Understanding Trauma: A Pathway to Supporting Students in New Hampshire's Classrooms

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Abstract

New Hampshire educators are experiencing greater incidences of maladaptive behaviors from their students. This is not just a state issue, but also a national issue. The increase in maladaptive behaviors exhibited by students has created a public dialogue about childhood trauma. To be effective, educators must become educated about the effects of developmental trauma disorder and effective interventions for their students.

Childhood trauma has become a national hot topic amongst educational circles and has even begun to shape New Hampshire education and legislation. In August, 2017, on The Exchange, a local New Hampshire Public Radio show, interviewers discussed the impact of childhood trauma, specifically trauma associated with the opioid crisis, on New Hampshire students. This interview touched upon a growing body of research that is linking childhood trauma and developmental trauma disorder to behavioral issues in the classroom. Increasingly, the interviewees observed that educators and administrators are grappling with issues in the school that originate in the home. This places significant pressure upon educators and administrators to meet the needs of these traumatized children. To meet this challenge, evidence from trauma informed practices point to effective interventions that focus on individualized approaches to the student, such as deepening the relationship between the student and their teachers (The Exchange, 2017). This article will review the characteristics of developmental trauma disorder and provide the defining characteristics of evidence-based interventions that educators can use in the classroom.

Childhood trauma is just one of the subtopics of trauma. This article will focus on developmental trauma disorder that results from complex childhood trauma. Complex and acute childhood trauma differ in that complex childhood trauma refers to sustained maltreatment that typically originates with a primary, or trusted, caregiver, whereas acute childhood trauma originates with a single, profound event, such as the loss of a loved one or a car accident. The effect of childhood trauma and adult trauma differs due to brain development. According to van der Kolk (2014), children with complex trauma backgrounds are saturated by stress-triggered hormones for longer periods of time. That saturation alters the physiological development of the brain and alters their developmental track, leading to what van der Kolk has described as developmental trauma disorder.

Long Term Impact of Childhood Trauma

Trauma was thrust into the public dialogue with the publication of a 1998 study spearheaded and funded by Kaiser Permanente and Centers for Disease Control (CDC) that studied the relationship of Adverse Childhood Experiences to lifestyle, health, and mortality. Authors of the study generated a survey that was mailed to over 13 thousand adults, at least 9 thousand of which responded. The seven Adverse Childhood Experiences (ACE) that the study focused on were psychological, physical and sexual abuse, domestic violence, growing up with substance misuse in the household, mentally ill or suicidal caretakers, or caretakers that had been imprisoned. The more ACEs the individual had, the higher their ACE score. Along with information regarding ACEs, researchers also gathered data from the respondents about health risk behaviors, health status, and disease. Comparison of the data revealed the higher the ACE score, the more likely the individual was to experience substance misuse, depression, and increased suicide attempts (Felitti et al., 1998). One of the most shocking and provocative revelations from the study was the quantity of people that had experienced one or more ACEs; 30% of respondents reported physical abuse and 20% reported sexual abuse. Of equal importance was the realization that the physiology of humans could be affected by psychological damage resulting from trauma.

Twelve years later, the ACE study made its debut in New Hampshire when local news station, WMUR, reported that nearly half of New Hampshire adults had experienced at least one

ACE. The New Hampshire Department of Public Health and Spark NH had collaborated to sponsor an ACEs survey in New Hampshire. Not surprisingly, the 1998 ACEs survey results were replicated on a smaller scale (Ramer, 2018). The results of this study were alarming enough that the New Hampshire legislature introduced House Bill 111 on January 30, 2019, which established a committee dedicated to investigating the effect of the New Hampshire opioid crisis and ACEs, on the development of Post-Traumatic Stress Disorder, mental illness and behavioral challenges of New Hampshire students. The goal of this investigation is to draft more responsible legislation to address what can only be deemed as an epidemic of childhood trauma (NH House of Rep., 2019).

Symptoms of Developmental Trauma Disorder

Astonishingly, 80% of all maltreatment of children originates with biological parents (van der Kolk, 2005). Interpersonal trauma that begins early in childhood results in developmental delays that produce disorganized internal functioning. In February 2009, a group of experts affiliated with the National Child Traumatic Stress Network composed a criterion for the establishment of developmental trauma disorder. Led by Bessel van der Kolk, this group of individuals synthesized current knowledge of the effects of childhood trauma into a single disorder, developmental trauma disorder. By viewing the effects of childhood trauma as a disorder, treatment could address the cluster of symptoms as a whole, rather than individually. The criterion for developmental trauma disorder can provide educators with guidance when confronted in the classroom with students suffering from the disorder.

Chronically traumatized children display a multitude of characteristics. When children are continuously exposed to inescapable trauma, the child will organize itself around survival. The maladaptive behaviors that they exhibit will produce labels such as oppositional, compliant, unmotivated and antisocial. It is important to understand that these behaviors are the result of internal dysregulation and have developed as protective measures against threats. Because they are so dysregulated, traumatized children can exhibit altered states of consciousness, e.g. amnesia, hypermnesia, disorientation in time and space, dissociation, derealization, difficulties in attention regulation, flashbacks, nightmares and depersonalization (van der Kolk, 2005).

In the classroom, the teacher may observe a child that is avoidant, compliant, numb or impulsive, but also hypervigilant. Children can exhibit multiple characteristics of these threat responses simultaneously. What is important to note is that their reaction to external stimuli is *disorganized*. It is not just the avoidant behavior that is concerning, nor is it just that the child displays hypervigilant behavior. It is that the child can swing erratically from hypervigilant and impulsive to avoidant and numb within hours, or even seconds. This disorganization is what is so difficult for the teacher to respond to because it forces the teacher to react to the dysregulation. Indeed, treatment and interventions for teachers must focus on the child when the child is demonstrating calm, organized responses to their external world. Finding a way to increase the amount of the time that the child remains in the calm state, demonstrating an organized response to their environment, will open up longer periods of time that the child's brain can absorb knowledge.

Neuroscience of Trauma and its Physiological Impact on Development

Through a process called patterning, our brains acquire and accumulate knowledge from the external world. Patterning is the brain's way of categorizing and organizing information. The brain perceives and generates patterns then uses those patterns to predict appropriate responses to future stimuli (Willis, 59). Thus, when Pavlov began his research on the conditioned response, which observed that an individual's mouth will salivate at the sound of a bell if the brain has been conditioned to associate the bell with the reward of food, what was being observed was the brain's patterned response to a series of stimuli. If the brain perceived a disruption in the pattern, i.e. if the bell was no longer partnered with food, then the brain would extinguish the pattern of the conditioned response (van der Kolk, 2014). The brain's patterning process allows it to develop complex webs of historical information that it is constantly recruiting in order to process incoming information. During the early stages of life, when the brain experiences 90% of its growth, the parent-child relationship is the primary source of information for the child. This relationship has an acute and lasting effect upon the child's development (Perry, 2017).

The complex webs of historical information are referred to as neural networks. The efficacy of these neural networks depends upon the organization of their development. Their primary function is to transmit information from one area of the brain to another and to identify, categorize and catalogue stimuli. Thus, individuals experiencing predictable, controlled and moderate stimuli, will develop efficient and organized networks that will transmit information in an organized manner creating an appropriate response to external stimuli. However, those individuals that experience uncontrollable, unpredictable and varying intensity of stimuli will develop neural networks that are inefficient and disorganized in their response to external stimuli. Children who experience maltreatment at pivotal stages of development are the recipients of unpredictable, uncontrolled stimuli that varies in intensity. This disruption of the brain's typical development produces neural networks that respond to external stimuli in a disorganized way. This disorganization manifests as maladaptive behaviors, e.g. the inability to recognize actual and perceived threats.

The brain has three responses to threat; fight, flight, or freeze. The brain can recruit these responses as needed and will often respond to threats with a combination of these. They are best described as existing on a spectrum. At one end is the fight/flight response, or arousal, and at the other end is the freeze response, or dissociation. The traumatized child that cannot discern actual threats cannot regulate the spectrum. Some children may remain in hyperarousal, some may dissociate, and others may remain in a holding pattern, cycling between both. While the child remains in this holding pattern, their brain is saturated with stress hormones such as epinephrine, cortisol, opioid peptides, serotonin and dopamine (Perry, 2013).

Hyperarousal threat responses are characterized by the well-known fight or flight response. Here, the body is prepared to fight the trauma, or the abuser. Hyperarousal also prepares the individual to flee the threat. The hyperarousal state is most often experienced by the older child, adolescent, or adult. At these stages of life, most people are capable of fighting or fleeing. However, when the trauma is immobilizing and inescapable, when there is no way out and no way to fight, the individual will sometimes dissociate. Dissociation is most commonly experienced by infants to elementary age children, and primarily by females. Dissociation is

characterized by disengagement, depersonalization and derealization; all states of consciousness in which the child's brain mutes external stimuli, creating a sensation of separation of mind and body, child from trauma. It is important to recognize that the brain does not use one of these responses exclusively and in fact, will use them in combination as a response to trauma (Perry, 2013; van der Kolk, 2005).

Educators intuitively understand that children in a calm state of reflection learn best. What may not be understood about this state is the neurobiological implications. The human brain is a processor that engages a multi-layered operating system. These operating systems are the brainstem, diencephalon, limbic and neocortex (see Figure 1). Each of these operating systems process external stimuli differently, while equally contributing to our body's response to stimuli. In a typically developed brain, most of these operating systems operate nearly simultaneously. The most basic, primitive operating system is the brainstem. It operates reflexively, enabling it to orchestrate split second decisions. The diencephalon, the second brain layer, is characterized as the emotionally reactive region. The limbic region increases in complexity, but produces concrete thought, sometimes described as a black and white perspective. The neocortex region, our most complex operating system, is characterized by a state of reflective thinking. The neo-cortex region is where our brain processes language, philosophy and abstract thinking, such as algebra. It is activated when the child is in a state of calm. Calmness allows the brain to recruit each of its operating systems to produce appropriate responses to external stimuli (Perry, 2013).

The child that is constantly traveling the threat response spectrum spends most of their brain power operating the brainstem and limbic regions. Incapable of discerning the difference between actual and perceived threat, the child's brain is constantly on alert and activating neural networks that are sending information to the brainstem in preparation for the coming trauma. The child's brain is incapable of transferring control from the brainstem to the higher, complex, thinking regions of the limbic and neocortex. This prevents the child from absorbing and processing knowledge, leading to academic and cognitive delays (Perry, 2014). The traumatized child in the classroom may seem exasperatingly fidgety, sensitive to the slightest noise, and their eyes may seem incapable of meeting the teacher's, in what appears to be obstinance, but is really the brain training the eye to look for threats.

The traumatized child is excessively recruiting the limbic and brainstem areas of the brain leading to a saturation of threat response hormones. This saturation of hormones results in imbalanced development of regions of the brain, specifically the amygdala and the hippocampus. The amygdala acts as a flagger and is responsible for flagging external stimuli as a threat (van der Kolk, 2014). If the amygdala is the flagger, the thalamus is the directional. It absorbs stimuli and sends it on the high road, i.e. to the neo-cortex region, or down the low road, to the amygdala (van der Kolk, 2014; Willis, 2010). The thalamus and amygdala operate as a check-and-balance system within the brain and when this system breaks down, traumatized children experience an imbalance in this process, resulting in the overproduction of stress hormones.

Nestled next to the amygdala is the hippocampus. The hippocampus is responsible for encoding memory into patterned highways of information, otherwise known as neural networks. In this process, the hippocampus recruits stored knowledge and binds it to incoming stimuli to produce neural pathways (Willis, 2010). Continual activation of the amygdala region prevents

sustained attention and leads to deactivation of the hippocampus (Fotenbaugh et al., 2017). In order for educators to effectively teach traumatized children, it is important for them to have an understanding of the physiological challenges created by trauma. By understanding the obstacles that children face, educators will be better equipped to develop individualized educational pathways for these children.

Trauma and Attachment Theory

Educators can develop individualized educational pathways by understanding the effect that childhood trauma has on attachment. By understanding attachment theory, educators can learn how traumatized children attach to caregivers, and through that understanding, develop trusting relationships. What is now understood to be attachment theory evolved from Victorian era psychoanalysts' efforts to understand the nature of maladaptive behaviors in adolescents. This desire led them to investigate the mother-child bonding process (Davidson, 2005).

Attachment theory is rooted in the observations of John Bowlby. Bowlby maintained that the maladaptive behaviors of adolescents derived from the trauma that they experienced as infants, specifically interpersonal relationship trauma such as neglect, sexual, and physical abuse (van der Kolk, 2014). Bowlby's contribution to attachment theory was derived from the observations of Lorenz Conrad, a British ethologist, that showed that mammals demonstrated a greater attachment to the caretaker that provided comfort than the caretaker that provided food (Davidson, 2005).

While Bowlby's contribution to attachment theory provided its foundation, it was Mary Ainsworth's experiment, The Strange Situation, that was able to finally decipher attachment patterns and categorize those patterns through empirical study (Davidson, 2005; Van Rosmalen, 2015). Ainsworth's study established that there were three prevailing attachment styles: secure, avoidant and ambivalent. Ainsworth's Strange Situation utilized a strange room, a stranger and the exit and or entrance of a primary caregiver. Essentially, the child's behavior was observed throughout a series of episodes in which the primary caregiver would enter and exit a room, leaving the child in the care of a stranger in the first episode, and then leaving the child alone in the strange room in the final episode. While the child's reaction to the absence of its primary caregiver was important, it was the child's reaction to the reentry of the primary caregiver that provided vital information about the child's attachment pattern (Davidson, 2005; Van Rosmalen, 2015).

Types of Attachment

The Strange Situation revealed three, organized, attachment styles: secure, avoidant and ambivalent/resistant. Children who demonstrated a secure attachment to their primary caregivers were easily soothed and calmed by the mother's presence upon reentry. Children with avoidant attachment patterns were slow to react to their primary caregiver's absence and slower to react to the primary caregiver at reunification. Children with an ambivalent/resistant attachment pattern showed disorganization throughout reunification, manifesting in physical confusion, such as arching their back and kicking at the parent when picked up to be soothed. They also demonstrated greater difficulty to be regulated, or calmed (Davidson, 2005; Van Rosmalen, 2015).

In each attachment style, the role of the caretaker differed. In a secure attachment style, the caretaker represented a safe haven, a place to explore from, and a place to return to for comfort and security (Van Rosmalen, 2015). In the secure attachment style, the child is reunified, experiences a brief calming episode, then returns to exploring their environment. The avoidant attachment style is characterized by children that appear as if the absence of their caregiver is not bothersome. However, physiological signs dispute this, such as elevated heart rates (van der Kolk, 2014). The avoidant attachment style encourages children to develop early independence, where the primary caregiver relationship is characterized by encouragement to explore but while the caregiver is less attuned with the needs of their children (Davidson, 2005; van der Kolk, 2014).

The ambivalent/resistant attachment pattern is characterized by a parent that is neither a secure base for their child's exploration, nor a parent that encourages exploration. These caregivers can be described as incompetent, angry or confused; children with these parents often demonstrate an exaggerated dependency on their caregiver, but do not know how to interact with the caregiver. These children have learned that exaggerated behaviors are the only way to elicit their caretaker's attention, and derive little comfort from their caregiver's return (van der Kolk, 2014).

Using Ainsworth's Strange Situation experiment, Mary Main discovered a fourth attachment style, disorganized attachment. The bulk of the children that experience childhood developmental trauma, exhibit a disorganized attachment style. These children are incapable of deciphering the best way to elicit the attention of their caretakers. In the disorganized attachment style, the caretakers are the source of distress for the children. Thus, the children are incapable of developing an attachment that elicits the safety and security that their caretaker should provide (van der Kolk, 2014). These children are confronted with an inescapable, and an unresolved, dilemma: their primary caregiver is both necessary for survival and terrifying to them (van der Kolk, 2014). Ultimately, the child is trapped, incapable of seeking comfort, they may try to avoid the parent, but then reach out for the parent, only to sit back down on the ground. Often, they will be frozen in a trance-like state, utterly shut down by their fear and need (van der Kolk, 2014).

Attachment styles provide the blueprint for later relationship patterns. While these are blueprints, it is important to note that they can be altered. These attachment patterns can be profoundly influenced by the role of just one loving, respectful and trusting relationship in the child's life. Educators that understand attachment theory can use it to develop trusting relationships with their students and can influence the attachment styles of children.

Trauma-Informed Interventions

The national focus on trauma has produced a significant number of resources for educators. Most of these resources focus on interventions that are trauma informed. According to the US Department of Health and Human Services and the Substance Abuse and Mental Health Services Administration, a trauma-informed intervention focuses on several elements. First, the intervention must recognize the pervasiveness of trauma and that there are multiple roads to recovery. Secondly, it must be able to identify the characteristics of trauma within the family, the individual and other areas of society. Third, interventions should incorporate

knowledge about trauma and recovery into the administrative duties of facilities and finally, any facility, person or school should avoid re-traumatization (“Trauma-informed,” 2018).

The first goal of any trauma-informed intervention is to create a safe space for children. To accomplish this, educators need to first be honest and transparent. Similar to poker players, educators have physical ‘tells’ to which traumatized children are uniquely attuned to, thus, educators need to be upfront with children. Educators need to be consistent with expectations and consequences, while also being reliable. Traumatized children have been exposed to insecure environments often the result of their unstable guardians, so creating an environment of security will help traumatized children become connected to educators. As the educator creates a secure environment, facilitated by an honest and transparent relationship, the educator will help the child feel safe. Safety is a key element to successful interventions. Without it traumatized children cannot begin to self-regulate and will continue to travel the arousal continuum. The educator faces a daunting task of rewiring the maladaptive associations that are the result of complex trauma; however, it is not an impossible task and an educator can be successful if they are capable of producing a feeling of safety and attachment with the student (Bath, 2008).

One of the more successful interventions in education is known as the Attachment, Self-Regulating and Competence (ARC) framework. ARC was developed by Margaret Blaustein and Kristine Kinniburgh to be a flexible framework that focuses on the needs of the traumatized child and the adults treating them. Because of its flexibility, ARC has been successful as a model for foster and adoption programs, residential placements and schools. ARC has a three component design that focuses on attachment, the student’s emotional regulation and the student’s competency in mastering self-regulation.

Imagine that the three components of ARC form a pyramid (see Figure 2), with attachment as it’s foundation and integration of traumatic experiences situated at the top of the pyramid. Without attachment, self-regulation, and competency, trauma integration cannot be achieved. It is through attachment that educators can build self-regulation and competency. The ARC framework breaks attachment down to three elements; the first is attunement, second routine and rituals, and the third is consistent responses. Attunement requires the educator to be able to read the body language of the student and tune into their own inner emotional language. When dealing with traumatized children, emotions run high and can be erratic for both the educator and the student. Therefore, it is imperative that educators check their emotions *before* responding to the student’s behavior. As discussed above, routine and rituals, as well as consistent responses are vital elements to a secure relationship with traumatized children (Blaustein, 2011; Hodgdon, 2013; Kinniburgh, 2012).

Self-Regulation is the next tier in the ARC framework and it includes the elements of self-identification, modulation, and affect expression to help the child manage their emotions. This tier represents a transition from focusing on the caregiver to focusing on pathways that the educator can use to help the child recognize and express their emotions. Because of the attachment, the child will buy into developing coping skills that will enable the child to recognize, express and modulate their emotions. This is a difficult process because many traumatized children do not have the vocabulary to express or identify their feelings, and modulation can only occur once these steps have been met. Here, the educator is tasked with assisting with identification of emotions, but also with vocabulary that supports expression. Traumatized

children have grown up in environments with explosive emotions. As a result, they have never been taught the steps of self-reflection, turning inward to review emotions and then expressing those emotions.

Finally, competency is the third tier of the ARC framework and it utilizes the self-regulation tier to help traumatized children express their trauma. Self-regulation is about identifying the child's emotions in the moment; competency enables the child to identify their past trauma and their emotions surrounding it. The traumatized individual re-enacts trauma in bits and pieces, with no identifiable beginning, middle or end (van der Kolk, 2014). Through the process of self-regulation and competency, the child is able to develop a narrative that helps them integrate their traumatic memories into a story with a clear beginning, middle and end (van der Kolk, 2014). Being able to identify their trauma, and develop appropriate vocabulary to express it, is vital to the integration process because the child develops ownership of their experience. Integration allows the child to end the trauma and once it has ended, it is no longer a frozen memory, stuck on repeat, that the child lives inside of; now that memory can transition from the present to the past.

Ideally, interventions should be shouldered by all of the child's caregivers. To be most effective, the child needs to experience the consistency and repetitiveness of the intervention principles throughout their daily lives for them to internalize the message of the intervention (Holmes, 2015). However, for the educator, the ARC framework is flexible enough to provide a guide for teaching traumatized children. Ultimately, all good educators know that they should be striving for relationships with all of their students, but excellent teachers are already intuitively employing these attachment strategies for the betterment of their students.

Conclusion

Brain research continues to reveal new information, but what we have learned is that movement enhances learning and memory, that the brain can rewire itself and, perhaps the most profound, that emotions have a great impact on learning (Sousa, 2010). Research into trauma continues to yield greater information about the way emotions and trauma interact, and we are finding that trauma is a hidden epidemic that reaches children in every socio-economic sphere. Because educators interact with children for greater periods of time than any other adult in children's lives, with the exception of parents and guardians, educators are in a unique place to have a profound impact on trauma intervention. To do this, teachers need the right tools and a greater knowledge about developmental trauma disorder and trauma-informed interventions. ARC also lends itself well to the educational system because it utilizes tools that are already in place. Its emphasis on attachment is in alignment with practices that exceptional teachers already employ, making it adaptable to many classrooms. Ultimately, ARC is a useful guide for teachers that are searching for ways to reach their most recalcitrant students. However, what remains essential to the dynamics of trauma and education, is that educators demonstrate greater empathy for those students that have been traumatized and exercise that empathy within trusting and honest relationships.

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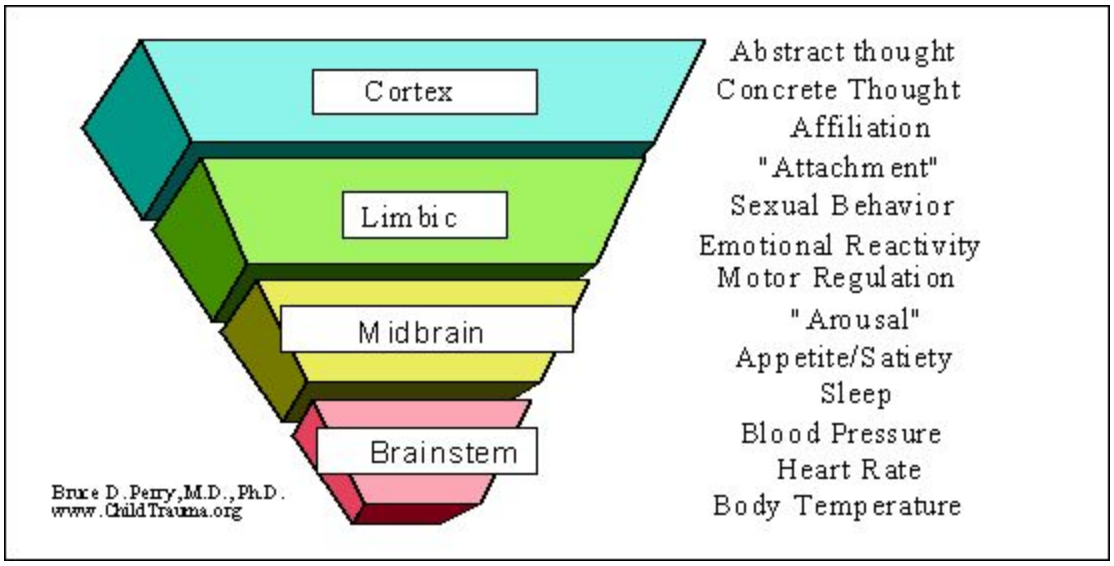
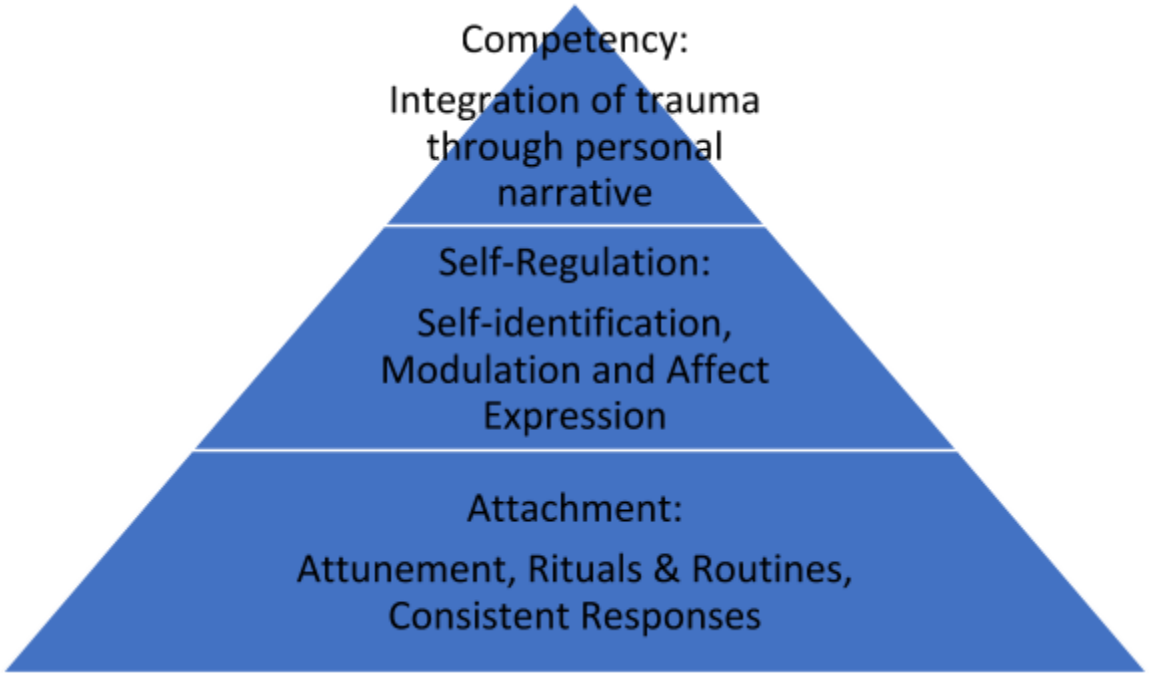
Figure 1:



(Hahn, 2015)

Figure 2: ARC Framework



(Kinniburgh, 2012)