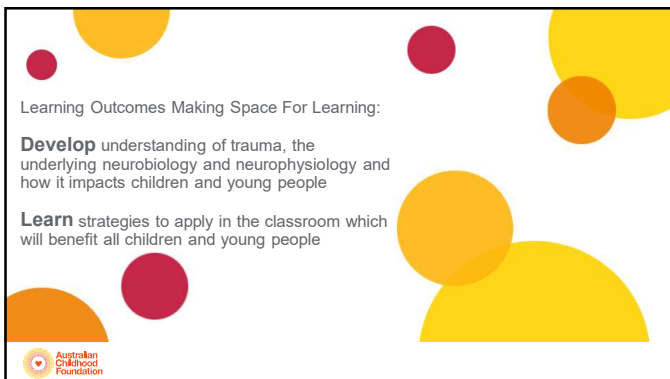




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2



3

Learning Outcomes for MSFL:

- The neurobiology of complex relational and developmental trauma
- How trauma impacts children and young people's brain, body, memory, emotions, relationships, behaviour and capacity to learn
- Responses to traumatised children and young people within education settings
- Exploration of activities and strategies that can help heal the impacts of trauma to enable improved behavioural and cognitive capacity

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4

Consider a teacher who taught you, and had a positive influence on you... What do you remember about them? How did they make you feel?

Jennifer Huch
Mrs. Cissy Simms
Teacher
Shirley Randall
Music

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STAGED ADAPTIVE ENABLED
SPACE
PREDICTABLE CONNECTED

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6

Understanding Neuro sequential Brain Development



7

Culture is part of development

- Our culture influences our brain development
- Our relationships influence our culture and our culture influences our relationships
- Sensory data is interpreted according to our culture long before our ability to think about and understand our culture


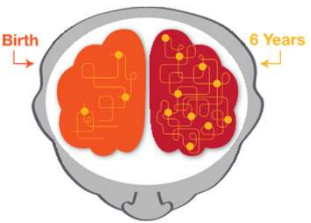


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8

Neuronal connections

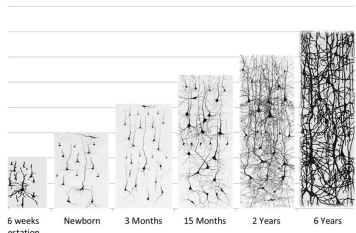
- The neural system has the ability for one neuron to communicate with up to 10,000 other neurons
- The newborn brain has approximately 100 billion neurons



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Neuronal development

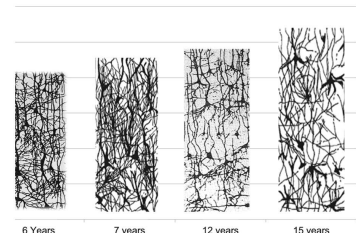


- Rapid growth occurs from birth to 6 years
- **Critical period** of development
- Healthy neuronal development occurs through **relationships, regulation, repetition**

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Neuronal development



- Early years – period of **rapid growth**
- Followed by onset of puberty in which **synaptic pruning and formation of new neurons** occurs.

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Understanding the developing brain




new born 3 year old adult

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Brainstem - basic life functions

- Basic life functions
- First part of our brain to develop
- This is the most developed brain part at birth
- Responsible for our heart beat, breathing, sucking, temperature control, blood pressure




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Cerebellum- movement and balance

- Helps us to know where our body is in space
- Helps us with our posture and balance
- Helps us not to fall over and to control our movements
- Has its own connective pathways between the 2 halves- cerebellar vermis




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Diencephalon - sorting & sending centre

- This area of the brain develops mainly after birth
- It sorts out messages coming into the brain and sends them
- It uses hormones to send signals to body
- Hormonal signals tell your body what it needs, eg. food, water, love

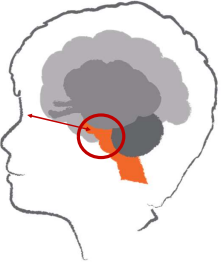



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Superior Colliculus

- Processes visual threats – looming objects identified by cells in the retina of the eye
- Retinal neuronal input received by Superior Colliculus which engages the body in **Avoidance and defensive behaviours**





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Limbic lobe- emotional gateway


- The part of the brain that helps us attach an emotion to an experience or memory
- This part of the brain is particularly involved with the emotions of fear and anger
- Also heavily involved in attachment processes
- This area develops mainly after birth




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What do my sensations mean for me?

<p>Body Sensations</p> <p>Achy, Dull, Knotted, Sharp, Bloated, Electric, Nauseous, Light, Heavy, Smooth, Breathless, Energised, Sore, Ainy, Brittle, Bruised, Burning, Buzzy, Open, Pounding, Spinning, Icy, Hot, Cold, Clenched, Pulsing, Throbbing, Tight, Tingling, Twitchy, Itchy, Dry, Jumpy, Shaky, Damp, Full, Fuzzy, Hollow, Puffy, Prickly, Wobbly, Flushed, Numb, Tense, loose</p>		<p>Emotions</p> <p>Happy</p> <p>Sad</p> <p>Scared</p> <p>Worried</p> <p>Disgusted</p> <p>Surprised</p> <p>Angry</p> <p>Calm</p>
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Amygdala & Hippocampus

Amygdala

- the 'smoke detector' of the brain
- is mature at birth
- processes & stores implicit memories

Hippocampus

- matures between 2-3yrs of age
- provides context to memories & embeds into long-term memory




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Cerebral cortex- complex thinking

- The largest part of the brain
- Associated with higher brain function such as thought and action
- Examples of functions:
 - Reasoning
 - Logic
 - Judgement
 - Voluntary movement




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The prefrontal cortex- executive function

- Responsible for executive functions, such as judgement, reasoning, and self awareness. Final part of the brain to reach maturity in late twenties to early 30s

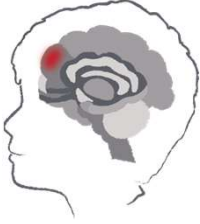


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Medial prefrontal cortex

- Associated with perceptions of self and similar others
- Known as centre for mindfulness
- Involved in maternal bonding – the parent child dyad and inter-subjectivity



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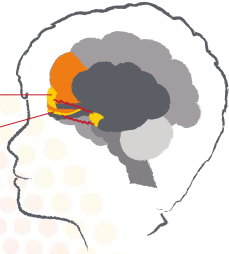
Strategies for building healthy brain development

Brainstem & Diencephalon	Basic survival & sensory processing	Pacification or stimulation. Activities in the child's preferred sensory modality
Cerebellum	Coordination of movement	Using music, rhyme and movement activities
Limbic	Emotional processing	Building relational connection through plays, animals, games
Cortex	Thinking processes	Linking experiences and sensations to words and descriptions
Prefrontal cortex	Analytical and abstract thinking	Challenges and safe risk taking activities

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Mindfulness and co-regulation



Pre-Frontal Cortex
(the centre of Mindfulness/ Self awareness)


Right Orbitofrontal Cortex
(Regulation of Arousal)

- Mindful awareness/ meditation de-activates the amygdala
- Quality co-regulation de-activates the amygdala

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Safety & the Brain



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26

An introduction to the Polyvagal theory and neuroception

Cues of risk and safety are continually monitored by our nervous system.

“Before we can engage in social behaviour and learning we must first feel safe.”

(Porges, 2015, p.119).

<http://lewisinstitute.com.au/wp-content/uploads/2017/08/img-dragage12.jpg>

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Polyvagal theory and Protective Responses

by Stephen Porges

Behavioural Functions	Body Functions
Social Engagement Soothing and calming Indicates safety	• Lowers or raises vocalisation pitch • Regulates middle ear muscles to perceive human voice • Changes facial expressivity • Head turning • Tears and eyelets • Slows or speeds heart rate
Mobilisation Fight or Flight Active Freeze Moderate or extreme danger	Hyper arousal • Increases heart rate • Sweat increases • Inhibits gastrointestinal function • Narrowing blood vessels - to slow blood flow to extremities • Release of adrenaline
Immobilisation Collapse or submission Death feigning Increased pain threshold Conserves metabolic resources Life threatening situations	Hypo - arousal • Slows heart rate • Constricts bronchi • Stimulates gastrointestinal function

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What trauma or stress response can look like

Cognitions & Behaviours: <ul style="list-style-type: none"> • Asking lots of questions • Bravado (speech or actions) • Attention, concentration and memory difficulties • Black & White thinking, negative thoughts • Generalised worries • Rigid thinking & behaviours • Compulsions/ repetitive behaviours • Ruminating – what if's, should, cyclic thoughts 	Mobilised Responses: <ul style="list-style-type: none"> • Hypervigilant • Edgy/jumpy • Irritable – easily annoyed • Poor recovery from distraction • 'silly', loud, over-excitement • Unsettled, sleep difficulties • Outbursts, aggression • Defensive, taking things personally • Increased expectations of self and others • Inflexible, 'controlling' • Sensitive to sensory input 	Immobilised Responses: <ul style="list-style-type: none"> • Flat, numb affect • Disengaged, disinterested • Withdrawn • "boredom" • Lethargic, unmotivated • Disconnected from peers • Developmental regression – e.g. with abilities to self-soothe, self-care/hygiene, toileting • Changes to appetite
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Polyvagal Theory

	I am showing you....	On the inside.....	I need you to....
SOUL ENGAGEMENT	Feeling safe, staying in relationship, connection oriented You might say I am: • Making eye contact • Engaging in play and exploration	I am feeling: • Safe, Calm, Happy, Sati, Annoyed, Reflective, Playful, Curious My body says: • Approach others • Sit still • Breathe deeply	Help me to stay engaged: • Play and have fun with me • Role model positive relationships • Set boundaries and natural consequences • Use reflective and problem solving skills so I can learn from you • Notice and acknowledge my strengths and my skills
MOVEMENT	Fight, flight, active freeze, action oriented You might say I am: • Aggressive • Loud • Fighting • Running away • Hyperactive	I am feeling: • Anxious, Frightened, Lonely, Hurt, Confused, Overwhelmed My body says: • Run away • I'm not • I can't sit still • I need to move	Help me to down regulate: • Keep me safe • Co-regulate - be safe, attuned and responsive to me • Use movement - big then smaller, jumping, hanging, swinging, climbing, star jumps • Create a safe space near you where I can retreat to until I calm down • Model deep breathing • Repair our relationship - "we are ok and our relationship is strong"
IMMERSION	Withdrawal, collapse, submission, dissociation, avoidant oriented You might say I am: • Avoiding contact • Withdrawn • Distant • Complaint • Hiding	I am feeling: • Disconnected, Unfocused, Flat, Withdrawn, I'm disappearing My body says: • Avoid others • I'm not in my body • I want to hide • Curl up in a ball	Help me to up regulate: • Co-regulate - be safe, attuned and responsive with me • Tell me I am safe and demonstrate it with your actions, gestures and tone of voice • Help me to orient to the room we are in by looking for specific things like something green, something on the roof or something on the floor • Help me to feel my body by noticing different parts, such as my feet on the floor and my bottom on the chair • Repair our relationship - "we are ok and our relationship is strong"

Grounded in the work of Dr Dan Siegel, Dr Stephen Porges and Dr Bruce Perry

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Changes in Arousal States

Affect: Shame, anger	
Thought: "I'm a screw up, this is unfair"	
Behaviour: Hitting, running away	
Sense of self: "I am bad, I am broken"	
Consciousness: Hyper-focused, narrow, rigid	
Affect: Joy, pleasure	
Thought: "This is fun, "I'm good at this"	
Behaviour: Increased, sustained effort	
Sense of self: "I'm competent, I can do this"	
Consciousness: Focused and flexible	
Affect: Shame	
Thought: "I don't care, I can't do it"	
Behaviour: Collapsing, spacing out	
Sense of self: "I am bad, I am broken"	
Consciousness: Diffuse, spacey	

(Adapted from Ogden & Fisher, 2015)

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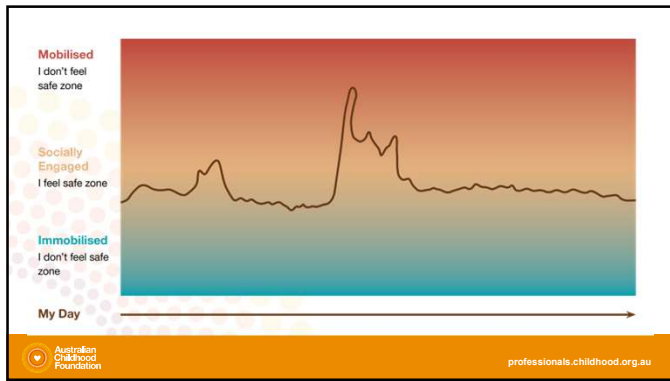
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Reflection Time

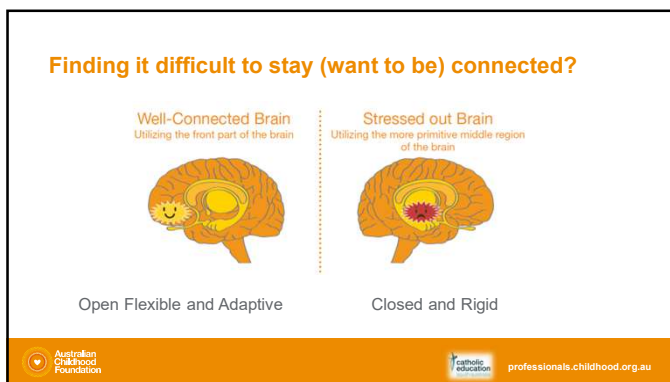
- During your teaching day are you more likely to become hyper or hypo aroused?
- When you felt dysregulated and someone co-regulated you. What did they do that helped?
- During a difficult day at work you self-regulated. What skills did you draw on to be able to do this?

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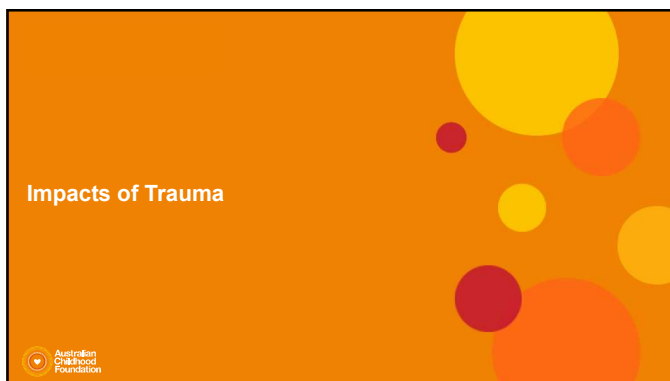
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Defining trauma

Any single, ongoing or cumulative experience which:

- is a response to a **perceived threat**, usually to survival
- **overwhelms** our capacity to cope
- feels/is **outside our control**
- often evokes a **physiological** and **psychological** set of responses based on fear or avoidance

The diagram features three overlapping circles labeled 'Developmental' (orange), 'Simple' (yellow), and 'Complex' (red). To the right, there are two circular arrows: an orange one labeled 'Intergenerational' and a red one labeled 'Transgenerational'.

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Trauma can impact all elements of Student's development: brain, body, memory, learning, behaviour, emotions, relationships.

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Trauma and exposure to chronic stress experienced during childhood and adolescence shake the foundations of healthy brain and body development.

They alter their trajectory over time. They trap their development and prevent them from maturing emotionally, psychologically and cognitively. Children may not progress much beyond the developmental milestones that they had achieved prior to the start of their experiences of abuse and violence.

Children and young people who have suffered this degree of trauma find it difficult to adapt to their environment. In order to best support them, the environment should adapt to the needs of the child or young person. This occurs when relationships surrounding children are safe, predictable and nurturing.

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Exposure to chronic toxic stress or complex trauma affects the effectiveness of key brain structures to integrate the different dimensions of memory. The emotional and physiological resonances of traumatic experiences come to be stored as memory fragments in the limbic system, cerebellum and brain stem without reference points. They do not connect to detailed explicit memories (i.e. the facts) of the events in which these reactions occurred.

Traumatised children and young people are lost in time. They are not connected to their own reactions. Their present and their past are mixed up and confused. They find it difficult to make sense of what has happened to them and what continues to drive their thoughts, feelings and behaviour.

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Traumatised children and young people stop practising integrating their feeling states (a function of their right hemisphere) with words and constructs (a function of their left hemisphere) they can use to know and communicate about their internal sensations. They have limited emotional literacy. They do not easily understand their own feelings. They find it hard to attribute language to them and describe them meaningfully for others to understand.




Consistent, congruent and validating responses give them effective blueprints for organising their internal world.

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Children need positive experiences of connection as the basis for them to learn how to:

- problem solve;
- feel safe to explore new situations;
- manage their feelings;
- remember the positive feelings associated with forming relationships; and,
- have a working model for initiating and maintaining relationships.





Traumatised children have poor connective experiences. Their working models are built on fear and mistrust. Supporting children to re-experience relationships differently is the key to trauma recovery and change.

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Trauma-based behaviour, in general, serves important adaptive functions. It often makes sense in the context in which it first emerged. However, it can become counterproductive if it continues after the need for it has changed.

- Comfort Seeking
- Seeking connection
- Self-Protection
- What feelings are under the behaviour?
- What needs are under the behaviour?

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SPACE



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STAGED ADAPTIVE ENABLED

S P A C E

PREDICTABLE CONNECTED

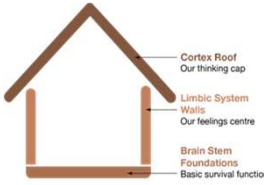


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Staged/Safe- A brain development metaphor - My Brain House

- Our brain house can experience adversity. This can effect its structural integrity. If we get rattled our thinking cap roof can come off, leaving our feeling walls exposed. This can lead to strong emotions coming out without our thinking cap to help us contain our feelings.
- When this happens we can struggle to find words to communicate as our words flew off with our thinking cap roof.
- If we are deeply shook our roof and walls might come down and leave only our foundation. Our foundation is very strong and reliable. In these times we have our basic life functions to focus on to get us through- eg. our breathing, our heart beat.
- Everyone's rooves blow off from time to time. Given we have all built our own brain houses, we are all equipped to support each other to repair our houses together.




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Predictable

- Changes to routines and uncertainty can be a source of stress to student
- Predictability in Student's relationships and online activities deactivates their stress systems
- This then promotes flexibility and adaptability




Student need to know what they can count on I feel better when I know what is coming next.

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What might predictability look like in practice?

- Build routines and predictability wherever possible
 - Prepare children and young people for what is coming next eg: giving countdowns to transitions
 - Visual timetables are useful
- Think about how to do transitions throughout the day
 - Play online and fun
 - Planned brain breaks
- Give plenty of information and time building up to changes



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What might predictability look like in practice?

- For students
- For families
- For all staff
- Systemically

relationships	physical activities
routines	instructions
learning tasks	behavioural expectations

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Predictable You

“I’ve come to a frightening conclusion that I am the decisive element in the classroom. It’s my personal approach that creates the climate. It’s my daily mood that makes the weather. As a teacher, I possess a tremendous power to make a child’s life miserable or joyous. I can be a tool of torture or an instrument of inspiration. I can humiliate or heal. In all situations, it is my response that decides whether a crisis will be escalated or de-escalated and a child humanized or dehumanized.”

Hiam Ginott

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Adaptive


- Traumatized students and young people rely on a limited set of behavioural routines to respond to the challenges of their context.
- These routines are sourced in the history of their physiological reaction to trauma and the experiences of relationships through which these reactions were interpreted and responded to.
- Strategies which promote adaptability in students and young people are those which are able to maintain multiple meanings for behaviour and remain open to multiple options for interventions.

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Building understanding of behaviour

- Behaviour is communication
- If we can understand what drives a behaviour, we can work out how to respond to it.
- If we can meet the need that is driving a behaviour, the behaviour can start to reduce.
- **Behaviours are functional** and almost always makes sense given their specific experiences of trauma.
- Openness and curiosity about behaviour is an important response




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What might adaptive look like in practice?

- See the needs beneath the behaviour
- Utilise strengths
- Psychoeducation in the virtual space
- Relationship, repetition, rhythm
- Use PACE
 - Playfulness
 - Acceptance
 - Curiosity
 - Empathy



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Connected

- Student's relational templates for forming and being in relationships take shape as they grow. They learn what to expect and how to navigate relationships through their experiences of connection with those around them.
- We tend to expect things from relationships based on what we have known from past connections.
- Strategies to support students as their relational templates continue to develop emphasise relationships with safe and consistent adults and peers as the foundation for healthy, strong social and emotional functioning.

Students need to feel like they are connected.
Students need to feel safe and know about what makes a safe connection.


- I need to feel like I am connected.
- I need to feel safe.
- I need safe connections in my life.



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What might Connected look like in practice?



- The student feels safe and connected
- Co-regulation occurs
- A feeling of connectedness is what you get when you feel like you belong in a group, when you are with others of your
- Mirror neurons –eye contact
- Attuned listening.

“

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Enabled

- Engaging students in the process of understanding themselves can build social and emotional well being.
- Learning about and identifying feelings, understanding them and practice communicating them with others in socially cohesive ways bolsters emotional regulation.
- When students know about their qualities, their attributes and their talents they can feel good about themselves.
- Knowing about their own special story helps students to build a coherent self narrative

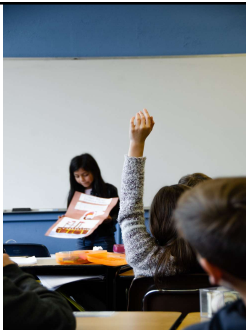
Students need to know more about what makes them who they are.
I grow stronger as I learn more about what makes me, me.

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What might Enabled look like in practice?

- Creating safety
- Understand triggers
- Map behaviours
- Victoria Dept of Ed's ABC and Scatter Plot Data
- Classroom approaches for individuals
- Flight, Fight, Active Freeze or Submit responses are assisted to enable learning.



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Making SPACE for Learning – Site Audit Tool

The audit tool can be used to evaluate the policies and practices of a school that promote and engage different levels of the school structure to undertake trauma informed practice. In the following table, list strategies, policies or other processes currently undertaken that support traumatised students at your school.

	Whole Site	Staff	Classroom / Group	Small Group	Individual Student / Child
S Sound					
P Predictable					
A Active					
C Connected					
E Engaged					

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SPACE : Strategy Wheel & Activities

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Staged

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Further Resources:

<https://professionals.childhood.org.au/making-space-learning-resources/>

Any questions?

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