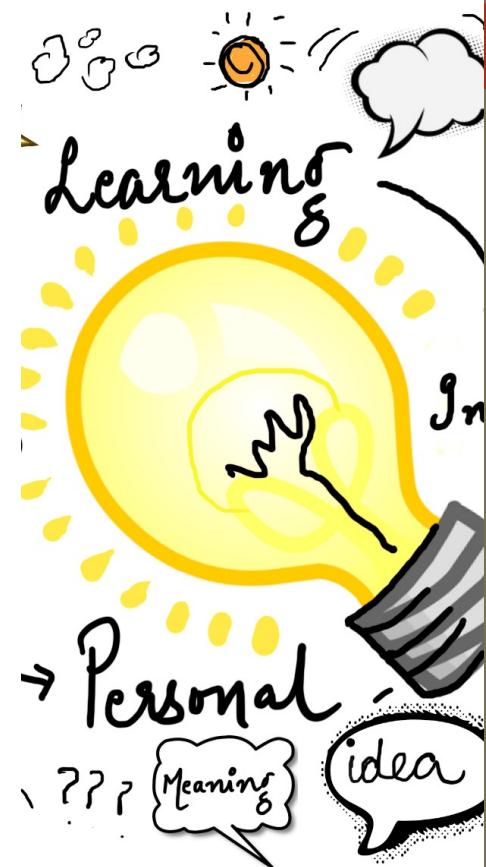


Connected students, Engaged learners



From The Root

Dr. Annette Oswald



The brain loves to know

- ▶ The "WHY"
- ▶ The "HOW"


True learning is about seeing, hearing, touching, feeling, and sensing information that represents us and make sense to us.

Learning causes physical changes in our brain

These structural changes change the function of the organization of the brain

Learning is about organizing and reorganizing

Cognitive disequilibrium



Teachers
are brain
changers



When do I feel most engaged during learning?

Mentimeter
response



The “WHY”



What is ACEs?

Adverse Childhood Experiences are a collection of adverse experiences (toxic stress) a child up to the age of 18 experience

These experiences are often coming from the child's immediate environment

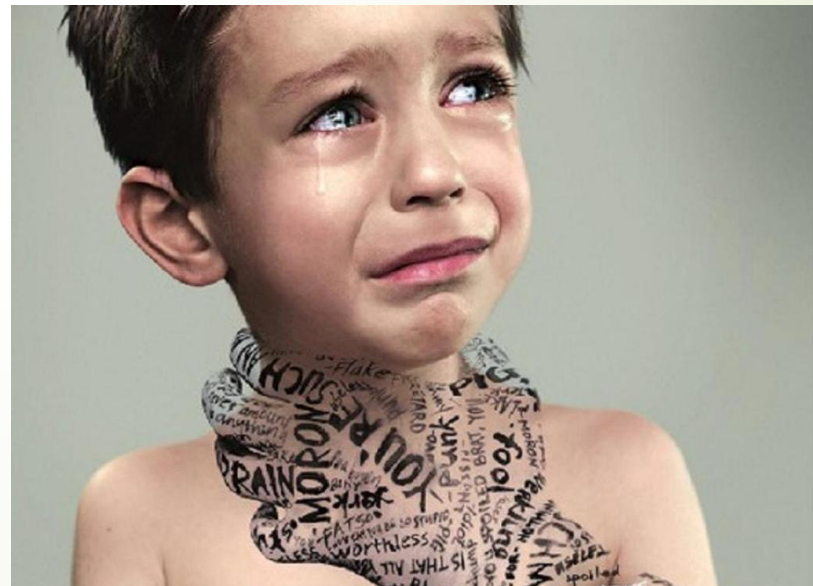
These experiences leave biological marks in children's development

These markings affect brain architecture and alter children's stress response cycle system



The first five ACEs questions are personal experiences

- Physical abuse
- Emotional abuse
- Sexual abuse
- Physical neglect
- Emotional neglect





C U T S

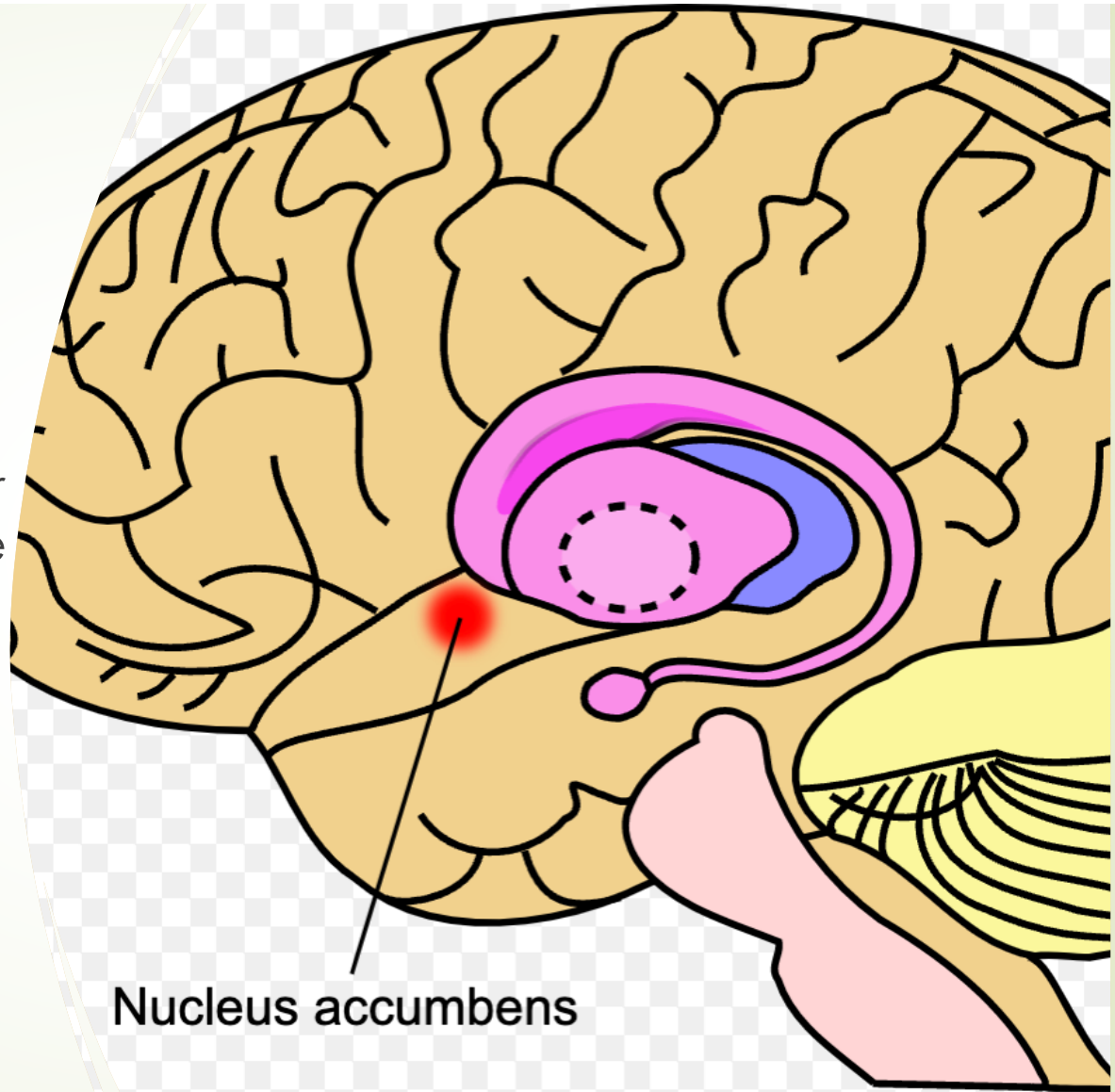
ACEs are chronic unpredictable toxic stress (C U T S)

- C U T S is constantly sending fight or flight stress hormones throughout their bodies and brain
- Because of these adverse experiences children's brain, body, and mind disconnect.

Learning is NOT optimal during fight or flight stress response

ACEs affects areas like the nucleus accumbens

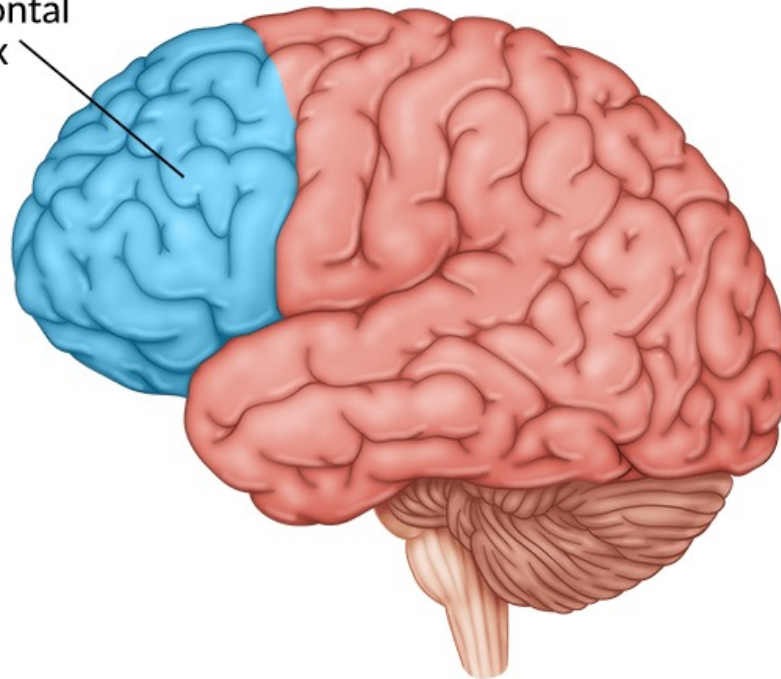
- This is the pleasure/reward center implicated in substance dependency
- AKA dopamine junkie: constant sensation seeking



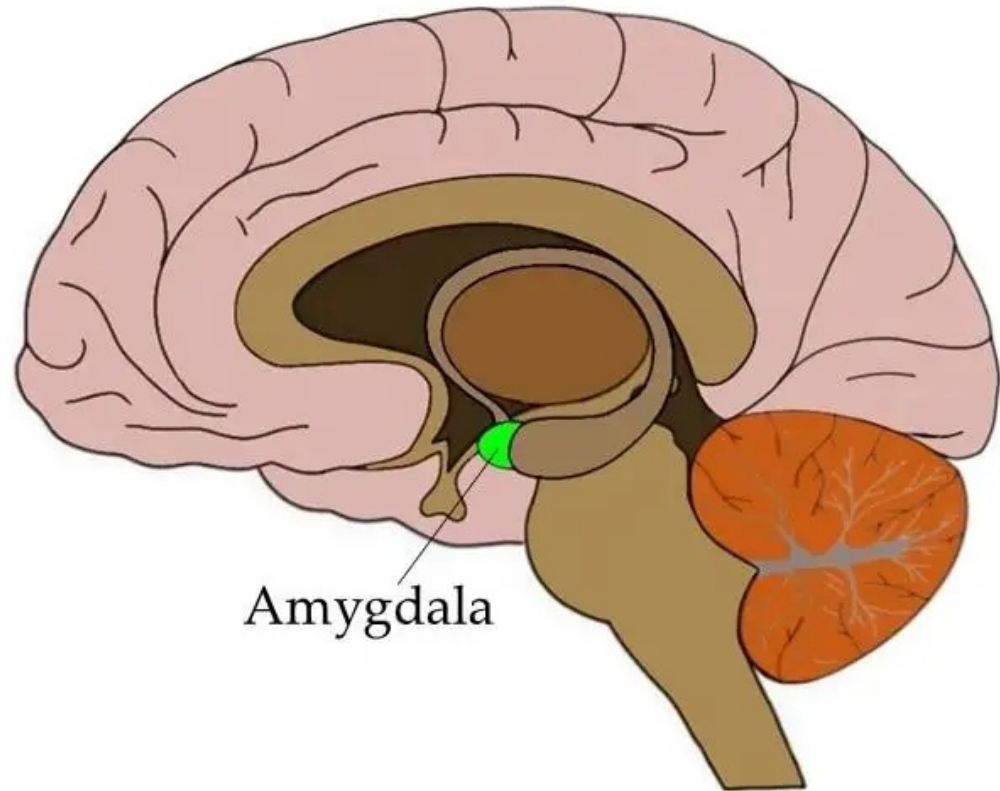
ACEs inhibits the prefrontal cortex...

- ▶ Area necessary for impulse control
- ▶ Executive functions skills: area critical for learning

Prefrontal cortex

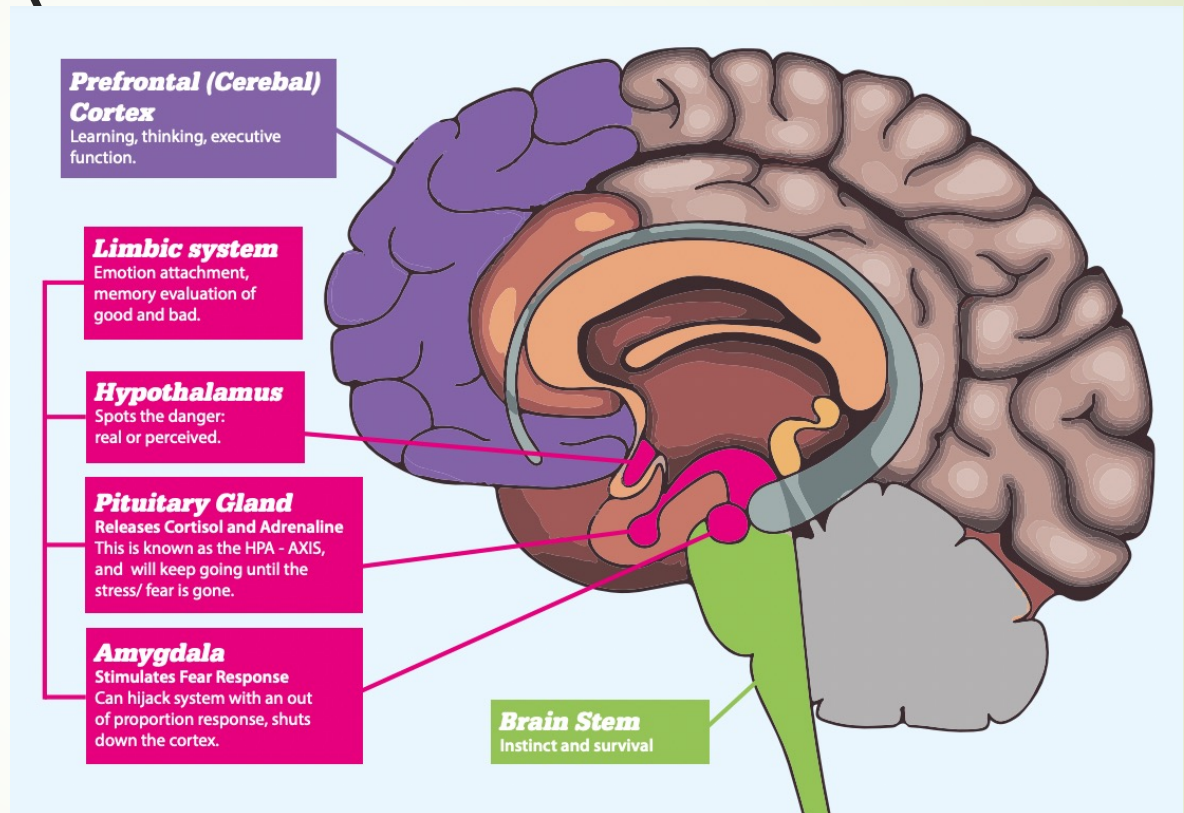


Measurable differences in the amygdala; the brain's fear response center



ACEs & HPA-axis

- ▶ HPA axis is the brain and body's stress response system governing our fight/flight response
- ▶ HPA axis is continuously activated
- ▶ It goes from adaptive to maladaptive/health damaging



Dysregulated Stress Response Cycle



The “HOW”

- ▶ Connecting the brain, body, and mind is critical to “wire” children back up into learning
- ▶ Connecting children and adults puts a STOP to the chaos

Connection is healing

Safety optimizes learning





The “WHY”

Connection is healing because it is innate to feel belonged, accepted, and respected

Our life depends on it!

Social connection are the building blocks to brain development

The environment becomes predictable and safe

The connections we make by using eye contact, gentle touch, playfulness, and presence activates the higher parts of our brains



Social bonding, brain bathing

These meaningful social interactions engage us from the inside out

Connection bathes the brain with happy hormones:

- ▶ Oxytocin
- ▶ Serotonin
- ▶ Dopamine
- ▶ Endorphins

Feeling Connected

Improves cognition

Increases:

- Security

- Willingness

- Emotional growth

- Acceptance to change

- Trust





Mirror Neurons

Mirror neurons are critical to learning particularly in early childhood.

Children begin learning through imitation as early as infancy

Mirror neurons are responsible for developing EMPATHY

Observing empathy in action reinforces this executive function skill

Just by watching others engaged in meaningful ways can activates your happy hormones



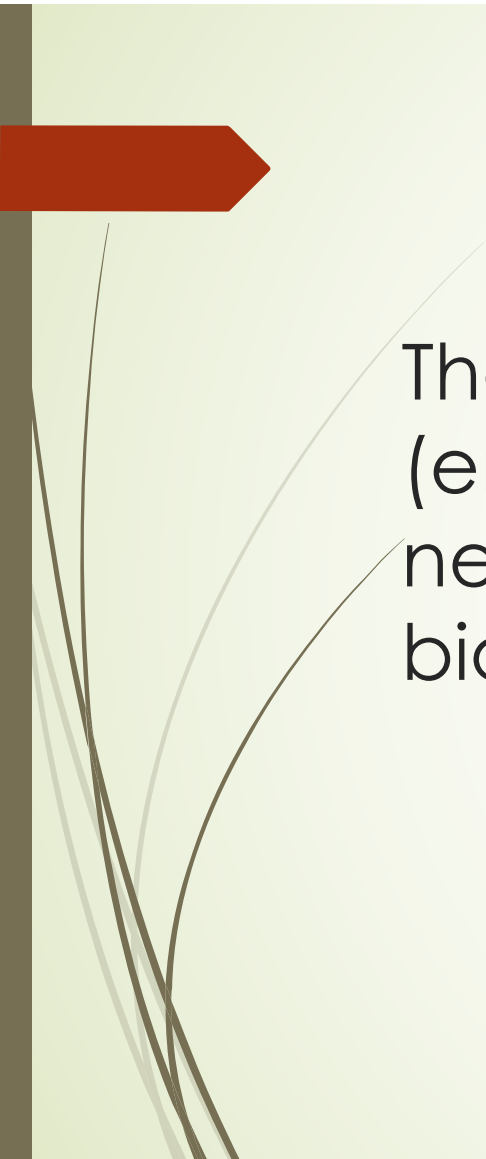


The more children and adults witness ways to connect in meaningful ways the more neural network connections are made

Practice does NOT make perfect

Practice makes permanent

- ▶ The more we connect “this way” the stronger these neural network connections become!



The connections made on the outside (environment & interactions), build neural network connections on the inside (brain & biology).



What makes me feel connected?

[Mentimeter response](#)



Trauma informed practices


Using meaningful interactions is key

- Eye contact
- Presence
- Playfulness
- Gentle touch

Always offer a no touch interaction***



Let's practice!



Who in your life are you most grateful for? Why?

Use the following:

Soften your eyes

Turn to the person next to you and ask this question

Listen to their words and tone of voice

Observe their facial expression and body language

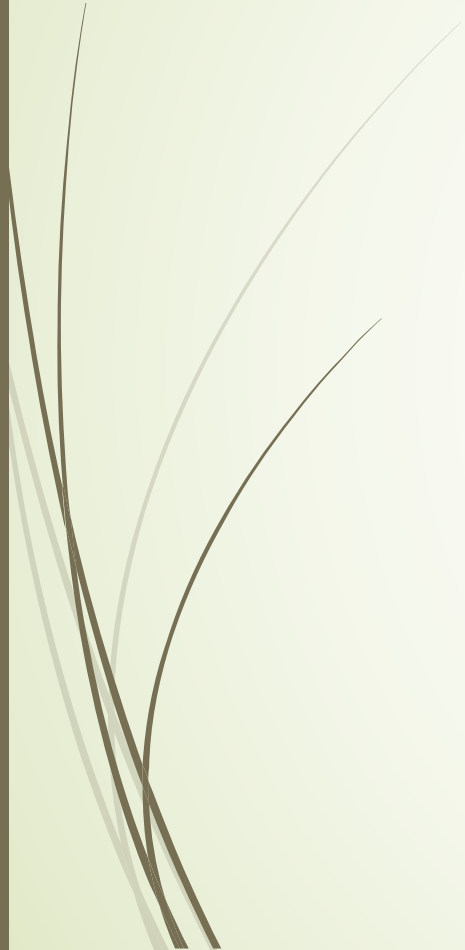
Soften your face

Softly smile

If welcomed, give them a warm hand to shake or gentle hug



Share what they shared with you to the class



Connecting STEM to social emotional development

Star Wars





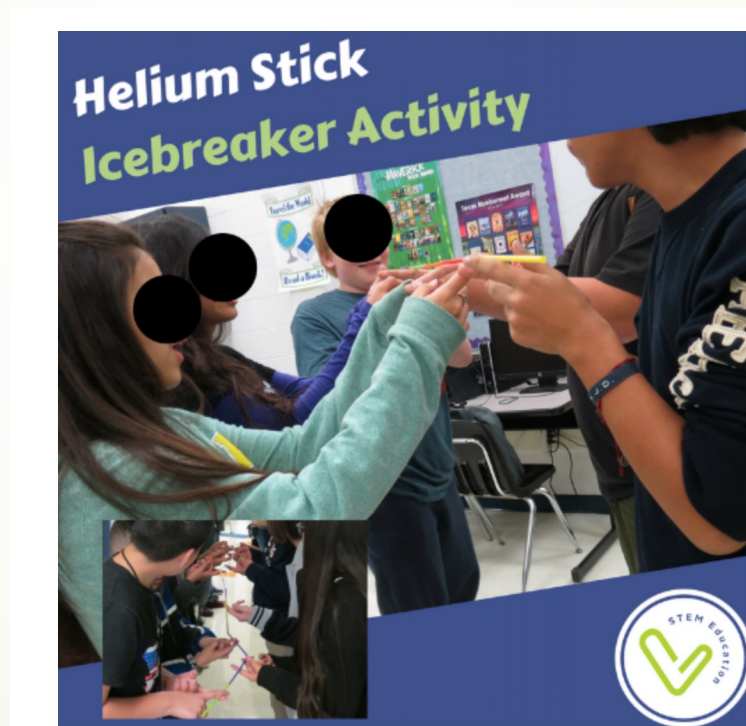
Helium stick activity

- ▶ Have you ever heard of the helium stick challenge? Groups of 6 - 14 students form two lines and work as a team to lower a long stick.

This activity is much harder than it sounds! Here are the steps:

1. Find a long stick. A flexible stick or pole makes it harder. We use straws that are taped together (one straw per person).
 2. Students form 2 lines facing each other.
 3. Everyone holds arms out and points index fingers.
 4. Lay straw stick across everyone's fingers.
 5. Adjust finger heights until stick is horizontal and everyone's fingers are touching the stick.
- ▶ The challenge: Lower the stick to the ground! Rules include:
 - Everyone's fingers must be in contact with the stick AT ALL TIMES. Must restart if someone loses contact.
 - No pinching or grabbing the stick

- ▶ You will notice that instead of the stick going down, it will "magically" start to move upward!
- ▶ The stick does not contain helium. The secret is that the collective upward pressure created by everyone's fingers tends to be greater than the weight of the stick. As a result, the more a group tries, the more the stick tends to 'float' upwards





How did everyone's willingness to collaborative influence this activity?





Q & A