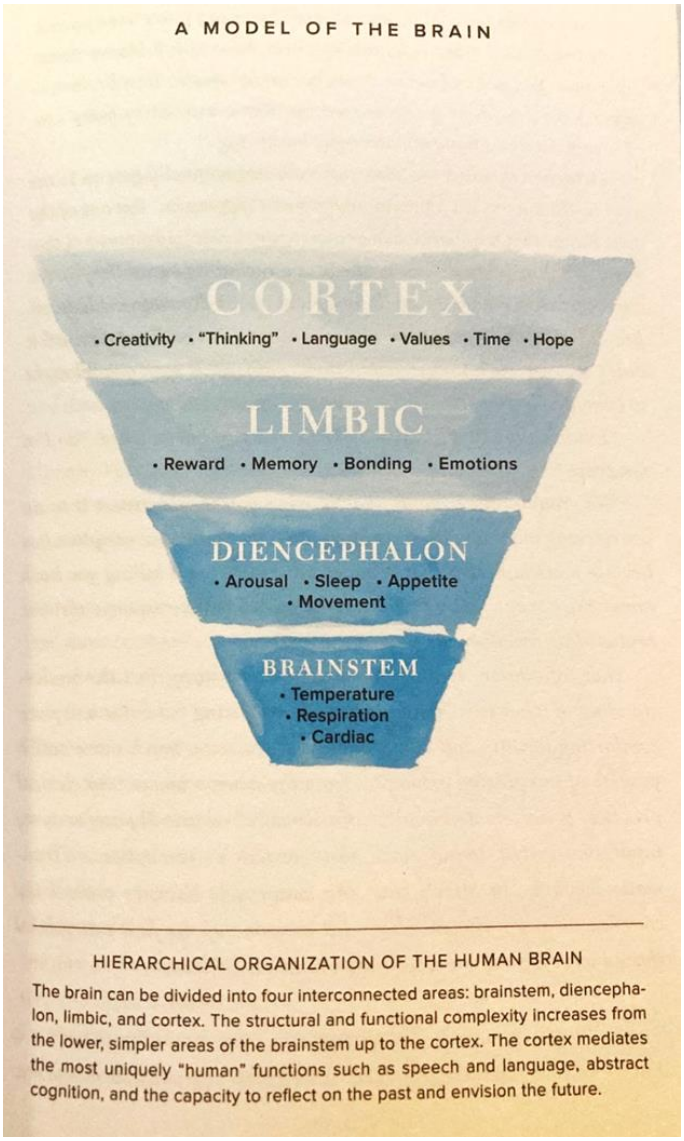
What Happened to You? As it relates to Friends of the Children

Synopsis

What Happened to You?: Conversations on Trauma, Resilience and Healing, a New York Times bestselling book from Dr. Bruce Perry and Oprah Winfrey (available for purchase HERE), is an accessible conversation about how trauma impacts the brain and controls behavioral responses. The book provides important context to understanding trauma-impacted children and the intergenerational nature of the trauma. Understanding the emerging science of traumatology will be critical to parents, mentors and anyone else working with this populations.

The book also inadvertently, highlights how models like Friends of the Children, based in relationship and providing trauma-impacted youth consistent, appropriate doses of challenge over an extended period of time are an ideal recipe to help trauma-impacted youth and adults rebound from harm.

This document (largely extracted verbatim from this wonderful book) aims to provide a short synopsis of the science of trauma to help inform stakeholders working with Friends of the Children. Further it highlights why the professional mentor model is uniquely positioned to be an effective response to children suffering from the impacts of ACES.



Background Brain Science

"*Over the years, I've found that seemingly senseless behavior makes sense once you start to look at what's behind it. And since the brain is part of what allows us to think, feel and act, whenever I'm trying to understand someone s, I wonder about the person's brain. Why did they do that? What would make them act that way? Something happened that influences how their brain works*." – Dr. Perry

Dr. Perry recalls a story told to him by a vet experiencing PTSD. The vet was out on a date, dressed up nicely and walking down the street towards a theatre. The vet suddenly finds himself on his belly in the street, hands covering his head, terrified and confused. His clothes were ruined. His date explained that a car had back-fired and that he had immediately hit the ground and covered his head. It took several minutes before he seemed to "return".

Dr. Perry reassures the vet that his brain created an adaption to keep him alive during the Korean war. If he didn't respond to loud noises and keep his head down – chances of death were high. If he fell asleep too soundly – he might die. If he wasn't constantly vigilant – his life would be in danger. So his brain created a protective memory that hadn't gone away –

that was still trying to keep him alive, even though his life hadn't been threatened. The brain is doing exactly what you'd expect it to when it had been exposed to significant trauma – creating avaneues for safety.

But what was once *adaptive* (helpful) has become maladaptive – taxing the vet's wellbeing (constant stress, chemical dependency, inability to sleep, etc.) outside of that original context.

The problem is that even though the adaption is no longer useful, the trauma (the adaptive trigger) is in a part of the brain that can't be consciously controlled. He/we can't just let the triggers go.

A Model of the Brain

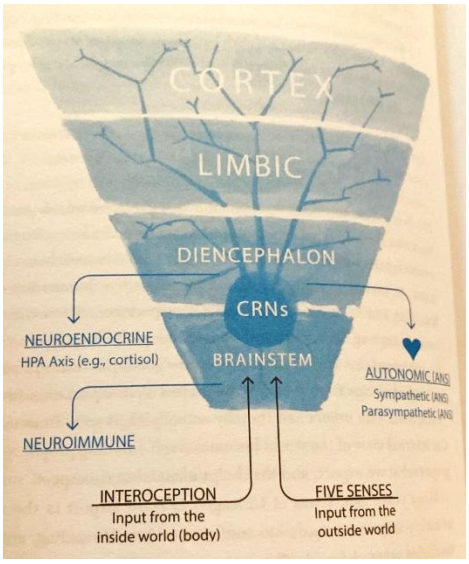
Dr. Perry describes the figure on Page 1. as a way of understanding the organization of the brain. He explains that for all of us, information enters through the lower parts of the brain, starting with the brainstem. The brainstem mainly controls regulatory functions like breathing and heart rate. It can't think or plan or, importantly, tell time.

As signals come into the brainstem they're matched against previously stored memories. If those stored memories associate whatever is happening now with danger – they will trigger a full threat response, acting as if you're under attack.

The brainstem isn't capable saying" Hey, don't get so stirred up. Korea was 30 years ago. That sound was just a car backfiring."

As the signal works its way up to the Cortex, it can figure out what's going on, but one of the first things that happens during a stress response is that systems in the higher parts of our brain get shut down – so it often takes a long time for the Cortex to respond.

When stresses are **predictable**, **moderate** or **controllable** humans build a tolerance to stress, helping them establish habits of self-regulation. When stressors are **unpredictable**, **extreme** or **prolonged**, a person becomes overly sensitized (overactive and over-reactive).



Core Regulatory Networks

When we look back at the "stored memories" in the example above, we must understand that the brain is constantly categorizing sensory input to create an understanding of the world. These memories form our worldview, our core beliefs, and these become very hard to change.

Stored memories begin to influence the creation of Core Regulatory Networks (CRN's) that start in the brainstem and connect different layers of the brain. Specifically, Dr. Perry calls out three critical kinds of neural networks:

1. Those involved in our stress response/**regulation** system
2. Those involved in forming and maintaining **relationships**, and
3. Those involved in "**reward**"/pleasure systems

CRNs send signals that create chemical changes across the brain that influence emotional stimulation, logical thought and physical behavior. These networks allow the brain to initiate responses quickly when it perceives it is under threat across the whole brain simultaneously.

There are two distinct ways that the brain/body react to significant stressors.

If fear shows up in the stress response, the brain can activate a "**fight or flight**" response. Sense of time collapses, heart rates go up, and adrenaline pumps through the body. This is useful if there is a real threat. If the systems are over-sensitized or maladaptive, like with the Veteran in the story above, they can have impacts on an individual's emotional, social, mental and physical health since systems reach all parts of the brain.

But fight or flight is not the only way we can respond to a threat. In situations where your body perceives it is too small to fight and not able to run away – the body will prepare for injury. The heart rate goes down and opioids are released into the body. Often this is coupled with withdrawal and disassociation, sometimes called "**fawning**". Many people activated into this space become people pleasers and gravitate to other regulating, but dissociative, activities (e.g. drugs and alcohol).

Prolonged activation of the stress response systems, sometimes called Toxic Stress, can disrupt the development of brain architecture and other organ systems, and increase the risk for stress-related disease and cognitive impairment.

The Impact of Trauma in Children

The experiences a child has in-utero and during the first few years of life are disproportionately powerful in shaping how the brain organizes (particularly during its first two months after being born). Trauma has a disproportionate impact on the brain development of children for several reasons.

Infants are entirely reliant on their caregivers response to stress, and in most cases children will replicate their caregivers relationship to stress. When a baby is distressed and an attentive, responsive adult helps regulate the child, people/relationships become associated with pleasure/reward. A positive worldview of humans is created. If not, a child is more likely to develop overly-sensitized CRNs, and a worldview in which danger is abundant, including in intimate relationships. A CRN is the core of how a child comes to experience the world and are hard to shift.

Further, in children younger than three, the child's brain has not matured enough to have "linear narrative memory" – the ability to create an accurate memory of the context of an incident. As a result, trauma in these children can be more complex and confusing. Their brains don't have the ability to associate their trauma to a particular incident or individual. Their understanding of their triggers often remains opaque - their panic, emotional outbursts are often experienced as random, inexplicable and independent of previous experiences.

Toxic stress can have a bigger impact since a child's brain/neurons grow explosively in early life. In their mother's womb and in the first few months of childhood, 20,000 new neurons are "born" each second. Researchers believe adults create roughly 1,400 a day. Stress that shunts growth during this period of massive growth therefore has an outsized impact and can lead to the "splintering" of maturation and development. For instance a trauma-impacted 5 year old may have the language skills of a two-year old and the self-regulation skills of a 4-year old in addition to their overly reactive stress response.

State Dependent Functioning

A person will think, learn, feel and behave differently depending on the state (on a functional spectrum of “calm” to “in terror”) they’re in. All functioning in the brain is “state dependent”, meaning that the different layers of the brain act differently depending on the body’s perception of danger. For overly sensitized individuals, who are in near constant elevated states, this can have a huge impact on their overall capability.

STATE-DEPENDENT FUNCTIONING

“STATE”	CALM	ALERT	ALARM	FEAR	TERROR
DOMINANT BRAIN AREAS	Cortex (DMN)	Cortex (Limbic)	Limbic (diencephalon)	Diencephalon (Brainstem)	Brainstem
ADAPTIVE “Option” Arousal	Reflect (create)	Flock (hypervigilance)	Freeze (resistance)	Flight (defiance)	Fight
ADAPTIVE “Option” Dissociation	Reflect (daydream)	Avoid	Comply	Dissociate (paralysis/catatonia)	Faint (collapse)
COGNITION	Abstract (creative)	Concrete (routine)	Emotional	Reactive	Reflexive
FUNCTIONAL IQ	120–100	110–90	100–80	90–70	80–60

All functioning of the brain depends on the state we’re in. As we move from one internal state to another, there will be a shift in the parts of the brain that are in “control” (dominant); when you are calm, for example, you are able to use the “smartest” parts of your brain (the cortex) to reflect and create. When you feel threatened, those cortical systems become less dominant, and more reactive parts of your brain begin to take over. This continuum goes from calm to terror.

State-dependent shifts result in corresponding changes in a host of brain-mediated functions, including problem-solving capacity, style of thinking (or cognition), and the sphere of concern. In general, the more threatened someone feels, the more control of functioning shifts from higher systems (cortex) to lower systems (diencephalon and brainstem). Fear shuts down many cortical systems.

Adaptive behaviors seen during state-dependent shifts in functioning will differ depending upon which of the two major adaptive response patterns (Arousal and Dissociation) are dominant for any given individual during a stressful or traumatic event.

Default Mode Network (DMN) is a term for a widely distributed network, mostly in the cortex, that is active when an individual is thinking about others, thinking about themselves, remembering the past, and planning for the future.

clear a path to
or to resilience and heal

Trauma in Schools

The challenges of trauma increase as a child enters the school environment with expectations, transitions and rules designed for a nuero-typical child. "A developmentally uninformed, trauma-unaware setting will expect the child to "act" typical. But that is impossible for the child. The day will be filled with communication difficulties (due to their language development) and intense frustration (due to their self-regulation capabilities). In this overwhelmingly distressing situation, they will shut down or blow up. Either way they don't get the full benefit of the social, emotional or academic learning. They fall further behind. They may be kicked out. More children are expelled from school in pre-K than at any other grade level." Children of color at 3X the rate of white students.

This is a toxic mismatch between an education system and the child's capabilities. Even if the child "progresses" they often fall further and further behind. Their developmental delays coupled with trauma-related symptoms begin to attract mental health labels. Labeled, medicated, excluded, punished, perhaps arrested and, all too often arrested. This is the school to prison pipeline.

The student most likely doesn't know what's going on. They begin to adopt the world's view of them: that they're dumb, slow or lazy.

Developmental, Physical, Emotional and Immune Impacts of Trauma

The brain will try to adapt to the current situation but in overly-activated individuals these adaptations can be limited and come at a cost. The brain works hard to keep people in balance and functional but it is difficult and can be exhausting – and an being activated can work against a child. For instance, a child living with domestic violence may be constantly scanning their home for danger (adaptive) but in a classroom this can prevent the child from paying attention (maladaptive). Living at that elevated state of stress, in that sensitized state, comes at a developmental cost.

By the time children in poverty reach school age, their cognitive scores are 60% lower than kids not facing poverty. If significant supports are not put in place, these kiddos are:

- Much more likely to experience impulse control, social problems and mental health challenges
- 5 x more likely to drop out of school
- 75 x more likely to be poor

Similarly, children that have experienced 4 or more Adverse Childhood Experiences ("ACES": abuse, neglect, substance dependence, incarcerated parents, parental separation or divorce, racial oppression, and/or domestic violence) are:

- 4.5 x more likely to suffer depression
- 12 x as likely to develop suicidology
- Expected to live 20 less years
- 3 x as likely to have heart disease and lung cancer

30-50% of students in public school have 3 or more ACES.

Multigenerational Impacts

Are trauma and fear transmissible from generation to generation? – Yes!

- Heritable Genetics (passed through DNA): some people are more predisposed to "hardiness" while others are born with a more sensitized stress response.
- Heritable "epigenetic" factors: every cell in the body has the same genes, but not all those genes are turned on. For example, if a person is starving their brain sends chemical messages to genes that enable it to maximize the use of sugar and fats. The genes aren't changed but their functionality has. These changes of a gene's "state" can be stored in the egg/sperm and passed down to future generations.
- Cultural/Experiential: Children are adept at picking up on cues from their caregivers. If a parent is sensitized and reacts accordingly – chances are good that the child will adopt those reactions too.

Gravitating to the Familiar

All of us tend to gravitate to the familiar, even when the familiar is unhealthy or destructive. This means that if we come from trauma-impacted environments, we are more likely to enter into new environments that are just as damaging. We feel most comfortable in environments that align with our worldview.

We feel better with the certainty of misery than the misery of uncertainty.

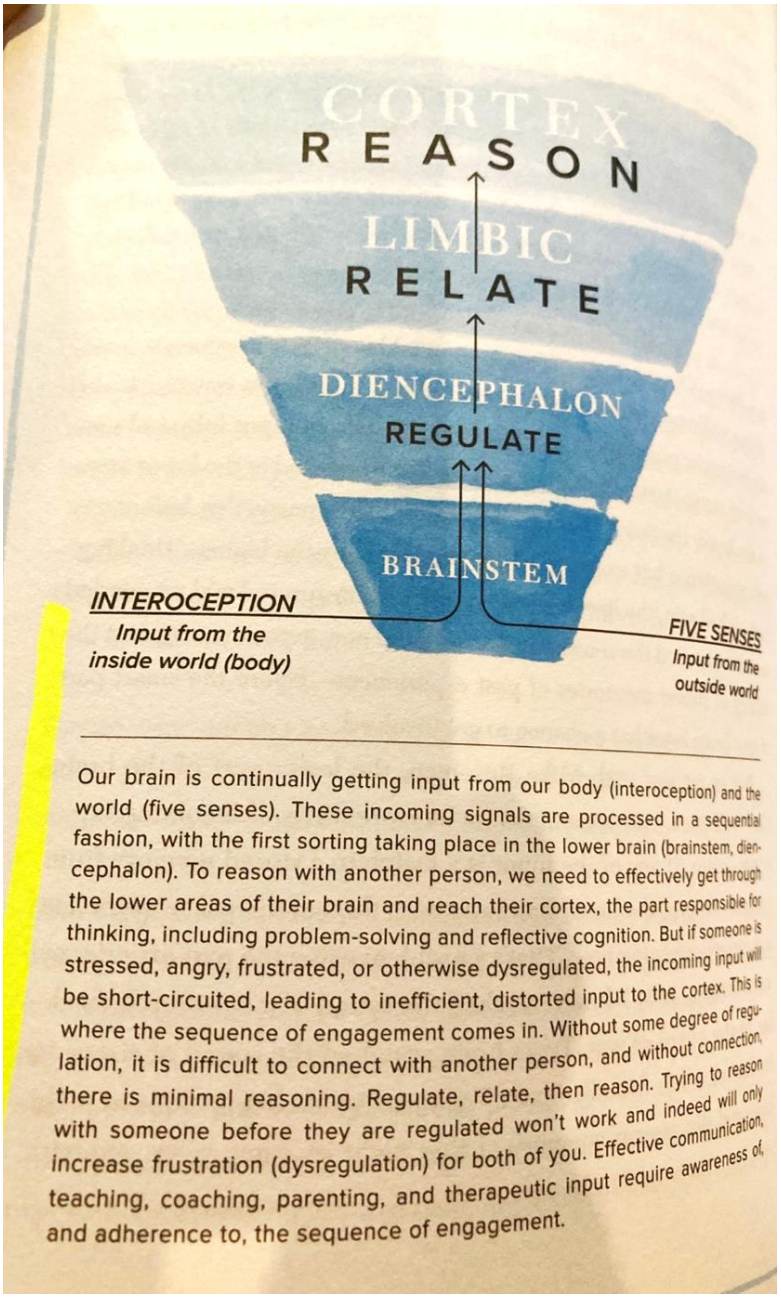
A child that has experienced chaos, threats or trauma will create a worldview: "people cannot be trusted". Being rejected or treated poorly aligns with that worldview and is comfortable. On the contrary positive relationships/intimacy can be destabilizing and uncomfortable.

Brains might seek a predictable response and subconsciously take action to provoke confirmation. This can lead to testing and sabotaging healthy relationships (e.g. being mean to illicit a hard response) because someone's accustomed to hard responses.

In this way – trauma becomes a magnet for more trauma – helping to reinforce a particular worldview.

Seeking Reward

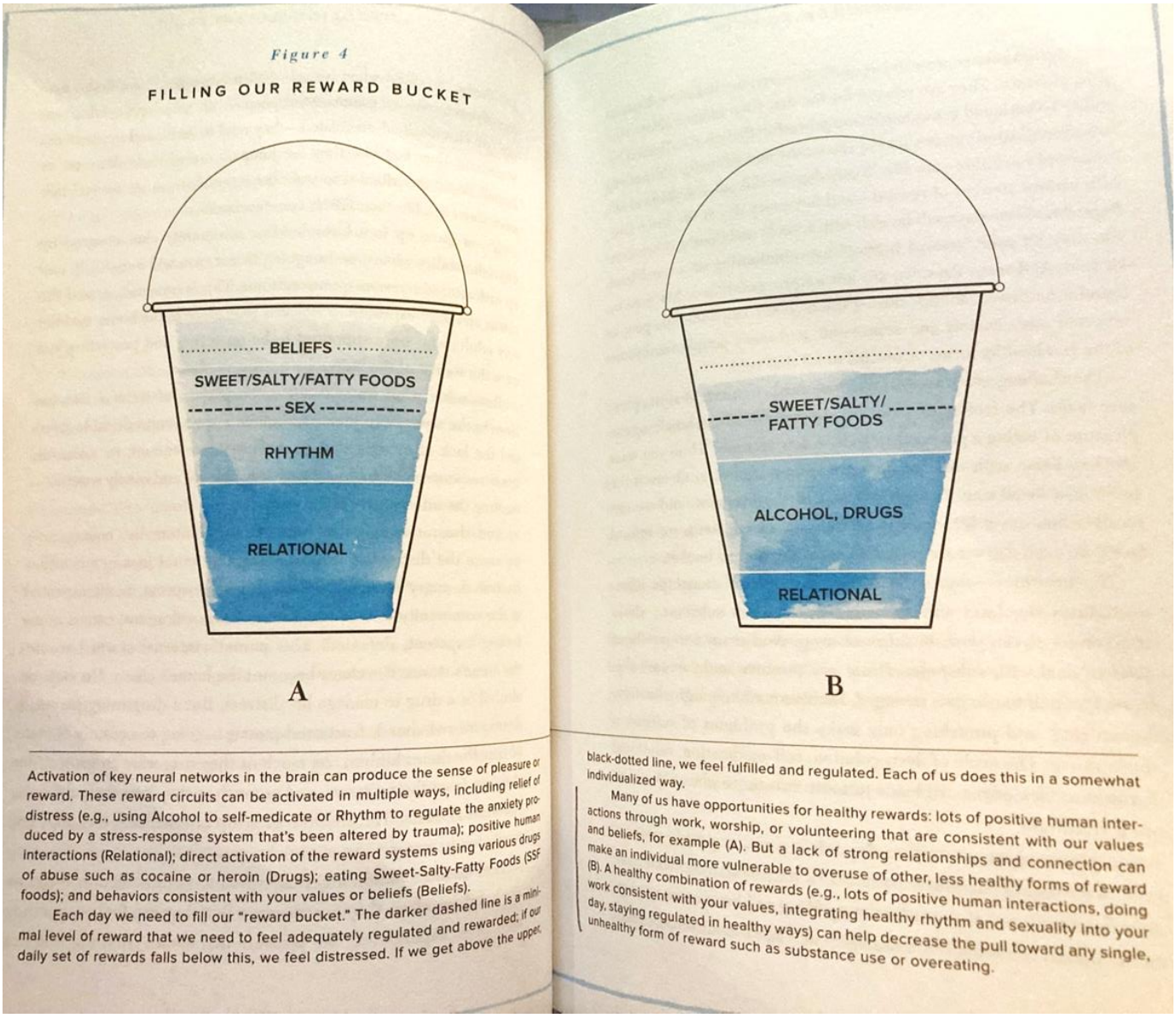
Similarly, our brains create a pull to regulate, to seek comfort and fill our



Our brain is continually getting input from our body (interoception) and the world (five senses). These incoming signals are processed in a sequential fashion, with the first sorting taking place in the lower brain (brainstem, diencephalon). To reason with another person, we need to effectively get through the lower areas of their brain and reach their cortex, the part responsible for thinking, including problem-solving and reflective cognition. But if someone is stressed, angry, frustrated, or otherwise dysregulated, the incoming input will be short-circuited, leading to inefficient, distorted input to the cortex. This is where the sequence of engagement comes in. Without some degree of regulation, it is difficult to connect with another person, and without connection, there is minimal reasoning. Regulate, relate, then reason. Trying to reason with someone before they are regulated won't work and indeed will only increase frustration (dysregulation) for both of you. Effective communication, teaching, coaching, parenting, and therapeutic input require awareness of, and adherence to, the sequence of engagement.

"reward bucket". Reward circuits can be activated in many ways, including relief from distress (e.g. using depressants like alcohol). Positive human interaction, direct activation of the reward systems (e.g. using cocaine), eating sweet and salty foods and participating in activities that align with your values and beliefs are all ways of feeding the reward.

The challenge is that our brain's reward circuits is that pleasure fades quickly – so the cycle starts over again. The healthiest way to do this is through relationships. The more disconnected, demonized, marginalized or punished an individual feels the more an individual is to rely on less healthy rewards to fill their bucket. Unfortunately, other effective strategies (e.g. use of drugs and alcohol) often lead to relational disruption. And the spiral continues.



The Solution

Healing is possible for anyone with trauma in their past. "Neuroplasticity" means that at any point in

our lives, the brain can change and grow. The brain changes, though, not in undoing or reframing its existing "stored memories", and neural associations. But by connecting to predictable, moderate and controlled situations in which caring adults provide customized micro-challenges - new associations begin to create a different worldview.

"Relationships are the currency of change", with research demonstrating that **an individual's history of relational health (connectedness to family, community and culture) is more predictive of your mental health than their history of adversity**. It is in the context of a caring relationship when a child feels another person entirely present, fully engaged and accepting that we make powerful enduring bonds. In is in an environment of caring relationship, that children feel safer to take appropriate risks, risks that help create resilience (less sensitized responses) to stressors.

When children take appropriate risks, caring adults can encourage and help – congratulations during and after the challenge help reward the child which leads to repetition and mastery. A child without that support won't have the same level of developmental success (or fill their reward bucket in healthy ways). Connectedness counts.

"**What we're learning is that having access to a number of invested, caring people is actually a better predictor of good outcomes following trauma than having access to a therapist**…A therapist can be a part of healing, but isn't required. Therapy without connectedness is not very effective."

It is also good to recognize that stress within the relationship can also help build the sense of safety/connectedness. As Ed Tronick teaches us, interpersonal rupture and repair is also good for building resilience. Examples of this rupture include discussions and arguments, mildly heated conversations with friends – as long as there is repair – become empathy-building experiences. That level of connection requires a healthy back and forth of close human connection.

Getting to the Cortex and the Sequence of Engagement

Any activity intended to engage the cortex (therapy, learning, etc.) can only occur when a person is regulated first (the intervention honoring an individual's functional state).

If a person is regulated, another person can connect with them in ways that facilitate rational communication. If they're dysregulated – nothing another person says will really get to their cortex and nothing in their cortex will be easy for them to access. **Regulation is the key to creating a safe connection** and being connected is the most efficient (superhighway) to get information up into the cortex.

This is why modeling regulation, practicing co-regulation and teaching children regulatory practices may be essential to helping them be present in the many environments they inhabit. It is also critical to understand that many environments are overstimulating/re-traumatizing to trauma-impacted children, including elements of most public systems.

Dose

We also know that controllable, predictable and moderate challenges can expand our stress-response capabilities. The more appropriately dosed challenges a child has - the more they are able to demonstrate resilience in the face of challenge. **Healing happens in small moments much more than in "big" treatments or conversations.** In part, this is because healing is stressful and taxing. If it is too

stressful, the cortex begins to shut down and the intervention may stop being effective. Instead, small doses where an individual voluntarily opens the door are times when incremental healing can occur.

Therapeutic solutions cannot jump ahead of where the person is. When people – children especially – have not chosen to engage with a "therapeutic" stressor – connection and the sense of safety that a child feels can be eroded.

It important to note that the supportive parent, teacher or coach help provide the proper dosing of challenge, fitting the child's developmental stage – it has to be moderate (just right).

Finding the just right is a major issue with trauma-impacted children because they live in near constant fear that shuts down parts of their cortex. What might seem appropriate is often an overwhelming demand for children with sensitized stress responses.

The more we face moderate challenges and succeed the more capable we are of facing bigger challenges.

Multigenerational Approach

Dr. Perry stresses the importance of including adults in the treatment of their children. "If we help the children but don't meet the needs of the adults, our work will have little impact". "A dysregulated adult cannot regulate a dysregulated child. An exhausted, frustrated dysregulated adult can't regulate anybody." **This is one of the most important principals of a trauma-informed approach: You have to help the frontline adults.**

Key Considerations:

Friends of the Children partners with children/families that tend to have experienced significant trauma or traumatic events. The model of long-term professional mentorship aligns uniquely with our emerging understanding of trauma's impact on the brain. At Friends of the Children:

- **Professional mentors create a long-term relationship with the child and their families. Connectedness is at the forefront. The intimate relationship between the child/family lasts for 12+ years;**
- **Mentors help children regulate, learn to recognize when they're dysregulated and teach them how them practices of self-regulation (awareness, meditation);**
- **Mentors customize their therapeutic interventions with each child based upon their specific developmental needs, providing small supported micro-challenges on a weekly basis that are co-created with the child;**
- **Mentors provide support to across many environments, and specifically in classrooms/schools, where our systems lack the capacity to serve trauma-impacted individuals equitably.**
- **Friends works with parents/caregivers, actively helping caregivers build a sustainable network of support (connectedness), gain access to resources that can help maintain stability (mitigate additional trauma) and build awareness about how to help their children and themselves more effectively address any complications arising from experiences with trauma.**