




Making
SPACE
for Learning
 Trauma Informed Practice in Schools



The Australian Childhood Foundation acknowledges Aboriginal and Torres Strait Islander peoples as the traditional custodians and owners of this land and waters. We pay our respects to their Elders past and present and to the children who are their leaders of tomorrow. We acknowledge their history and living culture and the many thousands of years in which they have raised their children to be safe and strong.





Trauma

Developmental Trauma: Occurs when the foetus in utero, baby, child or adolescent experiences trauma, from abuse and neglect during key stages of development

Simple	Intergenerational
Complex	Transgenerational
Developmental	Historical

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Trauma impacts

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

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• Trauma and the Brain

- Normative development
- Impacts of trauma
- Capacity Building and Repair

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Neuronal connections

- Neurons – cells in our brain interact and communicate with other neurons
- 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

Neuroplasticity refers to the brain's capacity to:

- Grow new nerve cells
- Strengthen connections between nerve cells
- Sprout new connections between different cells

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Developmental stages of brain maturation

Image source: ©2018 ACF

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Brainstem – survival centre

- basic life functions
- first part of our brain to develop & the most developed brain part at birth
- responsible for our heart beat, breathing, sucking and swallowing, temperature control blood pressure and our sleep cycle

Image source: ©ACF 2020

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The brain stem under stress and trauma

- may experience fast or slower heart rate
- shortness of breath or breathing difficulties
- sleep disturbances and unsettledness
- sucking and swallowing and digestion difficulties
- may feel hot or cold or not notice changes in temperature

What do you notice?

Image source: Shutterstock

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Cerebellum – movement & coordination centre

- helps us with our posture and balance
- helps us to know where our body is in space
- helps us with our voluntary movements such as walking and writing
- Plays a role in **physical** and **mental** coordination



Image source: ©ACF 2020



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The cerebellum under stress and trauma

- Difficulties coordinating cognitive processes such as planning & working memory
- difficulty in maintaining posture & balance
- difficulty in undertaking tasks that require balance
- lack of awareness of their body in space
- difficulty with voluntary movement tasks – walking or writing



Image source: Shutterstock

What do you notice and what can you do?

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Strategies for transforming – brainstem & cerebellum: RHYTHM, BREATH, MOVEMENT

- include soothing and calming activities, safe containment
- movement based activities
 - include activities that have a rhythmic, repetitive element
 - include activities that have a balancing element & gross & fine motor skills
- breath based activities
- conduct a sensory audit –ie: is it too hot or too cold, too noisy?
- include proprioceptive and interoceptive awareness and activities

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Diencephalon – sorting and sending centre

- develops mainly after birth
- sorts out “messages” coming into the brain and sends them out to other parts of the brain
- uses hormones to send signals to body



Image source: ©ACF 2020



The diencephalon under stress and trauma

- becomes overwhelmed and cannot sort the information
- is unable to send information to the memory and thinking parts of the brain – that pathway shuts down
- it alerts the amygdala which sets off a sensory information response sequence



Image source: Shutterstock

What do you notice?



Strategies for transforming – diencephalon

- conduct a sensory audit
- provide calm, positive sensory experiences
- provide regular and predictable brain and body breaks
- Provide routine and prompts to support body systems and tuning in



Image source: Pinterest

What might help during transitions, beginnings and endings?



Limbic lobe - emotion and memory centre

- helps us attach an emotion to an experience or memory
- particularly involved with the emotions
- heavily involved in attachment processes
- develops mainly after birth
- two important brain parts – the amygdala and the hippocampus are in this part of the brain



Image source: ©ACF 2020



Building Capacity – Limbic System

1. Co-regulating strong emotions
Validate emotion, cues for proximity/space, engage senses, prosody, rhythm & breathing
2. Enhancing positive emotions
May need help to name & express
3. Promoting emotional literacy
Teach during moments of calm



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Amygdala

- Alarm centre - the 'smoke detector' of the brain
- 'Fires' when a threat is detected – triggers a series of brain and body responses
- Stores (& generalises) implicit memories relating to fear/threat



Image source: ©ACF2020



The amygdala under stress and trauma

- can be over active or under active
- can evoke reminders and flashbacks of the trauma (awakenings)
- will have difficulty in emotional regulation
- will have difficulty in reading facial expressions
- Constantly 'firing' – can hijack the cortex (thinking goes offline)



Image source: Shutterstock

What do you notice and what can you do?



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Strategies for transforming – Amygdala

- Manage own reactions (stay calm & present)
 - Don't rely on reason/thinking to reduce an escalation
 - Regular outbreath activities
 - Provide opportunities for rest and recovery
 - Environmental audit (noise, smell, colour, person, situation).
- Re-entry to the classroom should be a safe and positive transition whenever possible.*



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Hippocampus

- explicit memory centre
- provides context to memories
- provides consolidation of information from short term memory to long term memory
- memory puzzle sorting centre



Image source: ©ACF 2020



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The hippocampus under stress and trauma

- Reduction of hippocampal volume up to 25% as a result of high levels of cortisol
- Can't place memories in time or place – flooding & flashbacks
- Working memory, retention and recall (retrieval) capacity is severely impacted
- Narrative/autobiographical memory is affected



Image source: Shutterstock

What do you notice?



Strategies for transforming – Hippocampus

- Repetition
 - Reminders
 - Review
 - Reinforce
- *Calming the brainstem, quietening the amygdala and boosting the cerebellum will all help the hippocampus to function more effectively*



The Prefrontal Cortex- executive function centre

- self awareness
- reasoning and judgement
- foresight and anticipation
- focusing and sustaining attention
- planning organising and prioritising
- decision making
- reflecting
- enthusiasm, motivation and persistence
- impulse control
- working memory



Image source: ©2018 ACF



Cortical areas under stress and trauma

Unable to:

- use foresight and anticipation, focus or sustain attention
- plan, organise or prioritise or make decisions well
- reflect or have self-awareness
- be enthusiastic, motivated or persist with activities
- use impulse control



Image source: Shutterstock

What do you notice and what can you do?



Strategies for transforming – cortical areas

▪ Safety and stability are essential pre-requisites for cortical access

- problem solving activities and strategies
- Support to map and plan activities
- games - card games – boards games – strategy games
- voluntary movement activities – table top drumming, clapping etc
- thinking and choice games – “Would you rather?”
- Mindfulness activities



Trauma and the brain

Prefrontal cortex
Responsible for executive functions, such as judgement, reasoning, and self awareness. Final part of the brain to mature in one's mid 20s.

Amygdala
Survival response centre within the limbic lobe that becomes enlarged and more sensitive the more it is activated through responding to threats

Hypothalamus
Links the nervous system to the endocrine system via the pituitary gland. It synthesizes and secretes hormones to control body temperature, hunger, thirst, fatigue, sleep, and circadian cycles.

Hippocampus
Consolidates memory by providing the context/ sequential data for episodic memories. Goes offline if trauma overwhelms and disrupts cortex.

Corpus Callosum
Bridge between the 2 hemispheres. Chronic stress can damage and thin down this bundle of neurons

Thalamus
Sensory receptor within the diencephalon. Receives and passes on sensory data to be further processed by other areas of the brain

Cerebellum
Balance and coordination, motor skills may be impacted by trauma

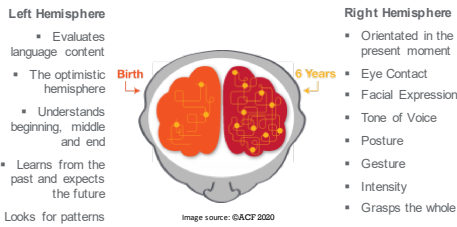
Image source: ACF 2020

Strategies for transforming

Brain area	Function	Activity ideas
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, role modelling emotion identification and processing.
Cortex	Thinking processes	Linking experiences and sensations to words and descriptions. Role modelling empathy.
Prefrontal cortex	Analytical and abstract thinking	Challenges and safe risk taking activities, taking on leadership roles, group work



Development of the left and right hemispheres



Strategies for transforming – building RH/LH connection

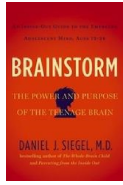
- Activities that cross the midline
- Using gestures, intonation, melody, etc to accompany speech
- Putting words to feelings when making observations
- Incorporate cognitive elements into calming/stimulating activities (eg. Counting)



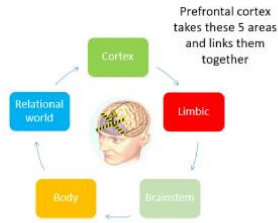
Image source: istock



Adolescents - The remodelling brain: **Pruning & myelination** in the teenage brain



<https://www.youtube.com/watch?v=jXnyM0ZuKNU>



Risk taking and impulse control



Trauma and the Body

- Neuroception
- Polyvagal Theory
- Window of Tolerance
- Creating Safety

Neuroception: Cues of risk and safety are continually monitored by our nervous system (Porges, 2019)



Polyvagal theory and protective responses

(Porges, 2011)

Behavioural Functions	Body Functions
Social Engagement Soothing and calming Indicates safety	<ul style="list-style-type: none"> • Lowers or raises vocalisation pitch • Regulates middle ear muscles to perceive human voice • Changes facial expressivity • Head turning • Tears and eyelids • Slows or speeds heart rate
Mobilisation Fight or Flight Active Freeze Moderate or extreme danger	Hyper arousal <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Slows heart rate • Constricts bronchi • Stimulates gastrointestinal function

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Regulated Arousal

Fight or Flight hyper-vigilant action-orientated; impulsive, emotionally flooded, reactive, defensive, self-destructive

Freeze Physically immobilized, frozen, tense musculature

Sympathetic Hyper-arousal

Social Engagement

Window of Tolerance

Parasympathetic Hypo-arousal

Submit Collapsed, weak, defeated, flat affect, numb, empty, helpless, hopeless

Image source: ©2018 ACF

Ogden, Minib, Pan 2008

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Dys-regulated Arousal

Fight or Flight Hyper-vigilant action-orientated, impulsive, emotionally flooded, reactive, defensive, self-destructive

Freeze Physically immobilized, frozen, tense musculature

Sympathetic Hyper-arousal

Social Engagement

Window of Tolerance

Parasympathetic Hypo-arousal

Submit Collapsed, weak, defeated, flat affect, numb, empty, helpless, hopeless

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Ogden, Minib, Pan 2008

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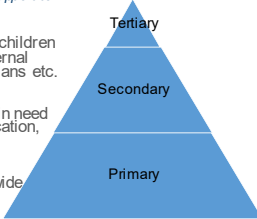
Multi-tiered Service Delivery Model

Provide effective practices for all students, and intensive support to those who need it

TERTIARY TIER: individualised interventions for children who need more intensive support – referral to external services, wrap-around support, tailored support plans etc.

SECONDARY TIER: identifying 'at-risk' students in need of targeted small group intervention – psycho-education, etc

PRIMARY TIER: preventive measures – system-wide changes to promote a safe learning environment



Phifer & Hull (2016)

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SPACE

Schools can respond effectively to the needs of traumatised children and young people, using the five key dimensions of the acronym **SPACE**.



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Making SPACE for Learning – Site Audit Tool

This audit tool can be used to evaluate the policies and initiatives of a school that resource and equip different levels of the school structure to undertake trauma-informed practice. In the following table, list strategies, policies or other processes currently underway that support traumatised students at your school.

	Whole Site	School	Classroom / Group	Small Group	Individual Student / One
STAGED					
PREDICTABLE					
ADAPTIVE					
CONNECTED					
ENABLED					

Making Space for Learning – Trauma-Informed Practice in Schools (1)

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Show case booklets
<https://professionals.childhood.org.au/building-capacity-in-educational-settings/>

Making SPACE for Learning
 Victoria Project Reports
 Catholic Schools 2017

TRANSFORMING TRAUMA PROJECT
 Transforming Trauma Tasmania Showcase 2012

Making SPACE for Learning
 Trauma Inclusive Practice in Schools
 CATHOLIC EDUCATION SOUTH AUSTRALIA
 PROJECT REPORTS 2017

Australian Childhood Foundation Professional Education Services professionals.childhood.org.au

Trainer
 krobinson@childhood.org.au

To find out more about the Australian Childhood Foundation please visit our website:

www.childhood.org.au
training@childhood.org.au

Phone: 1300 381 581

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