

Discussion Paper 4

Polyvagal Theory and Window of Tolerance



Preamble

This discussion paper is one in a series designed to stimulate discussion and sharing of experience amongst early childhood educators working with young children who may have experienced relational trauma.



Introduction

For many years researchers around the world have been trying to explain what happens in both the body and the brain when there is long term trauma. This paper will look at one such theory, the Polyvagal Theory and how this might look for both the early childhood educator and children experiencing relational trauma explained through the window of tolerance concept.

Understanding the Polyvagal Theory supports early childhood educators in their understanding of the impact of relational trauma on the nervous system and how this plays out in their behaviour. Understanding the Window of Tolerance supports early childhood educators with trauma informed responses to the baby and young child's behaviour.

We have used the characters from A.A. Milne *Winnie the Pooh* stories. Eeyore representing immobilisation (feign or flop). The exuberant tiger named Tigger representing mobilisation (flight, fright, active freeze) and Winnie-the-Pooh bear representing social engagement.



A Brief Overview of Polyvagal Theory

Polyvagal Theory outlines three evolutionary stages that took place over millions of years in the development of our autonomic nervous system. It proposes that the three stages are hierarchical in their use, even today.

1. The first formed defence developed uses the older branch of the Vagus and conserved energy for the animal or human in the face of a threat too big to face and would effectively produce an immobilisation response.
2. The next stage was the evolution of the sympathetic-adrenal system which assisted us to mobilise against threats, allowing the heart rate to rise and the SNS to take over. (At this point in time we had an 'all or nothing' ANS response to threat – either mobilised (even in active freeze) or immobilised)
3. The newest to develop was the social engagement system, where through the use of the newer vagus branch we could modulate calm bodily states and social engagement behaviours.

The hierarchy emphasises that the newer “circuits” inhibit the older ones - we start with our most modern systems, and work our way backward.

We use the newest circuit to promote calm states, to self-soothe and to engage. – We are able to slow down or speed up as required.

When this doesn't work, we use the sympathetic-adrenal system to mobilise for fight and flight behaviours.

And when that doesn't work, we use a very old vagal system, the freeze or shutdown system. This can be dangerous due to the extremely high amounts of stress hormones and opioids in the body, people can faint/slip into unconsciousness- and the heart can stop beating.

Polyvagal Theory and our protective responses

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 eyelids
- 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

by Stephen Porges






What does this mean for children?

1. The newer, social engagement system can only be expressed when the nervous system detects the environment as safe.
2. Trauma impacts the use of this branch because it ‘tunes’ children to scan their environments for threat, thus they cannot apply the “Vagal Brake” and maintain elevated heart rates which in turn inhibit the use of the social engagement window.
3. The linkage between the facial nerves and the nerves that regulate the heart and lungs mean that using the facial muscles can calm us down.
4. Children who present with no facial expression (the face has no muscle tone, the eyelids droop and gaze averts) will also highly likely have auditory hypersensitivities and difficulty regulating his or her bodily state. PVT suggests that the neural system that regulates both bodily state and the muscles of the face has gone off-line because their nervous system is not providing information to calm them down.
5. When children are in the distressed state, their nervous system evaluates even neutral things as dangerous, rather than pleasant. But once they become calm and engaged, they see neutral as being neutral, and when they engage with people they can start responding back to them.
6. To assist children in regulation (moving them into the middle of the window of tolerance), PVT would suggest strategies to create a sense of safety, like retreating to a quiet environment, changing intonation, presenting familiar faces and familiar people, playing musical instruments, singing, talking softly, or even listening to music. When we do these we can actually recruit these neural circuits, trigger the social engagement system, and this will turn off our stress responses.
7. Therapeutic methods that promote the use of the associated body functions in the social engagement system will be soothing and calming, and will be more metabolically efficient. They will also produce a host of health benefits.
8. When we are in a mobilised anxious state and want to communicate or relate on a calmer personal level, we need to put the brake on our sympathetic-adrenal system and recruit the neural circuit that promotes social behaviours. We can do this by using our facial muscles, making eye contact, modulating our voice, and listening to others. The process of using the muscles in our face and head to modulate our social engagement will actively change our physiological state by increasing vagal influences on the heart and actively blunt the sympathetic-adrenal system. Then we can be more in contact with reality, more alert and engaged.

SMART Early Years

The above is further explained in the table below.

I am showing you....	On the inside.....	I need you to....
 <p>Social engagement</p>	<p>Feeling safe, staying in relationship, connection oriented</p> <p>You might say I am:</p> <ul style="list-style-type: none"> • Making eye contact • Listening • Engaging in play and exploration 	<p>I am feeling:</p> <ul style="list-style-type: none"> • Safe, Calm, Happy, Sad, Annoyed, Reflective, Playful, Curious <p>My body says:</p> <ul style="list-style-type: none"> • Approach others • Sit still • Breathe deeply
 <p>Mobilisation</p>	<p>Fight, flight, active freeze, action oriented</p> <p>You might say I am:</p> <ul style="list-style-type: none"> • Aggressive • Loud • Fighting • Running away • Hyperactive 	<p>I am feeling:</p> <ul style="list-style-type: none"> • Anxious, Frightened, Lonely, Hurt, Confused, Overwhelmed <p>My body says:</p> <ul style="list-style-type: none"> • Run away • I'm hot • I can't sit still • I need to move
 <p>Immobilisation</p>	<p>Withdrawal, collapse, submission, dissociation, avoidant oriented</p> <p>You might say I am:</p> <ul style="list-style-type: none"> • Withdrawn • Avoiding contact • Distant • Compliant • Hiding 	<p>I am feeling:</p> <ul style="list-style-type: none"> • Disconnected, Unfocused, Flat, Withdrawn, I'm disappearing <p>My body says:</p> <ul style="list-style-type: none"> • Avoid others • I'm not in my body • I want to hide • Curl up in a ball

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



Window of Tolerance

Understanding the Polyvagal model enables early childhood educators to be able to see how trauma is affecting the child's reactions to their world. The window of tolerance enables early childhood educators to be able to apply a range of trauma informed responses also called protective responses to the child's behaviour that are respectful, empathic and nurturing. These responses show understanding and kindness.

We know children can only feel relaxed and safe when they are in their social engagement window. It is when their amygdala is lowered or turned off and where children have their best chance of being able to focus on what is going on around them and to learn new knowledge and skills.

Children outside their window of tolerance (whether they are in their "Tigger" or "Eeyore" space are not feeling safe and are unable to learn).

The role of the early childhood educator is to support our "Tiggers" and "Eeyores" to be able to spend time in their window of tolerance.

Looking at the diagram below:

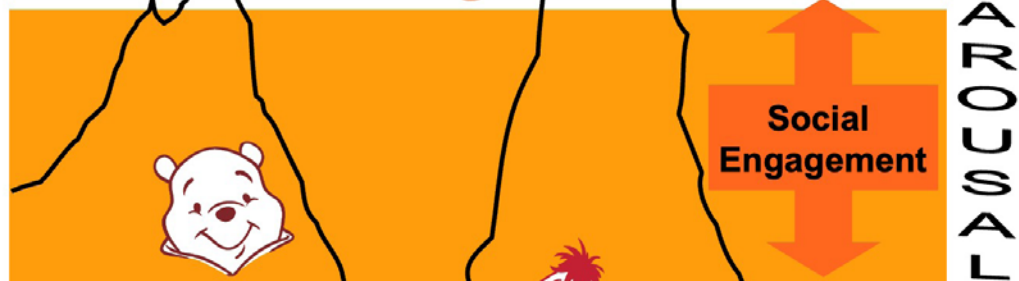
Working with Protective Responses

Fight or Flight

Hyper-vigilant, action-orientated, impulsive, reactive, self-destructive



Mobilisation



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



Immobilisation

For our fight, flight and active freeze "Tiggers" this means supporting them to feel grounded and safe. We do this through contained spaces, weighted blankets and other supportive responses to enable them to feel safe, relaxed and regulated to engage in the social engagement window.

For our immobilised "Eeyore" this means supporting them to change their posture, align their spine and experience a variety of different surfaces, textures and activities to enable them to feel safe enough to spend time in their window of tolerance.

Each child has their own window of tolerance and the task of the early childhood educator is to observe when the child is in their most relaxed state as this may well be their window of tolerance. Windows of tolerance can look very different for each child. For one child it could be while being pushed on a swing, for another child it may be lying in the middle of a portable tunnel, and for another child sitting alone in a bean bag against a wall.

The early childhood educator can take advantage of these moments and use them to engage with the child by just being in the space with them. Being quiet offers the opportunity for the child to speak if they feel safe to do so. It is most important to follow the child's lead here as they can quickly sense the environment, including you, as being unsafe and leave their window of tolerance.

The child might like you to sing to them, and they may join in, read a book together, and the child may snuggle up close to you. The joy for the early childhood educator is being able to encourage children to return again and again to their window of tolerance for longer periods of time.

The SMART Early Years Activity Booklet has many ideas, activities and responses to support early childhood educators in their work with “Tiggers” “Eeyores” and supporting Pooh Bears to stay in their window of tolerance.



Window of Tolerance and the Early Childhood Educator

As well as supporting babies and young children to spend time in their window of tolerance. Early childhood educators also need to be aware of what is going on for them.

Early childhood educators can do their best trauma informed practice, their best protective responses when they themselves are in their window of tolerance.

As early childhood educators change their practice from behaviour modification to using a more trauma informed way of working, the most important element in this practice is the wellbeing of the early childhood educator.

For an early childhood educator to respond to children with protective responses they need to also be in their window of tolerance. They need to be confident and competent, well rested and in a positive frame of mind. It is impossible to respond in a respectful, caring and empathic way to a very dysregulated child for long periods of time for even the most regulated early childhood educator.

Each early learning service needs to have systems/processes in place to support each early childhood educator as they respond to dysregulated children through a trauma informed lens. This may be a safety plan where an educator spends a limited amount of time with the child before they get a rest time to regroup and refuel. Sometimes this may be initiated by the early childhood educator with a code word, when they say the code word to another educator they remove themselves from child and room. Sometimes it is a process where each early childhood educator is allocated a time to engage with the child and respond to their behaviour when that time is up another early childhood educator takes over.

We know that children affected by relational trauma need consistency and predictability in their lives. They also need early childhood educators who remain in their window of tolerance so they can be the best support for the child. When children remains dysregulated including being violent for long periods of time some of the information above may be useful to consider.



Questions for reflection or discussion

You may like to use the following questions as meeting topics, discussion starters, prompts for sharing of ideas/resources, or reflections, for early childhood educators working with babies and young children.

- How does Polyvagal Theory connect with or reflect the observations you make regarding the presentations of traumatised children?
- In what ways does Polyvagal Theory change, alter or support your interpretations of the behaviours present in these children?
- Can you identify when a baby or young child is in their window of tolerance? How do you know?
- How do you know when you are no longer in your window of tolerance? What process/system is in place to support you?
- What are some things you do to enable you to stay within your window of tolerance?
- What opportunities are there to share your knowledge of Polyvagal Theory and Window of Tolerance within your service and networks?



Further reading on Polyvagal Theory

Porges, S.W. (1995). *Orienting in a defensive world: Mammalian modifications of our evolutionary heritage. A Polyvagal Theory.* *Psychophysiology*, 32, 301-318.

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Porges, S. W. (2011). *The Polyvagal Theory: Phylogenetic substrates of a social nervous system.* *International Journal of Psychophysiology*, 42, 123-146.



Further reading about the Window of Tolerance

Ogden, P & Minton, K. (2000) Sensorimotor Psychotherapy: One Method for Processing Traumatic Memory. *Traumatology*, volume VI, issue 3, article 3. Electronic version of this article: <http://www.fsu.edu/~trauma/v6i3/v6i3a3.html>

Ogden, P. Minton, K. & Pain, C. (2006) *Trauma and the Body: A Sensorimotor Approach to Psychotherapy*. New York: Norton & Co.

Siegel, D. (1999) *The Developing Mind- How relationships and the brain interact to shape who we are*. New York: Guilford. (Chapter 7 'Self Regulation' is particularly relevant)