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Using a neurodevelopmental lens when working with children who have experienced maltreatment

A Review of the literature of Bruce D. Perry

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Executive Summary

Bruce D. Perry argues that therapeutic interventions which are informed by principles of neurodevelopment are more likely to effectively target brain dysfunction as a result of maltreatment in children. This literature review considers Perry's work in this area and reviews key principles of neurodevelopment and neurobiology. It describes the components of Perry's Neurosequential Model of Therapeutics and finally it draws some clinical and practical applications from Perry's six core strengths.

The brain is organised in a hierarchal fashion. When maltreatment occurs at a young age it has a larger impact on the brain because the brain is still developing. If therapeutic interventions and techniques use principles of neurodevelopment and neurobiology they are more likely to address parts of the brain in a sequential and logical manner. This allows the interventions to repair damage that has occurred to the lower parts of the brain, the regulatory functions, before repairing more complex parts of the brain which have been affected by maltreatment.

The Neurosequential Model of Therapeutics provides an approach in which therapeutic interventions can work with children and young people who have experienced maltreatment. The approach aims to: assess the child or young person's developmental capacity; identify the areas where brain functioning has been negatively affected as a result of maltreatment; make recommendations which allow the influential people in a child or young person's life to work positively with them.

The review concludes by detailing Perry's six core strengths: attachment, self-regulation, affiliation, awareness or attunement, tolerance and respect. Using these core strengths as a basis of practice, practitioners are better able to understand where are child is developmentally and how to work with them in order for them to prepare for stressors of life.

1. Introduction

This literature review examines Dr Bruce D. Perry's work with trauma and maltreatment and its effects on a child's developmental capacity. Perry uses a neurodevelopmental lens when working with children who have experienced set backs in their development due to the trauma, neglect or maltreatment they experienced as they aged. His work is based on principles from neurodevelopment and neuroscience and he uses this to inform the therapeutic work he does with these children. Throughout the review, attention is drawn to the clinical and practical implications of Perry's research.

The impacts of trauma, neglect and maltreatment influence the organisation of the brain's systems. The majority of these systems are developed within the first four years of a child's life. As a result, when a child experiences a form of maltreatment at a young age they are less likely to be able to recover and build a healthy developmental capacity. Perry argues that it is important for children to develop six core strengths: attachment, self-regulation, affiliation, awareness, tolerance and respect in order to become resilient, resourceful and socially successful adults. These core strengths are crucial in teaching a child about managing future relationships.

When these core strengths are not developed, and the child has experienced a form of maltreatment, they are less likely to have the tools they need in order to survive in the world. Perry argues that these children often lack the foundational development capacity to benefit from traditional therapies designed to assist them to deal with the impacts of maltreatment. Perry's 'Neurosequential Model of Therapeutics' targets a child's developmental stage by examining their history of maltreatment and their brain functioning. Recommendations for treatment are based on these examinations. It is only once a child is assessed properly and has engaged with clinical work which matches their developmental stage with their actual age that they are able to benefit from more traditional therapies.

2. A neurodevelopmental lens: working with maltreated and traumatised children

Perry (2006, p. 27) argues:

"...that an awareness of human brain development and functioning provides practical insights into the origins of the abnormal functioning seen following adverse developmental experiences (e.g. abuse, neglect and trauma) and furthermore, that an understanding of how neural systems change suggests specific therapeutic interventions".

Two of the major forms of child maltreatment are neglect and trauma[1]. Depending on their extent and timing, both forms of maltreatment can cause great damage to the functioning of the brain and impair the development of the emotional, cognitive and social skills a child will need for life. It is in the first four years of a child's life that their brain reaches 90 per cent of its adult size (Perry & Pollard, 1998, p. 35).

Throughout life, the brain organises its four main anatomically distinct regions in a hierarchical, bottom up fashion. The least complex and lower region of the brain, the brainstem, is the first region to be developed followed by the increasingly complex and higher regions. These are, in order, the diencephalon, the limbic system and the cortex. The organisation of the higher parts of the brain depends on input from the lower parts. If the neural activity entering the brain is "regulated, synchronous, patterned and of 'normal' intensity, the higher areas will organise in healthier ways" (Perry, 2009, p. 242). In contrast, if the patterns of neural activity are non-regular, extreme and asynchronous then the higher parts of the brain will organise to reflect these abnormal patterns.

The cues which guide a child's development are highly dependant on the experiences of the developing child. The quantity, pattern of activity and the nature of activation of the neural systems when they receive these cues are influenced by the child's experiences and their environment. Hence when a child has adverse experiences such as trauma or neglect, the disruptions to their neurodevelopment could lead to compromised functioning (Perry, 2009).

[1] Using a neurobiological perspective, Perry (2008a, p. 93) defines trauma as "an experience or pattern of experiences which activate the stress-response systems in such an extreme or prolonged fashion as to cause alterations in the regulation and functioning of these systems". In contrast, neglect (Perry, 2008a, p. 93) is the "absence of an experience or pattern of experiences required to express an underlying genetic potential in a key developing neural system".

Therapy seeks to alter the brain. In order to be effective the therapy needs to reflect the patterned experiences that are required in a sequential order. These experiences should be repetitive in order to mediate the function/ dysfunction that is being targeted by the therapy (Perry, 2009, p. 251). Without appreciating how the brain is organised during development, therapeutic interventions are likely to be ineffective (Perry, 2006, p. 30). Perry (2006, p. 30) asserts that therapeutic work needs to take into account key principles of neurodevelopment and neurobiology in order to effectively restore a child to a healthy developmental state.

3. Key principles of neurodevelopment and neurobiology

Perry (2009, pg. 30–47) argues that there are six key principles that are critical considerations in designing therapeutic interventions and techniques. These are briefly examined below.

i. ***The brain is organised in a hierarchal fashion****:* the simpler, regulatory functions are organised first. These functions then mediate the development of the more complex functions of the brain. Input from a sensory organ triggers waves of neural activity that move up the brain from lower, simpler to higher, more complex parts of the brain. These patterns of activity match up against previously stored patterns of activation. If the pattern is new, or is associated with a previously experienced threat, then an initial alarm is triggered within the stress-response system of the brain. In order for the brain to react immediately to a threatening situation it stores previous patterns of sensory neural input within its lower regions. Thus an alarm within the brain may be activated before the sensory input has been fully processed and interpreted.

For a child or young person who has been maltreated this process means their brain will have stored associations to previously triggered threats. For the rest of the child's life, these sensory cues will trigger a fear response and thus impact on their behaviour, emotions and physiology. The clinical implication of this principle is that these associations can have a profound impact on therapeutic work. When a person is in a high state of fear arousal their brain will process information and function differently. In order to break these inaccurate associations, the person must be exposed to repeated new experiences that allow the brain to create new or break trauma-related associations.

ii. ***Neurons and neural systems are use-dependent, that is they are designed to change in response to activity****:* the pattern, frequency and timing of key experiences entering neural networks are important in order for the brain to develop in a healthy manner. When a child is exposed to healthy, nurturing and enriching experiences they will develop neurobiological capabilities which will encourage positive social, cognitive and emotional functioning. On the other hand, if the child has experienced maltreatment they will develop specific symptoms that reflect their history of neural activation. The brain is a reflection of the patterns, nature and intensity of these experiences.

As a result, for a therapeutic intervention to be effective it must create new patterns that reflect new experiences in the brain. The best way to create new patterns in the brain is to expose the child to repeated experiences that break old associations. These new patterns must be consistent, predictable, patterned and frequent in order for the old associations to be replaced by new ones. It is necessary for all adults in a child or young person's life to work together during therapeutic interventions in order for these patterns to be consistent across all facets of the child or young person's life.

iii. ***The brain develops sequentially****:* when a child experiences traumatic stress their brain will have patterned, repetitive neuronal activation across a range of brain regions. The stress-response systems of the brain originate in the lower parts of the brain. The key to therapeutic interventions is that they target these areas first. If the systems in these regions of the brain are poorly organised and dysfunctional than they will continue to disrupt the higher levels of the brain and the child or young person will continue to experience high states of internal arousal. With any challenge or threat the young person will easily transition to highly defensive or aggressive behaviour.

A child or young person must feel safe in order to begin the healing process. This sense of safety will mean that their state of arousal during social or learning settings will be at a more manageable level. Once the core regulation of their stress-response systems has improved, the child or young person will be able to obtain the benefits of more traditional therapies. This key principle of neurodevelopment stresses the importance of therapies reflecting the natural sequence and organisation of the brain.

iv. ***The brain develops more quickly early in life****:* maltreatment experienced in early childhood has a disproportionate effect on the functioning capabilities of the brain (see Rutter & English and Romanian Adoptees Study Team, 1998; Rutter et al, 1999). The younger a child is when they experience maltreatment, the more likely they are to experience enduring and pervasive problems.

Clinically, this principle supports greater investment in early detection and intervention programs so that the child's exposure to possible or real maltreatment is limited.

v. ***While neural systems can be changed, some systems are harder to change than others****:* once organised the brain's systems are capable of being changed or influenced. However the degree to which the brain can be influenced or changed is dependent on the child or young person's stage of development and the region of the brain being targeted.

The lower regions of the brain are more difficult to change or influence due to their nature. Therefore the number of repetitions needed for this region to change is much higher than that for the other regions of the brain.

vi. ***The human brain was designed for a different world****:* at a basic level, humans were designed to live in a more natural world with a richer relational environment. Over millions of years the brain is adapting itself to the changes in this relational environment. Perry (2009) suggests that the brain was initially designed on a caregiving model which had at least four mature people protecting, educating, nurturing and providing enriching experiences to one child. The world today works on a caregiving model which switches this ratio to one adult to four children thus decreasing the relational environment of the child.

The current lifestyles of humans including increased access to technology, artificial lighting and visual overstimulation, could be contributing to emotional, social and cognitive problems for children. Most importantly the changes in the way interactions occur in the world today mean that children's environments have less strong relationships. The basic functions of the brain all rely on a person's capacity to form and maintain relationships. If the world today is limiting the relational environment of the child then the number of people who can directly influence or shape a child's development, in a quality way, is also being limited.

The implication of this in clinical work is that the number of relational interactions and opportunities a child or young person has needs to be increased in order for therapeutic work to be effective. One therapy session a week will not be sufficient to provide the child or young person with appropriate relational interactions to enrich their developmental experiences. All people invested in the child's life must work together in order to create a web of interactions that the child can draw from.

According to Perry (2009, p. 47) the application of these six principles in therapeutic work will result in a "more developmentally informed, biologically respectful approach to working with children" who have experienced trauma, neglect or abuse. In the following section we examine Perry's 'Neurosequential Model of Therapeutics' which aims to inform this approach to clinical work.

4. What is the Neurosequential Model of Therapeutics?

The Neurosequential Model of Therapeutics (NMT) is not a specific therapeutic intervention or technique but rather an approach to working clinically which is informed by neuroscience (Perry, 2009). According to Perry & Hambrick (2008, p. 39), the NMT process matches the nature and type of therapeutic intervention a child or young person receives to their developmental stage. It also looks at the brain region which has been affected by trauma or neglect and ensures that the intervention is targeting that specific region.

This approach aims to:

- structure the assessment of the child
- articulate their primary problems
- identify their key strengths
- apply therapeutic interventions which best meet the child or young person's needs.

Perry & Hambrick (2008) state that there are three main components of the NMT. These are NMT Assessment, NMT Functional Review and NMT Recommendations.

4.1 NMT Assessment – where the child has been

The NMT Assessment incorporates reviews of the key insults, stressors and challenges that have occurred and the relational history of the child or young person during development. The aim of the first review is to determine and score the timing, nature and the severity of the developmental challenges a child or young person has experienced in order to estimate their developmental capacity. The second review provides an insight into the attachments and related resiliency/ vulnerability factors which have impacted on a child's functional development (Perry & Hambrick, 2008, p. 39–40).

4.2 NMT Functional Review – where the child is

The NMT Functional Review draws a map of the child's brain in order to see where they are functionally at. This involves reviewing the current functioning of the brain to estimate which neural systems and brain areas are experiencing neuropsychiatric symptoms and to determine what key strengths the child has. A group of interdisciplinary staff is required for this method (Perry & Hambrick, 2008).

The second part of the Functional Review involves constructing a visual representation of the developmental status of the various domains of functioning. This map presents therapists and caregivers with a helpful way of discussing trauma, brain development and the rationale behind recommendations of working with a child or young person in a particular way. It is also useful to track progress as the map is updated to reflect the improvements in brain functioning as the child or young person travels through various therapeutic functioning (Perry & Hambrick, 2008, p. 40–42).

Perry & Hambrick (2008) stress that the NMT Functional Review must be conducted by a senior clinician who has a knowledge base in child development, clinical traumatology and developmental neurosciences.

4.3 NMT Recommendations – where the child should go

Once a functional map is developed, clinicians are able to determine the unique set of interventions which will assist the child or young person to move towards a more normal developmental trajectory. It is important for the recommended therapeutic interventions to closely reflect the normal sequential process of development in order to be most effective.

When making recommendations for the child or young person it is also important for the clinicians to take into account the child's relational environment which is a very important influence on the neural systems. The care of a child who has been maltreated has to involve every influential person in that child's life. These people must consistently work together to provide the child or young person with focused repetition of positive experiences so that they will be able to move towards a developmental age close to their actual age. During the last component of the process a NMT Relational Health Measure is taken to determine whether the child has sufficient and appropriate support within a safe, nurturing and attuned environment to effectively administer the therapeutic interventions which the child needs (Perry & Hambrick, 2008, p. 42 – 43).

In combination with the NMT, which focuses on ensuring that a child or young person is assessed appropriately and that therapeutic interventions match their developmental stage and age, Perry (2005) believes that children and young people need to develop the key strengths discussed in Section 5 to prepare them for future relationship building.

5. Bruce Perry's six core strengths

Perry (2005) argues that there are six key strengths which need to be developed by children in order for them to be "more resourceful, more successful in social situations and more resilient" (Perry, 2005, p. 4). In order for a child to gain a strong foundation for the future these six strengths need to develop sequentially and build upon each other to contribute to their emotional development. Each strength continues to be shaped over the life of the child (Perry, 2001b, p. 28). When one or more of the core strengths do not develop normally the child may be vulnerable and may not be able to cope sufficiently

with the stressors of life (Perry, 2005). In Section 5 we briefly review each of the core strengths.

i. Attachment

Attachment is "the capacity to form and maintain healthy emotional relationships" (Perry, 2001b, p. 28). The ability to attach to other humans and create special bonds begins in early childhood. It is the experiences in infancy and early childhood that creates the foundational roots of attachment. The food and the sensations of sight, sound, smells, touch and taste provide the infant with the things they need for survival and in order to grow to their potential. A healthy nurturing environment provided by the primary caregiver allows the infant's brain to develop in positive ways and due to this dependant relationship the infant is able to form a new style of attachment, one based on emotional relationships (Perry, 2001c).

The brain is designed to encourage relationships. There are parts of the brain which specifically respond to emotional cues (such as touch and facial expressions) and these systems appear to be closely associated with the parts of the brain which experience pleasure. When a child starts to develop healthy attachments they get a degree of pleasure from them that is related to the intensity of that attachment. Thus a child gains more pleasure from pleasing their caregivers than a stranger. When a child is learning emotional, social and cognitive tasks the greatest reward they can receive from their caregiver or teacher are approval, attention and recognition of their success. As a child grows they require a wide range of healthy relationships in order for their attachment capabilities to mature. While the primary caregiver is responsible for the attachment roots of the child, it is the social and emotional interactions with non-caregivers that allow the child to express their attachment in full (Perry, 2001c).

When a child has a limited number of positive relationships in their lives or where they have experienced negative primary caregiving experiences the child is at risk of a range of challenges. It is much harder to influence or teach a child who has poor attachment capacity. The teacher or caregiver is unable to use the normal human interactions to 'reward' appropriate and 'punish' inappropriate social behaviour. In extreme cases, the child may demonstrate anti-social, aggressive and/ or violent behaviours (Perry, 2001c).

In order to assist a child or young person to develop healthy attachments, adults should demonstrate warm behaviours towards them. This includes:

- smiling and looking at the them
- finding ways to spend time with them
- assisting them to develop appropriate social-emotional language e.g. how close to stand and use of eye contact (Perry, 2001c, p. 29).

ii. Self-regulation

Self-regulation is the ability to identify and control primary urges such as hunger as well as feelings such as frustration. This core strength is directly related to a child's stress-response system. The brain is continuously sensing and responding to the body's needs. When something is wrong it will alert the stress-response system and act to help the body obtain what it needs. Most of the brain's regulation occurs automatically however as a child matures the brain requires that they participate in their own body's regulation (Perry, 2001d).

When the stress-response system develops normally, humans are able to respond to complex, challenging situations with appropriate solutions. When a child's ability to self-regulate does not develop in a healthy way then they are at risk of behaviour problems and the inability to regulate primary urges (Perry, 2001d). Perry (2001d) states that when a child is exposed to challenges in a controlled environment they are more likely to develop healthy stress-response systems. When a child experiences something new, a small alarm response is activated which will cause the child anxiety or distress. In a responsive, controllable environment experiencing a moderate and predictable stress would lead to increased resilience in a child. As young children learn to notice and respond appropriately to their body's cues they become more capable of tolerating early signs of distress or discomfort. Increased toleration of these signs means the young child will be less reactive and impulsive and thus more likely to act maturely when faced with the emotional, social and cognitive challenges of development (Perry, 2001d).

Children or young people who are poor at self-regulation become quite disruptive. They are more likely to be impulsive, hypersensitive to changes and tend to overreact to small stressors. Perry (2001d, p. 21) suggests that these children benefit from structure. Adults can teach children to better self-regulate through:

- modelling self-control and self-regulation themselves
- providing structure and predictability
- informing the child of transitions before they occur
- by rewarding their good self-regulation responses with increased freedom and flexibility.

iii. Affiliation

The ability to affiliate allows humans to form and maintain relationships with others. Babies are born being dependent on their caregivers and as they grow older they need to form interdependent relationships with others in order to survive. Affiliation is the "strength that allows [humans] to join with others to create something stronger, more adaptive, and more creative than any one individual – a group of people working together" (Perry, 2002a, p. 30). In order to function in a group, a child must learn how to "communicate, listen, negotiate, compromise, and share" (Perry, 2002a, p. 30) with many people in a variety of situations.

As stated previously, each core strength builds upon the previous ones. In this way affiliation has its roots in attachment and then uses self-regulation to grow and thrive. While attachment begins with one-to-one relationships, the relationships humans develop in groups are more complex and require the capacity to regulate one's anxiety, impulsivity and frustration. It is the combination of the previous two strengths that allows a child to form and then regulate their relationships with others and thus develop the strength of affiliation (Perry, 2002a, p. 30).

Due to their early attachment bonds, a young child is better at engaging and affiliating with adults than with other children. In order for children to learn to join in with other children they must learn to affiliate in steps. First they will observe the other child and then they play in parallel. It is only once they begin to explore one-to-one interactions with other children that they are then able to negotiate interactions in larger, more complex groups. As a child matures they are able to maintain multiple relationships within groups. These structured and

regulated interactions assist a child to develop their affiliation skills (Perry, 2002a, p. 30).

Perry (2002a, p. 31) argues that the majority of children or young people who have problems within a group setting have not been able to develop the appropriate skills in affiliation and self-regulation. They struggle with identifying social cues and when they do not get what they want they act impulsively or immaturely. This then makes other children or young people avoid them thus creating a negative feedback cycle which results in the initial child or young person having fewer opportunities to socialise.

iv. Awareness or attunement

Attunement is the "ability to read and respond to the communicated needs of another" (Perry, 2001a, p10). Humans have to manage a constant stream of sensory information. Some of the most complex forms of sensory information come from other humans. Spoken language, subtle gestures and non-verbal expressions all come into play when humans interact with each other. The ability to be aware or attuned to others is essential to human communication and successful interactions and relationships. As a child grows they become more aware of how complex other people are by watching and listening to others and forming friendships (Perry, 2002b, p. 24).

When negotiating between relationships the brain uses a set of rules that makes the process easier. These rules are based on association and generalisation. Each sense can only receive and process one form of information at a time. When two or more senses receive information at the same time then the brain makes a connection or association between those sensations. By making associations the brain allows humans to make an accurate, internal representation of what is occurring in the world around them. It then incorporates the representation and stores it as memory. Memory allows humans to create a catalogue of relational experiences. When a new experience occurs humans are able to either match the experience to another one in the relational catalogue or create a new experience. They are thus able to judge the situation or experience. Opinions are the result of the brain generalising from a past situation to a new one with similar features (Perry, 2002b, p. 25).

The first memories of a child are based on the relational catalogue formed during their first attachments. If these attachments are nurturing and predictable then the child will generalise future interactions to positive relational memories. This will allow the child to form a large number and variety of relationships where they can learn to value others. A child's ability to self-regulate allows them to develop a healthy awareness of others and their ability to affiliate with a wide range of people allows them to build a diverse relational catalogue (Perry, 2002b, p. 25).

Adults in the child or young person's life can model awareness by talking through their actions and words in relation to people and events. When a child or young person is confronted with a stereotype, encouraging positive thoughts that challenge the stereotype over time can assist with increasing their awareness. Adults should talk through the origins of the stereotype and whether the stereotype is a fair representation (Perry, 2002b, p. 25).

A child or young person's 'relational catalogue' can also be broadened by introducing them to different cultures, people, religions and languages. By encouraging better knowledge of other cultures and people, adults can assist the child or young person develop positive relational memories (Perry, 2002b, p. 25).

v. Tolerance

Perry (2002c) observes that the world today is constantly changing. People have the ability to experience more places, learn more things and interact with a wide range of people and cultures. In order to succeed in today's world a child will need to develop tolerance. Tolerance is the capability of someone to accept differences in others. This strength emerges when a child has the security arising from the development of the previous four strengths (attachment, self-regulation, affiliation and awareness).

According to Perry (2002c) there are necessary components of developing tolerance. Firstly a child needs to feel that they are special, valued and accepted. This only occurs when the important people, mainly adults, in a child's life tells and shows them that they are special, important and loved. It is when a child feels accepted for themselves that they are able to accept others. The second component is related to how easily a child feels threatened by someone or new things. The brain categorises new things as dangerous unless

proven otherwise. When a child who feels safe is introduced to a new person, idea or culture they will be excited by these things. A child who does not feel safe will in turn experience these same things as threatening.

A person must actively be learning in order to develop tolerance. People have the neurobiological tendency to form groups with people who are similar to themselves and to be wary of those who are not similar. In order for a child to develop tolerance it is important for adults to actively model tolerance to different people and situations and repeatedly expose children to these things in a safe environment. When a child struggles with this strength they will create an environment around themselves which fosters exclusion and intimidation of people and groups they fear. This type of atmosphere can promote violence (Perry, 2002c).

vi. Respect

Respect is the "ability to see and celebrate the value of ourselves and others" (Perry, 2002d, p. 27). The sixth and last core strength is also the most complex according to Perry (2002d). Respect requires emotional, social and cognitive maturity that only comes to a child once they have developed the previous five strengths. To develop the capacity to respect is a lifelong challenge. A person's sense of self across their life will vary according to the challenges they face. The development of self respect is guided by how a person sees themselves and by how people in their lives respond to them. When a person gains attention and encouragement from the people that are important to them then they develop a positive image of themselves. Likewise, young children develop their sense of self-respect from their interactions with others. A child who is able to respect themselves, their own strengths and vulnerabilities, is more likely to be able to respect others (Perry, 2002d).

Humans tend to respect people who have traits that they admire. Young children respect things they see in the adults in their lives. Thus a child will be heavily influenced by what they are exposed to in life by the adults in their lives. Perry (2002d) states that there are two ways in which children may struggle with respect. Children could be overtly non-compliant or defiant. This behaviour is almost always associated with a poor sense of self. The second way in which a child struggles with respect is when they are self-deprecating. Children with such a poor sense of self will begin to limit their own opportunities.

Because children begin to respect the traits of the adults in their life, adults should:

- show respect for all people
- strive to live by their own teachings: patience, consistency, being caring, honesty and attentiveness
- give a child who is struggling opportunities to build respect for themselves
- use positive comments and rewards to shape and reinforce behaviour.

6. Conclusion

In conclusion, Perry asserts the importance of including a neurodevelopmental perspective when working with children or young people who have experienced trauma, neglect or maltreatment. He states that there are essential components which need to be included when designing therapeutic interventions which target developmental capacity building in a child or young person. Using the Neurosequential Model of Therapeutics (NMT), Perry believes that it is only after assessing a child's history of maltreatment, mapping out their brain functionality and then making recommendations based on these that a child is able to benefit from traditional therapeutic interventions.

A child or young person's developmental capacity is greatly influenced by how the systems within the brain are organised. These systems are most impacted by trauma, neglect and maltreatment in children because it is within the first few years of a child's life that the brain develops and prepares the child for life's challenges. It is only during an assessment of a child or young person's developmental capacity that clinicians are able to directly map out the functional capabilities that have been affected in a child who has experienced maltreatment.

Once a child or young person's developmental age has been determined and then differentiated from their actual age, therapists are then able to determine the most suitable ways of working with them. The aim of using a neurodevelopmental lens when working with these children is that it gives a useful framework for observing and targeting the gaps in a child's developmental capacity. It uses the brain's organisational nature to build stronger systems that will allow the child or young person to become more resilient. NMT combined with the development of Perry's six core strengths will lead a child who had once experienced maltreatment into a life where they are more resourceful, socially successful and better equipped to face life's challenges.

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