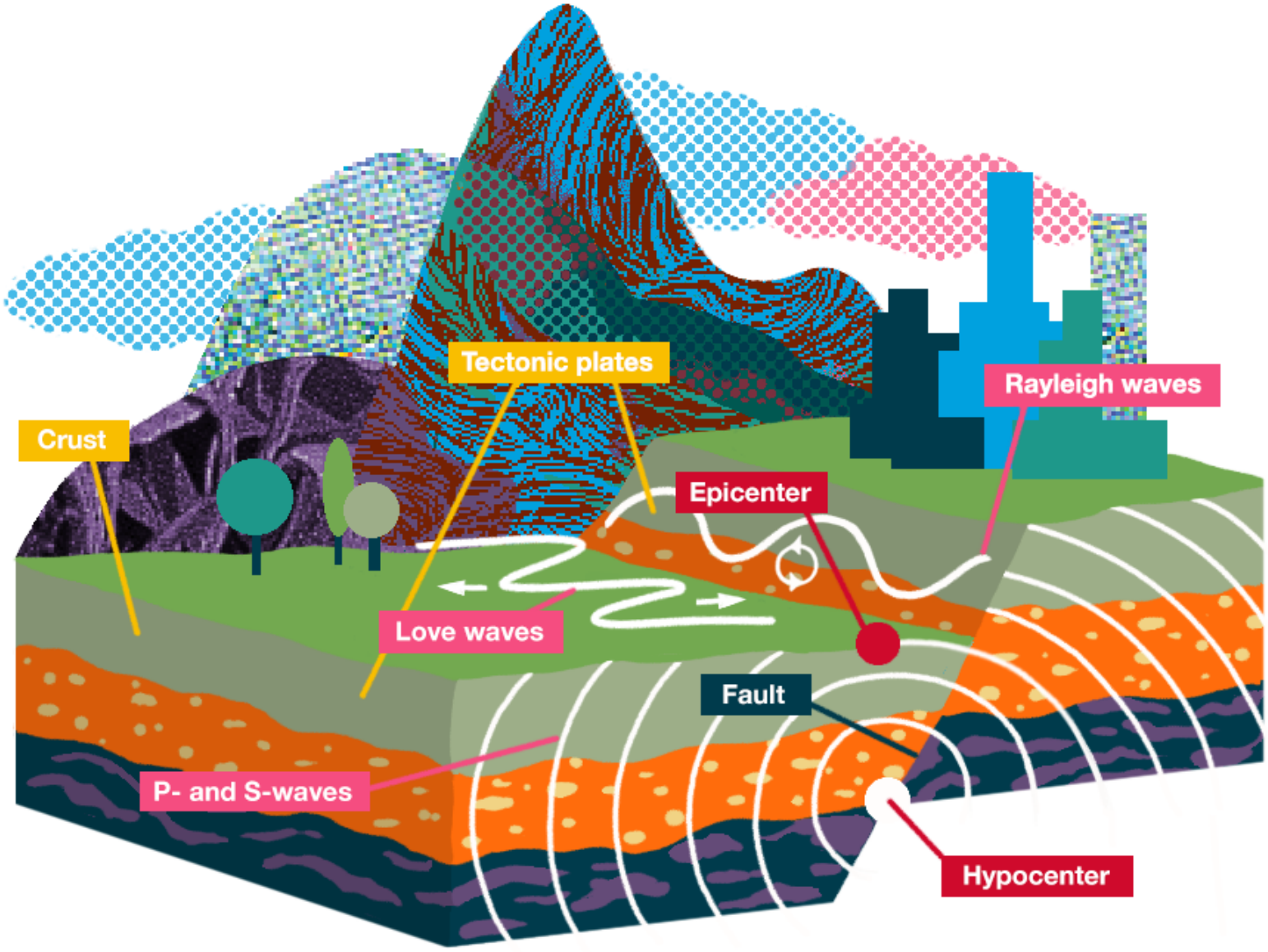
Anxiety operates as a warning system, both in regards to

- External threats
- Internal threats

The latter are homeostatic imbalances deep in the brain

Three primary causes of these homeostatic imbalances

- Excessive stress
- Maladaptive modes of self-regulation
- Lack of oxytocin, which turns off the stress-response


Tectonic plates
Rayleigh waves
Crust
Epicenter
Love waves
Fault
P- and S-waves
Hypocenter

Stresses Beneath the Surface

Earthquakes are caused by a stress deep beneath the surface (“sheer stress”)

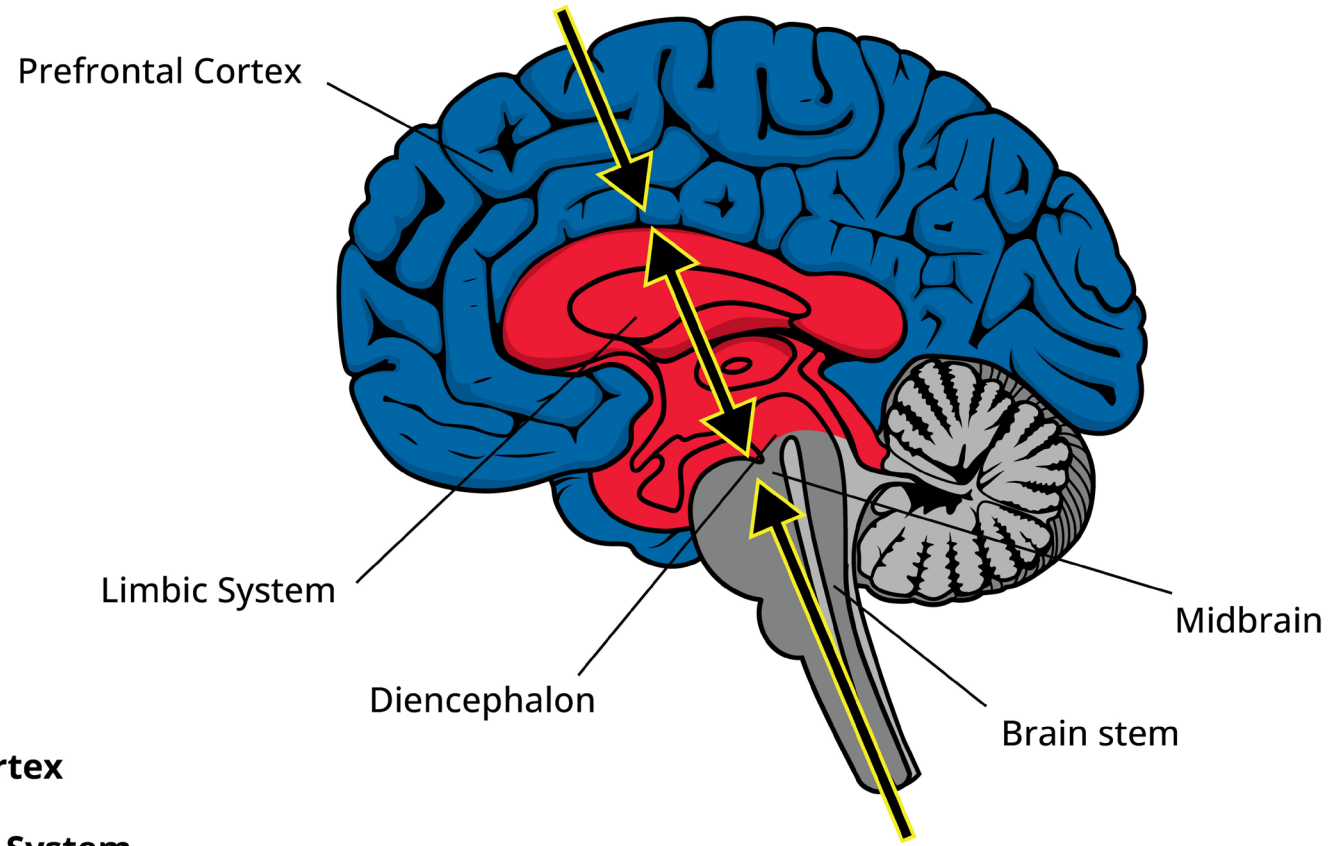
The continuous motion of tectonic plates causes a steady build-up of pressure in the rock strata on both sides of a fault

When the stress is sufficiently great the pressure is released in a sudden, jerky movement

In the case of trauma, stress activates neurons deep in the subcortex

Building up pressure that gets released in behaviour or emotions

The Neuroaxis



Cannon's View of Self-Regulation

The body has a number of self-regulating mechanisms

- His classic example of thermoregulation

He thought there was a "hierarchy" of self-regulating mechanisms

- Brain stem (breathing, heart rate)
- Midbrain (e.g., SEEKING system triggered by energy depletion)
- Diencephalon (role of the hypothalamus as a "master control" system)
- Limbic System (role of Amygdala in threat detection, Anterior Cingulate Cortex (ACC) in arousal regulation)
- Pre-Frontal Cortex (PFC), (learned self-regulating behaviours)

Self-Control vs *Self-Regulation*

Self-Control

Solitary Mind

The self uses the mind to control impulses

- In the same way that the hand uses a ruler (regula) to control drawing a straight line

On a self-control reading of the neuroaxis, new structures evolved to lengthen the gap between stimulus and response

- Giving us time to weigh outcomes

- Ability to inhibit impulses

Self-regulation

Interbrain

- Innate mechanisms

- learned behaviours

- impact of homeostatic imbalance on arousal

Reframing Behaviour

Events in the midbrain (the “hypocentre”) trigger negative feelings that surge up the neuroaxis

The parallel to the “surface waves” are problems in mood, behaviour, attention, social relations, motivation

These are “stress-behaviours”

The last thing we want to do is punish these behaviours

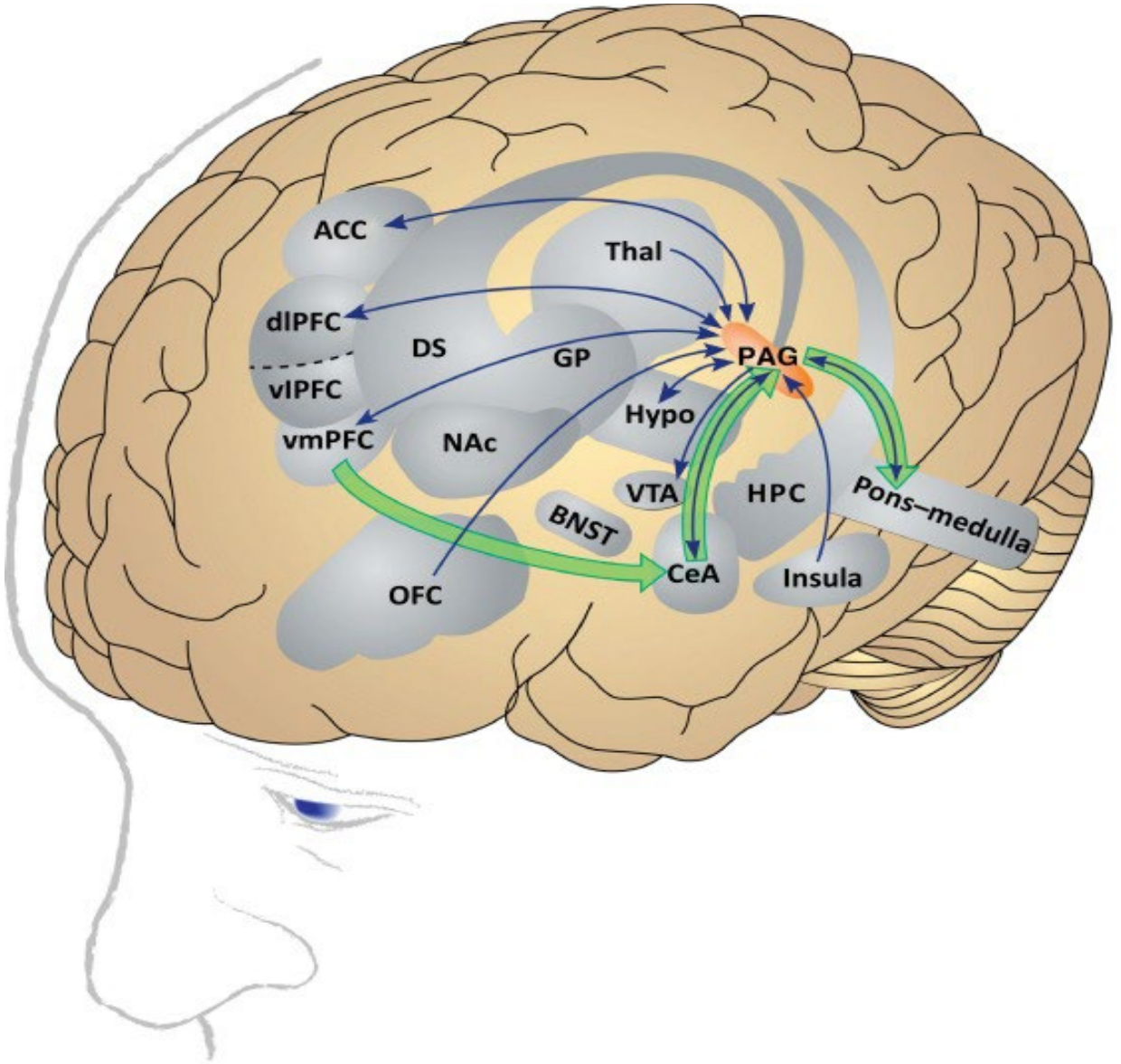
Instead, we want to see them as important signs of what is happening “beneath the surface”

“Primitive Emotion Circuits” (Panksepp)

Midbrain and brainstem systems that are “anatomically, neurochemically, and functionally homologous in all mammals”

Primitive affects evolved for different aspects of survival

- Positive sensations: homeostasis (promote survival)
  - Opioids, Oxytocin, Prolactin, Dopamine
- Negative sensations: homeostatic imbalance (threaten survival)
  - Drop in opioids, nociceptive activation, Corticotropin Releasing Factor (CRF)



Trends in Neurosciences

PAG: “Grand Central Terminal” (Midbrain vs Midtown)

Activating the different Primitive Emotional Circuits (PEC) triggers different aversive feelings

Aversive feelings cause behaviours that restore homeostatic balance

- or avoid homeostatic imbalance

Homeostatic imbalance is a huge cost on the autonomic nervous system

PECs evolved to deal with different kinds of stresses

A Pandemonium of Stresses

Trauma results in heightened stress-reactivity

Leading to interlocking homeostatic imbalance in multiple PECs

FEAR	PAIN	RAGE	PANIC/GRIEF	SEEKING

These shape the student's thoughts and actions

Without their realizing that this is happening!

Neuroception

We meet someone and feel a frisson of danger or a pleasant sensation

- Often, without consciously registering the fact

Suppose my first encounter with someone is negative, for whatever reason

And that negative feeling becomes associated with the facial recognition

The next time I see them I am guarded, maybe a bit hostile

The relationship is off to a rocky start

Imagine the same happening with a student

- How we see the student
- How the students sees a “teacher”

Irritability

Irritability is caused by poor sleep, stress, and low blood sugar

All three are connected

- Stress causes high tension, but we need low tension for restorative sleep
- Stress is anything that triggers the brain to burn energy to maintain homeostasis
- Hence the low blood sugar in heightened stress

In this irritable state, we perseverate on stressful thoughts

- These worries are like the primary and secondary seismic waves

Negative midbrain affects, tied to PAIN, cause a neuroaxial wave

- Triggering negative Red Brain emotions and negative Blue Brain thoughts
- Like the way that P- and S-Waves trigger Rayleigh and Love waves

Anxiety

Anxiety evolved from the “pain matrix” (PAG-THAL-dACC)

Aversive feelings, caused by excessive stress, flow up the neuroaxis

- Triggering worries and intrusive thoughts

Anxiety is caused by FEAR + PAIN, which is a huge drain on the Autonomic Nervous System (ANS)

Students that have experienced trauma struggle with chronic anxiety

One of the most harmful effects of trauma is that it blunts self-awareness

The Science of Stress

Stress is any stimulus or experience that causes the brain to burn energy to maintain homeostasis

So excessive stress causes severe energy depletion

Another major effect is that this inhibits the production of dopamine

Effects of reduced dopamine

- Withdrawal
- Anhedonia
- poor motivation
- Chronic anxiety
- Dysthemia or depression

Maladaptive Self-Regulation

COVID has been the obvious major stressor the past few years

- We are seeing a mental health crisis in children and youth around the world

We can easily list further major stressors (e.g., global warming, social media)

Deprived of the proximal social interactions that the brain needs to turn off the stress response, they have turned to dopaminergic activities or agents to keep going

But this is maladaptive: provides temporary dopamine, but does nothing to turn off the stress-response

Seeing Trauma as a Kind of "Fibromyalgia"

Dopamine is one of the neurotransmitters that quells PAIN

↓

But excessive stress dampens the dopamine system

Which triggers nociceptive arousal

↓

Of the many benefits of oxytocin (nursing, bonding, sharing, cooperative behaviour), among the most important are

↓

It stimulates the production of dopamine

↓

It blocks PAIN receptors

↓

Soothing touch, looks and voice trigger oxytocin

Which is what traumatized students need from us if they are to learn

The Emotional/Physical Nexus

Excessive stress inhibits brain opioids

Low levels of brain opioids trigger feelings of loneliness, sadness

Restoring homeostasis feels both emotionally and physically good

- Calm, soothed, tension/heart rate drop

Activates *mu*-opioid receptors that modulate

- pain, stress, body temperature, gastrointestinal activity
- mood, memory, and motivation

The Goal of Self-Reg is Restoration

The focus is on stress, not fear

Homeostatic balance is restored *paulatinamente*

The key steps are…

- Becoming aware of the signs of homeostatic imbalance
- Reframing maladaptive appraisals and misperceptions
- Identifying and reducing the stresses that have caused the different imbalances
- Triggering the neurochemicals that turn off the stress-response

Relief demands not just awareness, but gentle co-regulation

- **Fuelled by understanding filled with compassion**

THE MEHRIT CENTRE

A SELF-REG APPROACH TO

PRESSURE COOKER CLASSROOMS

- 5x After-School Workshops (1.5hrs each)
- Scenarios to Deconstruct with a Self-Reg Lens
- Breakout Group Discussions with Peers
- Daily Q&As with Susan
- Access to recorded content
- Certificate of Participation

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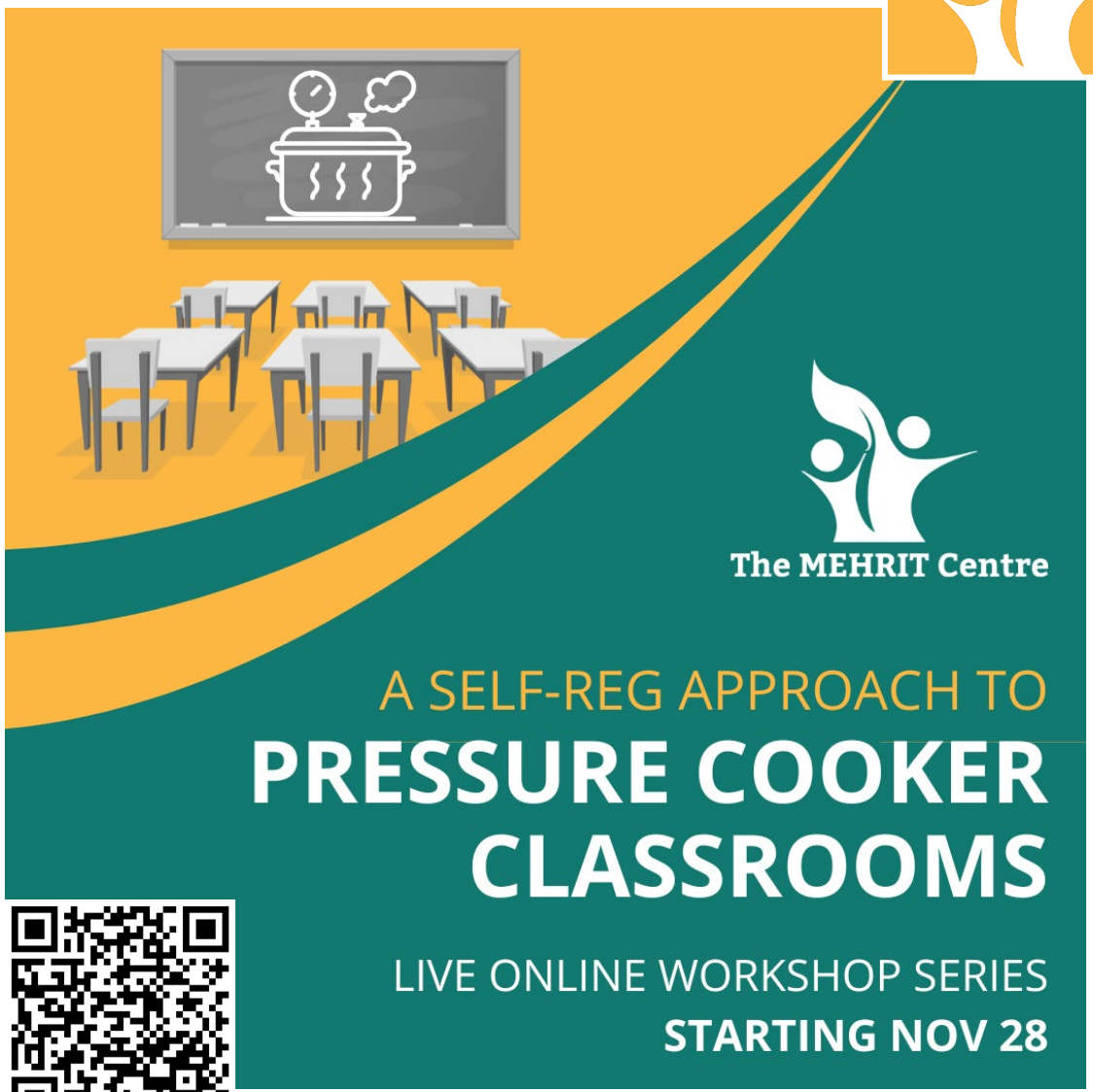

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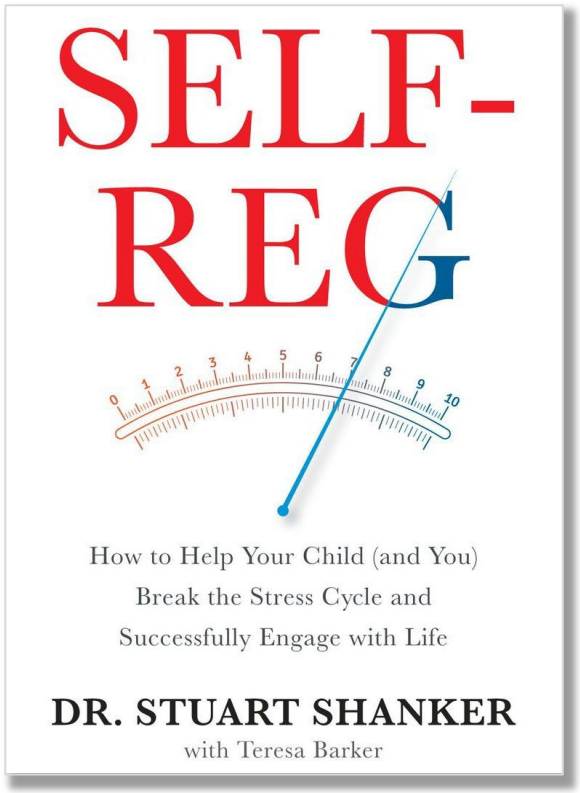
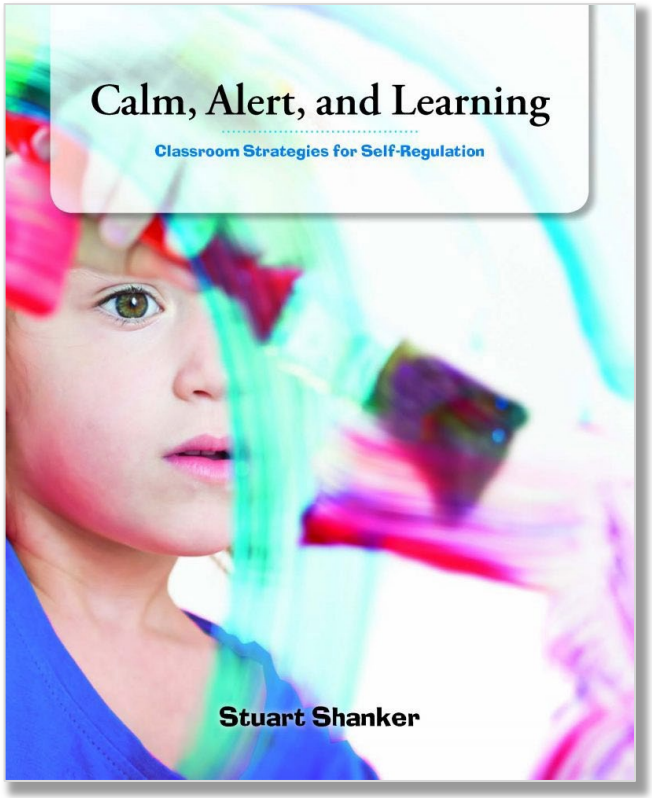
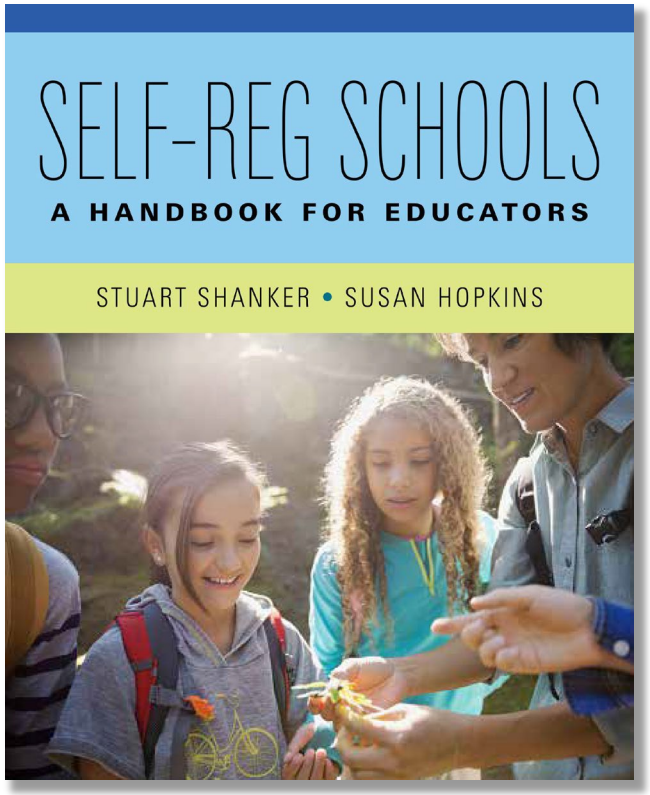
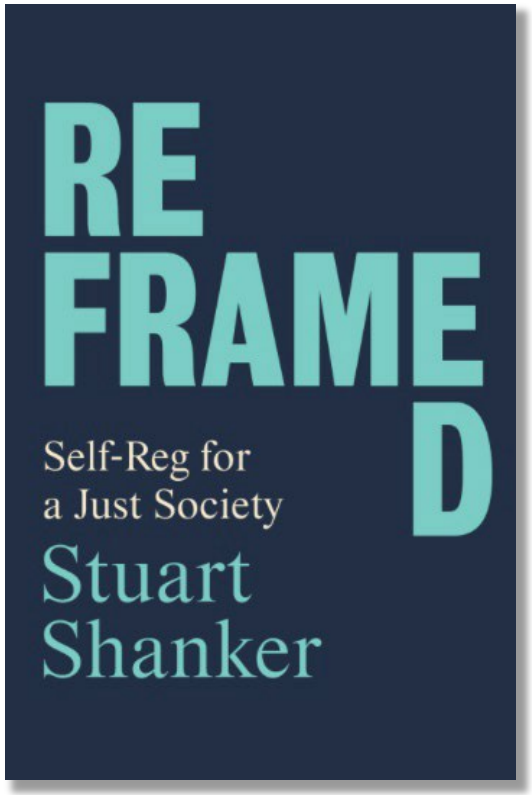








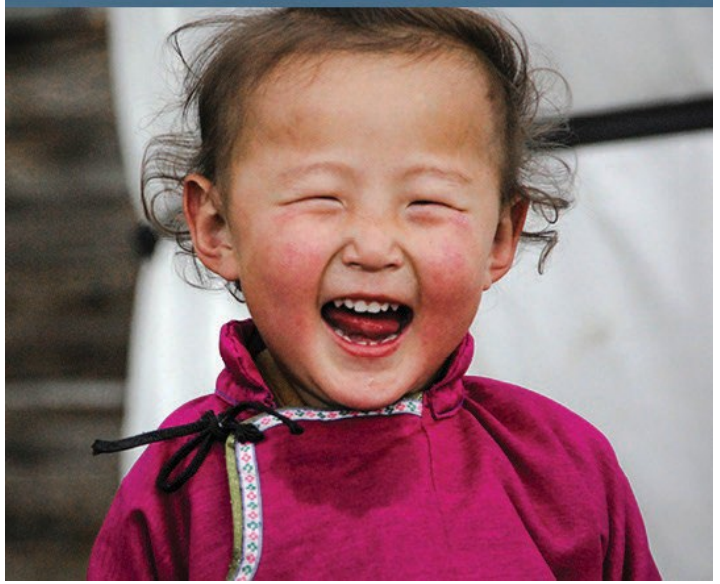
DIVE DEEPER

WITH TMC's ONLINE COURSES

SELF-REG FOUNDATIONS CERTIFICATE

Foundations, our flagship Self-Reg course, has been a game-changer for thousands of learners. This four-course, online program, Stuart Shanker and Susan Hopkins take you deep into the foundational science of self-regulation and stress.

EARLY CHILDHOOD DEVELOPMENT CERTIFICATE



This course will show you how to revolutionize your practice by understanding, and responding to, the unique and sometimes hidden stressors that shape the caregiving and learning experiences — and hence, the temperaments of the children you work with.

LEADERSHIP FOR SELF-REG SCHOOLS CERTIFICATE

Every educational leader has always had the same goal: a school in which everyone flourishes. This program will give you the Self-Reg knowledge and guidelines needed for your school to become a centre of deep learning, in all its many facets.

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