TRAUMA INFORMED PRACTICES AT THE MIDDLE SCHOOL LEVEL

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ABSTRACT

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Adverse Childhood Experiences (ACEs) and childhood trauma have been found to affect almost two thirds of the American population, including students enrolled in our public schools. This project was designed to create and implement a professional development workshop that provided a clear and concise description of ACEs, how exposure to ACEs and trauma affects the development of the brain, and how this exposure can impact a student's behavior in and outside the classroom. The second focus of the presentation discussed trauma-informed classroom strategies to mitigate these behaviors.

This project began by pre-surveying the staff to determine what they knew about ACEs and trauma-informed classroom practices. Using these data, a presentation was created and implemented at a staff development workshop. In order to determine the effectiveness of this training the participants were given a post-training ¨exit ticket¨ survey. The post-training survey found that the majority of participants found both sections of the training to be useful although learning about trauma-informed strategies were most appreciated. The conclusion drawn from this project is that educators want to learn more about ACEs, benefit from learning about how brain development is impacted by trauma exposure, and are very interested in strategies that will help them mitigate the behaviors of students who are exposed to trauma both in and outside of the classroom.

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INTRODUCTION

Background

The study of the long-term impacts of childhood traumatic experiences is relatively new. We have long known of Post-Traumatic Stress Disorder (PTSD) in soldiers, though we may have called it shell shock or battle fatigue. However, the history of effective treatment for PTSD is relatively recent, with PTSD only being included in the Diagnostic and Statistical Manual (DSM) in 1980.

War is obviously a very traumatic experience; but what about day-to-day traumatic experiences? How do those affect individuals? How can we mitigate those effects? These are the types of questions raised by the groundbreaking research of Dr. Vincent Felliti et al. in their landmark Adverse Childhood Experiences (ACEs) study. This study was the first to correlate ACEs with negative physical and mental health outcomes for individuals. Since its publication in 1998, there has been a considerable interest in this field from a wide variety of different organizations and perspectives from neurobiology to public health to psychology to child development.

One area that is more immediately and directly impacted by the implications of this field of study is public education. Knowledge and understanding of ACEs and trauma has been making its way into the field of education for some time but it has been gaining increasing momentum in recent years. The result of this new understanding is

that schools and districts are trying to educate staff about how to best work with students who have been affected by trauma and how to mitigate the effect of these experiences.

In order to develop a clear understanding of the scope of the problem the State of California commissioned a phone survey of the entire state in December of 2014. The responses showed that 75.1 % of Humboldt County respondents had experienced at least one Adverse Childhood experience. This is significantly above the state average of 63%. Humboldt county respondents also experienced four or more ACEs at a rate of 30.8%, which is almost, double the state average of 16%.

Problem Statement

There is a very high percentage of people in Humboldt County who have experienced ACEs. Statistically, this means that many of the students that school staff interact with on a daily basis are affected by ACEs and trauma. Currently, there is no trauma informed practice training happening regularly for teachers at Pseudonym Middle School.

Research questions

1. Do staff understand the correlation between ACEs, trauma and student behavior?
2. Are staff familiar with how childhood trauma affects brain development?
3. Are staff receptive to training on de-escalation strategies relevant to behaviors exhibited by individuals who have experienced trauma or ACEs?

Definition of terms

Trauma: deeply distressing or disturbing experience

Adverse Childhood Experiences (ACEs): potentially traumatic events that can have negative, lasting effects on health and well-being. Typically falls into the categories of abuse (mental, physical, sexual), neglect (physical, emotional), and household dysfunction.

Phases of escalation: A 7-stage model that describes student behavior from Stage One: calm, through Stage Two: trigger, Stage Three: agitation, Stage Four: acceleration, Stage Five: peak (crisis), Stage Six: de-escalation, Stage Seven: recovery.

Significance

This project is significant to the field of education because it addresses an underlying issue affecting all schools and districts. Close to two-thirds of California's students experience Adverse Childhood experiences and they bring that trauma with them to school. This project is important to Humboldt County because there is a significantly higher rate of ACEs and trauma in Humboldt County when compared to the rest of the state of California. This project is significant to Pseudonym Middle School because it addresses a gap in the staff training action plan. There has been no trauma informed practice training at Pseudonym Middle School this year.

Organization

This project will be organized in the following way. Chapter One is the introduction. It contains the background, the problem statement and the research questions. Chapter One also defines some of the terms that will be used as well as addressing the significance of this project. Chapter Two is the literature review. It delves into the existing research and other work regarding ACEs, trauma and brain development. The literature review also examines the current state of professional development. Chapter Three will discuss the methods used in this project and will include an explanation as to why these were the best practices to use. Chapter Four is the conclusion. In this final chapter, the discussion evaluates the impact of the training and its implications for further use and refinement.

LITERATURE REVIEW

Introduction

Adverse childhood experiences, defined as "potentially traumatic (deeply distressing or disturbing) events that can have negative, lasting effects on health and well-being" (Sacks, Murphey, & Moore, 2014, p.1) impact a surprising majority of people (Felitti et al., 1998). There has been increased awareness and understanding in relation to how adverse childhood experiences (ACEs), trauma, and toxic stress affect the neurological pathways of the brain (Koita, Long, Hessler, Benson, Daley, Bucci, Thakur, & Harris, 2018). Children who experience ACE events in their lives reinforce specific neural pathways and behaviors that differ, often greatly, from their less effected peers (Hertz, Jones, Barrios, David, & Holt, 2015). This leads to a need for adults who interact with these youth regularly in the school setting to be trained in how to manage these behaviors to minimize the physical, emotional, and social impact of these behaviors on the learning environment.

This need is compounded by the fact that the staff members may have been exposed to ACEs as well and need to be trained in how to minimize the effects of their own trauma (Schaefer, 2019). While Mortensen and Barnett (2016) say there is more research needed to determine the role of teachers in the emotional education of youth who have experienced ACEs, it is clear that whatever role teachers have it will be a prominent one. This is being realized in teacher training programs. Tilos (2019)

describes a creative solution to deal with the teacher shortage, specifically including a generic trauma-informed training to deal with student mental health challenges. Another approach is a specific psychological first aid approach espoused by Field, Wehrman, and Yoo (2017). As with any emerging field, the adoption and implementation can be slow to progress.

This review of the relevant literature will begin by focusing on Adverse Childhood Experiences (ACEs) starting with the definition and the original research by Dr. Felitti and his collaborators. From there it will move on to subsequent research about ACEs, specifically research that is pertinent to the educational setting. This review will further explore trauma and its effects on the developing brain, including research on both the physical structures of the brain as well as the behaviors that are associated with those structures and how those behaviors can be affected by the exposure to trauma while the brain is still developing. The focus will then shift to professional development about ACEs and trauma in the field of education, including a brief look at the history of professional development for teachers and other school staff. This review will close with a summary of the current best practices in educational professional development and an examination of how training related to ACEs and trauma has been delivered.

Adverse Childhood Experiences

Adverse Childhood Experiences (ACEs) are detailed by Felitti et al. (1998) in their landmark study: *Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults*. This study was done in partnership with

the Centers for Disease Control and Prevention and was the first study of its kind to find the correlation between the experiences a person has in their childhood and their health as an adult.

> The original ACE study was conducted at Kaiser Permanente from 1995 to 1997 with two waves of data collection. Over 17,000 health maintenance organization members from southern California receiving physical exams completed confidential surveys regarding their childhood experiences and current health status and behaviors ("About the CDC-Kaiser ACE Study, 2019).

Respondents were asked a battery of questions regarding their overall health and family history within seven different categories of adverse child-hood experiences. These categories included sexual, physical and psychological abuse and neglect of the respondent, and violence against the respondent's mother. The other three categories related to the respondents living situation during childhood. These include living with someone who was mentally ill or suicidal, someone who abused substances, both legal and illegal, or having a member of the household incarcerated (Felitti et al., 1998). These nearly 70 question surveys have been distilled down to 10 questions that relate to the seven categories of adverse childhood experiences. An example is included in Appendix A.

Some notable findings include that approximately 66% of respondents reported at least one ACE, roughly 40% reported two or more, and 12.5% reported four or more ACEs, making adverse childhood experiences far from uncommon in our modern culture

(Felitti et al., 1998). The likelihood of future health complications increased with each additional ACE, with those reporting four or more to have the greatest potential health challenges. The results of the original ACE study also found that, when compared to people who experienced zero ACEs, people with four or more ACEs were 12 times more likely to attempt suicide, 10 times more likely to have used intravenous street drugs, seven times more likely to become an alcoholic, and twice as likely to use tobacco (Felitti et al., 1998).

Many of these risk-taking behaviors begin to manifest during adolescence (Garrido, Weiler, Taussig, 2018). Of specific interest to educators are the findings of Shilling, Aseltine and Gore (2007) who found that ACEs strongly relate to depressive symptoms, antisocial behavior and drug use in older adolescents, with antisocial behavior more present in the male gender than the female with similar ACEs. Another interesting finding from that study related to race and ethnicity, "Where racial/ethnic differences existed, the adverse mental health impact of ACEs on Whites was consistently greater than on Blacks and Hispanics" (Shilling, Aseltine, & Gore, 2007, p 2). Unfortunately, Shilling, Aseltine, and Gore did not design their study to investigate the impact of these differences.

Depressive symptoms, antisocial behavior, and the effects of drug use are of interest to educators because they affect how a student behaves in the classroom. This in turn affects how the staff reacts to the student. A teacher's reaction can either deter the student from continuing their behavior or it can drive them to increase the frequency of the behavior. When a school staff is collectively and adequately trained in how to

respond to students exhibiting this type of behavior, the frequency of the behavior will decrease (McInerney & McKlindon, 2014).

Trauma

Many of these ACEs can be considered traumatic events. The Felitti et al. (1998) study was published in the American Journal of Preventative Medicine, as the initial correlations had to do with the relationship between adverse childhood experiences and the leading causes of death in adults. Since this groundbreaking study, 134 articles have been published many using the original findings and others using the surveys as a basis of new research (Zarse, Neff, Yoder, Hulvershorn, Chambers, & Chambers, 2019). Whitfield (1998) considered the findings of Felitti et al. (1998) through the lens of a trauma specialist and explains that most trauma specialists focus on the physical trauma, which is more easily diagnosed and healed. ACEs, on the other hand, fall into the category of psychological trauma, presenting not entirely unlike the psychological trauma experienced by combat veterans. Whitfield (1998) goes on to say that similar to the trauma affecting combat veterans, the trauma affecting those who have experienced adverse childhood experiences will continue to impact their lives until the trauma has been processed.

One of the forms that trauma takes is toxic stress. Stress is a physiological response known as the hypothalamic-pituitary-adrenal (HPA) response and is a normal, healthy response to a perceived threat. This is a release of cortisol and other compounds in the brain that “is associated with an increase in alerting and vigilance behaviors,

critical for coping with acute threat" (Bremner, 2006, p.2). Physiological responses measureable in the body when this response is triggered include an increase in the respiration, a rise in the heart rate, a surge in the blood pressure, and an overall higher rate of oxygen consumption (Franke, 2014). Another term for this response was coined by Hans Selye in his 1950 study *Stress and the General Adaptation Syndrome* published in the British Medical Journal. Selye (1950) was the first researcher to document this phenomenon, which he called the general adaptation syndrome (GAS) and he went into detail describing the three stages of alarm, resistance, and exhaustion. Selye's work was groundbreaking at the time and is foundational to the field of stress research. In fact, Selye was nominated for the Nobel Prize in Physiology or Medicine seventeen times between 1949 and 1953, particularly for the GAS and his formulation of stress reactions (Jackson, 2014). The most common term is the "fight or flight" response; however, that only really covers the alarm stage when heart rate, breathing, and blood pressure sees a significant increase (Franke, 2014). These increases can strain or damage the tissues of the body so during the resistance stage the body begins to repair itself. If the stress is not resolved and becomes prolonged or chronic the body will enter the exhaustion stage, which is expressed through anxiety, depression, fatigue and/or burnout (Godoy, Rossignoli, Delfino-Pereira, Garcia-Cairasco, & de Lima Umeoka, 2018).

Stress, the physiological response, can take three forms: positive, tolerable, and toxic (Franke, 2014). Positive stress, which is occasional, mild and brief, is a normal part of day-to-day life especially in children and include events like learning something new or meeting a new person. Positive stress is easily overcome with parental reassurance

and protection (Franke, 2014). Tolerable stress is more severe, more frequent, and might be ongoing. There are events that have a larger impact on the child, for example a parental separation or the death of a loved one. If the individual has strong social and emotional support the body will repair itself and the event will be surmounted (Franke, 2014). "Toxic stress results in prolonged activation of the stress response, with a failure of the body to recover fully" (Franke, 2014, p. 2). Examples of toxic stress include: abuse, neglect, violence, and household dysfunction. When an individual experiences one or more of these events without adequate support, the stress can become toxic and traumatic.

Trauma and the brain

Trauma that begins in childhood can have an impact on brain development. The majority of the brain develops before the baby is born, which is why most medical professionals encourage women to limit their intake of certain substances during pregnancy (Ross, Graham, Money, & Stanwood, 2015). Brain development continues heavily for the first five years of the child's life with the grey matter, composed primarily of neuronal cell bodies, and the white matter, composed primarily of myelinated axons, in the brain expanding evenly (Bremner, 2006). The neuron is the basic working unit of the nervous system; the axon is the part of the neuronal cell that transmits the electrical signals that are the way that neurons communicate (brainfacts.org, 2012). The axon is then coated in a lipid layer called myelin during a process called myelination (Nave & Werner, 2014). Myelination happens continually in the brain, but there is a significant increase in myelination between the ages of seven and seventeen (Paus et al., 1999). According to

Paus et al, myelination is thought to play a role in the cognitive development of children and adolescents. This is corroborated by Chevalier et al. (2015) who found that, "Myelinated white matter plays a central role in brain messaging, and likely mediates processing speed" (p. 1). The function of the myelin is to speed up the transmission of the electrical impulses as they traverse the axon (Stadelmann, Timmler, Barrantes-Freer, & Simons, 2019). This is especially relevant to people who have experienced trauma due to the way myelination occurs in regularly used neural pathways.

> Neural pathways activated in response to frequent environmental stimuli are strengthened over time. Frequent, strong, or prolonged stress responses early in life are thus able to "set" a relatively lower threshold for future stress responses and to promote a high degree of stress reactivity (Garner, 2013, p. 3).

This means that through the process of myelination, the commonly used neuronal pathways get additional myelination in order to speed up the transmission of common neuronal signals (Perry, Pollard, Blakley, Baker, & Vigilante, 1995). Not only does myelination happen at an increased rate but three major brain structures have times of peak development during childhood and adolescents, the hippocampus (McInerney & McKlindon, 2014), the amygdala (Pechtel, Lyons-Ruth, Anderson, & Teicher, 2014), and the prefrontal cortex (McInerney & McKlindon, 2014). During these times of peak development, these structures are particularly vulnerable to the effects of traumatic stress.

The hippocampus. During the first five years of life, one developing structure in particular is the hippocampus (McInerney & McKlindon, 2014). The function of the

hippocampus is in the creation and retention of memories (Rubin, Watson, Duff, & Cohen, 2014). However, there is mounting evidence that the hippocampus does so much more than that. According to Rubin, Watson, Duff, and Cohen (2014),

> The hippocampus plays a critical role in flexibly representing information important for many aspects of cognition and social behavior. The hippocampus supports the ability to bind and flexibly represent discrete elements of an experience and, through its interconnections with other neural systems, permits the expression of flexible and adaptive behavior (p. 11).

During the years of early childhood, specifically the ages of zero to five, the hippocampus goes through significant development. When this normal pattern of development is interrupted, either by abnormalities occurring naturally or by traumatic events, serious neurological complications can develop. In individuals who have been diagnosed with Post Traumatic Stress Disorder (PTSD), the overall volume of the hippocampus is significantly smaller than in individuals who have been exposed to trauma but have not developed PTSD (Karl, Schaefer, Malta, Dörfel, Rohleder, & Werner, 2006). Those individuals who were exposed to trauma and not developed PTSD had significantly less hippocampal volume than those who were not exposed to trauma at all (Woon, Sood, & Hedges, 2010). "A significant negative correlation was found between re-experiencing symptoms and hippocampal volume in the PTSD group" (Lindauer, et al., 2004, p. 1). This means that those who have been exposed to trauma have a decreased hippocampus resulting in a higher likelihood to re-experience the

trauma either in the form of troubling recollections, flashbacks or nightmares (DSM V, 2014). In the context of school with many students who are not receiving mental health care (Walley, Grothaus, & Craigen, 2009)., there is no significant symptomatic difference between a student who has experienced severe bullying and one who is diagnosed with PTSD (Ossa, Pietrowsky, Bering, & Kaess, 2019). Individuals who experience intrusive memories, a symptom of PTSD as a result of the smaller hippocampus, are more likely to have that symptom occur after negative stimuli, with the probability increasing if the individual was stressed at the time (Bryant, McGrath, & Felmingham, 2013). An example of this could be a commonly occurring incident such as a student having a disagreement with another student and then being redirected by a staff member.

The amygdala. The amygdala is another brain structure that experiences significant development during early life. Like all brain structures the amygdala experiences significant growth in the years immediately following birth. This growth continues until reaching a peak level of growth and development between the ages of nine and eleven (Pechtel, Lyons-Ruth, Anderson, & Teicher, 2014). The amygdala plays a significant role in the processing of social interaction. These might be overtly social interactions, such as interpreting facial expressions (Pagliaccio, et al, 2013), or they can be less obviously social, such as objects moving with intention relative to one another (Skuse, Morris, & Lawrence, 2003). However, the amygdala's most critical role is in emotional processing and reactivity (Sergerie, Chochol, & Armony, 2008), specifically processing and reacting to fear-based emotions as detailed by Adolphs, Tranel, Damasio, and Damasio in their 1995 study entitled *Fear and the human amygdala*. Their findings

were corroborated by LeDoux in his 2003 study *The emotional brain, fear, and the amygdala*. During the peak time of development, between the ages of nine and eleven, the amygdala is particularly sensitive to disruption by exposure to traumatic external stimuli (Pechtel, Lyons-Ruth, Anderson, & Teicher, 2014).

When traumatic exposure occurs, the brain shows weakened connectivity between the amygdala and other brain structures. This can be seen in the uneven development of the amygdala. Subjects who had experienced ACEs saw decreased growth of the left side of the amygdala (Whittle, et al., 2013), which is associated with processing positive stimuli, but had significantly more growth in the right side of the amygdala, which is associated with processing negative stimuli (Pechtel, Lyons-Ruth, Anderson, & Teicher, 2014). These weakened connections are typically associated with internalizing disorders such as depression and anxiety including PTSD (Pagliaccio, et al., 2015). Furthermore, in those whose amygdala has been exposed to trauma, there is a hypervigilance toward fearful faces and exaggerated sensitivity to emotion (Wang, et al., 2017).

The prefrontal cortex. Another major change in the brain that occurs between the ages of seven and seventeen is in the area of the prefrontal cortex, which undergoes a significant increase in development (McInerney & McKlindon, 2014). The prefrontal cortex has many significant roles in the brain, three of which are noteworthy to student behavior in the classroom. The first of these is it role in retrieving memories, followed by its regulation of spontaneous speech, narrative expression and verbal fluency. The third and possibly the most significant role of the prefrontal cortex, is in what are termed

executive functions (Siddiqui, Chatterjee, Kumar, Siddiqui, & Goyal, 2008). Executive functions are a widely varied category of critical abilities including:

> the ability to initiate and carry out new and goal-directed patterns of behavior, sustained attention, motor attention, short-term memory tasks, inhibitory control of interference, … working memory, stimulus detection and sequencing tasks, planning, … flexibility, delayed responding, and active problem solving" (Siddiqui et al., 2008, p. 4).

Another critical role of the prefrontal cortex's executive function is emotional regulation and impulse control, specifically those emotional reactions and impulses arising from the amygdala and hippocampus (Gardner, 2013).

When the development of the prefrontal cortex is impacted by trauma, either physical or emotional, it can have significant effects. One form of traumatic chronic, or toxic, stress experienced by individuals is having a perceived low social status. Neuroimaging studies have shown that individuals who perceive themselves to have low social standing can also be seen to have reduced gray matter in the prefrontal cortex (Gianaros, Horenstein, Cohen, Matthews, Brown, Flory, Critchley, Manuck, & Hariri, 2007). Other studies show that there is a decreased level of neuronal complexity and a loss of synaptic connections in the prefrontal cortex as a result of exposure to repeated stress (McEwan & Gianaros, 2010, 2011). One result of this repeated stress is that those who experience it show a distinct bias in their decision making process. They come to favor habit-based behaviors over goal-oriented actions (Dias-Ferreira, Sousa, Melo, Morgado, Mesquita, Cerqueira, Costa, Sousa, 2009). This means that when subjected to

chronic or toxic stress, subjects were shown to make decisions in favor of familiar behaviors regardless of whether or not the behavior would result in a desirable outcome. During the course of the study, it was not apparent that the subjects who experienced chronic or toxic stress were able to determine what behaviors would generate the desirable outcome (Soares, Sampaio, Ferreira, Santos, Marques, Palha, Cerqueira, & Sousa, 2012).

Another result of this atrophy of the prefrontal cortex is a disruption in the circadian rhythm (McEwan, 2013). Chronic disruption of the circadian rhythm has been linked to a reduction in the neurons that are influential for cognitive flexibility, attention and other executive functions (Karatsoreos, Bhagat, Bloss, Morrison, & McEwen, 2011). Additionally, circadian rhythm disruption is also experimentally linked to increased depressive symptoms as well as, though not as strongly linked to, manic symptoms (Karatsoreos, 2014). Now that the effects of exposure to trauma have been established, this review will turn to how school staff have been trained, focusing especially on how staff have been trained mitigate the effects of trauma when interacting with students who have been exposed to trauma.

Professional Development

Professional development for teachers is defined as "Learning opportunities for individuals to develop new knowledge and skills such as in-service education, conference attendance, intra- and inter-institutional visits, fellowships, collegial work, and work in P–12 schools" by the California Commission on Teacher Credentialing in the glossary of

the California standards for the teaching profession adopted in 2008 ("Common Standards Teacher Prep", 2008). By that definition, professional development can take a wide variety of forms, however historically many were delivered as a series of short, often unrelated, workshops on topics selected by the administration with little to no teacher input into their own development (National center for education statistics, 2006). During the 1990s and the early 2000s, there was a growing certainty that this one-shot method was not as successful as originally believed (Little, 1993).

This stand-alone workshop method had gained popularity because it allowed administrators to bring in experts to work with their staff, thus ensuring the highest quality training (Rebora, 2004). Unfortunately, this proved to not be the case, as a majority of teachers indicated that they found such trainings lacking (Garcia & Weiss, 2019). Beyond the self-reporting of teachers, which was the primary form of evaluation until the 1990s (Hill, Beisiegel & Jacob, 2013), researchers Hawley and Valli (2001) found that professional development should: 1) reflect student and teacher needs; 2) be part of an overall plan for change; 3) involve teachers in planning and developing opportunities; 4) promote collaboration at the school level; 5) be evaluated for its impact on teaching practice and student learning.

The stand-alone workshop can achieve all of these things but most commonly, it does not. In fact, the stand-alone workshop was found to be lacking so often that the No Child Left Behind Act of 2001 specifically requires that all professional development funded through the No Child Left Behind Act include activities that are not stand-alone workshops or conferences. However, this does not mean that districts have chosen to

forgo the stand-alone workshop as a method for delivering professional development (Rebora, 2004). The stand-alone workshop is still a method for delivering professional development in modern education, though it is no longer as prevalent as it once was owing to newer, more effective methods of delivering professional development (Wei, Darling-Hammond, Andree, Richardson, Orphanos, 2009).

Effective professional development has been shown by researchers Darling-Hammond, Hyler, & Gardner (2017), to have seven common features. It:

1. Is content focused
2. Incorporates active learning utilizing adult learning theory
3. Supports collaboration, typically in job-embedded contexts
4. Uses models and modeling of effective practice
5. Provides coaching and expert support
6. Offers opportunities for feedback and reflection
7. Is of sustained duration (p. 14)

Four out of the seven features have to do with ongoing professional development instead of stand-alone workshops. This is one of the more important aspects of effective professional development; it happens over time with sufficient time for collaboration, feedback, and reflection (Tallman, 2019).

There are a variety of models that districts use to ensure that professional development is delivered in a long-term, collaborative manner. One such method is referred to as professional learning communities, inquiry teams, and learning teams (Tallman, 2019). These teams all share the same characteristics of meeting regularly to

discuss their practice and ways to improve their teaching practice (Mizell, 2010). A common practice is to pair their collaborative work with outside observation by a specialist in the area that they are seeking to improve (Maldonado & Victoreen, 2002). This feedback has been demonstrated to be an effective form of coaching as studied by the senior research scientist for the Collaborative for Academic, Social, and Emotional Learning (CASEL) (Dusenbury, 2012) and by the Office of Planning Research and Evaluation of the United States Department of Health and Human Services (Lloyd, & Modlin, 2012).

These collaborative, reflective, ongoing, coached professional developments have been made even more effective when they incorporated Active Learning in a job-embedded setting (Stewart, 2014). Active Learning (AL) means that the learners experience is respected and valued, much like the instructor's expertise, and the learners take an active role in determining the direction that the learning will go (Beavers, 2009). Job embedded means that, "a direct connection between a teacher's work in the classroom and the professional development the teacher receives" (Croft, Coggshall, Dolan, Powers, & Killion, 2010, p. 1). In order for teachers to see value, and therefore internalize, the professional development they receive, the training must be something that is applicable in their daily practice (Althauser, 2015). All of these attributes of effective professional development are applicable to trauma-informed professional development and are arguably more important when it comes to training regarding events that are beyond the teachers control and that happened in the past and/or outside of school.

Trauma-informed professional development is relatively new. It arose partially in response to the original ACEs study led by Dr. Felitti in 1998 (Thomas, Crosby, & Vanderhaar 2019), which, in turn, influenced the creation of Cognitive Behavioral Intervention for Trauma in Schools (cbitsprogram.org). According to Thomas, Crosby and Vanderhaar, there were 215 empirical studies regarding the results of trauma-informed interventions in the school setting published between 1998, when Felitti published the initial ACEs study, and 2018 when Thomas, Crosby and Vanderhaar published. The purpose of Thomas, Crosby and Vandehaar's (2018) study was to determine the effectiveness of the trauma-informed practices that are being implemented in the school setting.

Thomas, Crosby, and Vandehaar considered a wide variety of professional development methods. One of their primary findings was that more research, particularly rigorous, evidence-based research, needs to be done on the effectiveness of the trauma-informed approaches that are being implemented in schools (Thomas, Crosby, & Vandehaar 2018). These findings were corroborated by Maynard, Farina, Dell & Kelly (2017) who conducted a systematic review of studies of trauma informed practices from 2007 to 2017. They found that none of the studies they reviewed were able to meet the criteria of randomized controlled trials or quasi-experimental design. This means the conclusions of those studies that were reviewed are not definitive due to the lack of rigor in the research (Maynard, Farina, Dell, & Kelly 2017). The Department of Health and Human Services (2019) also found this to be the case; all three of these studies additionally found that there were a variety of approaches that are being taken and it is

likely there will be multiple approaches found to be quite effective once more rigorous research is done. Two promising practices include the implementation of universal strategies and an understanding of effective communication at different stages of escalation. Universal strategies include things such as establishing and teaching expectations and creating predictable routines (Kaser, 2007). Students who have experienced trauma may be more susceptible to emotional escalation so it is important to be able to recognize the phases of escalation, such as triggers or acceleration, and respond accordingly in a manner that is consciously designed to minimize escalation and to defuse the situation (Rader, 2015).

Trauma-informed professional development is essential because students bring their traumatic experiences to school with them (SAMHSA, 2014). Teachers and other school staff who interact with students are human and are dealing with their own ACEs and other traumatic experiences. These members of staff need to be trained to respond to students in a manner that does not escalate or re-traumatize either party (Blodget & Dorado, 2016). Unfortunately, due to the varying requirements to receive a teaching credential, teacher shortages, and other structural challenges, staff are often not trained in trauma-informed practices (State, Simonsen, Hirn, & Wills, 2019).

Conclusion

There are several key conclusions reached through this literature review. This review began with the ACEs study conducted by Dr. Felitti in 1998 that demonstrated that ACEs are prevalent in society, in fact, there is no demographic that is not impacted

by ACEs. Some groups are impacted more, and some groups are impacted less, but all groups are impacted by ACEs. ACEs are an indicator of possible chronic or toxic stress. Toxic stress effects on the brain are particularly pronounced when the brain is undergoing significant growth and change such as in childhood and adolescence. Three brain structures are particularly vulnerable to traumatic stress: the hippocampus, the amygdala, and the prefrontal cortex. These structures govern the "fight or flight" reflex, emotional regulation, and executive functions. When they are impacted by traumatic stress these structures can atrophy which can negatively affect outcomes for the individual.

With the understanding of how the brain is impacted by traumatic stress, this review examined into professional development in the field of education, the transition from stand-alone workshops to ongoing collaborative, coached professional learning and how this change was informed by the study of adult learning. Finally, this review examined the emerging field of professional development for trauma-informed practices. With ACEs and traumatic stress so prevalent in society, the literature indicates that many approaches are being taken to provide professional development in this area. At this point, however, there is a dearth of rigorous studies using randomized control trials or quasi-experimental design. Without these definitive studies to demonstrate the most effective approach to implementing trauma-informed practices in schools, it is likely that the field of trauma-informed practices will continue to be fragmented. As these studies accumulate, it is possible that specific approaches to trauma-informed practices will rise on their own merits, much like the rise of multi-tiered systems of supports, which rose to prominence due to the accretion of studies demonstrating its effectiveness.

METHODS

Introduction

The goal of this project was to increase the participants´ knowledge of Adverse Childhood Experiences (ACEs) and childhood trauma through a professional development presentation. This project was conducted at a middle school in northern California. The participants were members of the certificated staff of the middle school. This project was submitted to the Institutional Review Board at Humboldt State University on March 5th, 2020 and was approved as exempt on March 12th, 2020.

The first step in this project was to outline a professional development workshop based on what had been learned through the literature review. Next, the staff were surveyed to determine their level of familiarity with the content. Once these data were collected, the training presentation was fine-tuned based on this information. The professional development was then presented to the participants at a school-wide workshop. After the presentation, participants completed a brief ¨exit ticket¨ post survey and the results were evaluated.

Participants

The participants were the certificated staff of Pseudonym Middle school in northern California. Faculty members included 30 teachers evenly divided across grades six, seven, and eight. Approximately two thirds of the teachers were female and one third were male. The majority of staff had been professional educators for less than five years

or greater than ten. These teachers regularly interact with students who, according to statistics, live in an area where many individuals have experienced ACEs and childhood trauma.

Alignment to Literature Review

The structure of the training closely followed the structure of the literature review. Andragogy and pedagogy both indicate the effectiveness of activating prior knowledge before presenting new information. The presentation, therefore, began by reviewing what the participants understood about the significance and the impact of this issue on our local schools.

Research into professional development indicates that participants who have a deeper understanding of why something happens are more likely to retain the information and be able to act upon it (Darling-Hammond, Hyler, & Gardner, 2017). Based on this reasoning the training provided in-depth information on brain development, trauma, toxic stress, and the effects of trauma on the amygdala, the hippocampus and the prefrontal cortex.

Another essential aspect of professional development is the importance of any professional development being useful. The information needs to be applicable in the day-to-day execution of the participants work (Althauser, 2015). This is especially true for the field of education. With that in mind, the third and final section of the training includes strategies that teachers and other classroom staff can use to mitigate disruptive behaviors exhibited by students who are affected by exposure to trauma. This was

further broken down into universal strategies, and strategies to consider at each phase of escalation.

With the basic structure of the training outlined and the fundamental concepts prepared, the extent of the participants´ prior knowledge needed to be determined. It was important that the training activate the participants´ prior knowledge, but it was even more important that the training leverage that knowledge. If the entire training were to be perceived as a review, it would not be as well received as if it provided new and usable information. The use of a pre-training survey was utilized for determining the teachers´ prior knowledge and current understanding of the target concepts.

Pre-Survey

For this project, I used a researcher created survey instrument to collect quantitative data to inform the creation of the training presentation. This survey was given a face validity check by two professionals in the field.

Description of the pre-survey instrument.

The survey instrument is included in Appendix B. The instrument consists of four sets of questions. The first question asks about what percent of students in Humboldt County have experienced ACEs or trauma. This question was included to establish a baseline of the perception of how deeply our area is impacted. The second set of questions used a 5-point semantic differential scale going from ¨not a factor¨, through ¨about 50%¨, to ¨the greatest factor.¨ These questions focused on the extent that participants believed that exposure to trauma was a factor in student behavior including (1) students ability to

regulate their behavior and emotions; (2) that physical changes in the brain impact behavior; (3) to what extent the respondents believed that trauma was a more influential factor than other causes of student off-task behavior. The purpose of this question set was to determine what information would need to be included in the presentation of the training and what information could be left out. The third set of questions were answered on a 4-point semantic differential scale that went from ¨disagree¨ to ¨somewhat disagree¨ to ¨somewhat agree¨ to ¨agree.¨ Questions in this set included to what extent the respondents agree that (1) trauma has little effect on student behavior; (2) exposure to trauma increased volatile behavior; (3) exposure to trauma increased withdrawal behavior; (4) exposure to trauma makes it harder for students to retain information; (5) exposure to trauma makes students less cooperative; and (6) exposure to trauma reduced motivation. This series of questions was designed to clarify what respondents already knew and how they felt about that information in order to revise the presentation to site specific needs. The fourth question asked how long the respondent had been in the field of education. This question had four options, ¨0-2 years¨, ¨3-5 years¨, ¨5-10 years¨ and ¨10+years¨. This question was included to help determine if there was a difference due to experience. For example, do the less experienced teachers or the more experienced teachers know more about the effects of ACEs and trauma on student behavior.

Pre-survey administration**.**

A digital survey using Google Forms was sent to the certificated staff at the middle school prior to the professional development workshop. The survey was sent out to the participants three days prior to the training via an email asking for their participation.

Two additional email reminders were sent throughout the day. Once the data was collected, preparations for the presentation were completed and materials and talking points were finalized.

Results of pre-survey.

There were a total of 14 responses which is approximately half of the attendants of the training. The survey showed that half of respondents thought that the residents of Humboldt County were at or below the state average of 60% while the next largest group of answers (35.7%) accurately answered that the Humboldt County average was between 60% and 80%. There were two outlier groups, one that significantly underestimated the percent of people in Humboldt county that were impacted by ACEs and one that overestimated the percent of the population that was impacted. This demonstrated that the majority of respondents were aware of ACEs and trauma and how it impacted the students that they work with and therefore the training did not need to spend a great deal of time demonstrating that this is an issue that the staff are going to be affected by and need to take seriously.

The next two questions dealt with the extent of belief that trauma was a factor in student self-regulation. The respondents overwhelmingly indicated that they believed trauma was a major factor in students´ self-regulation. This response meant that there was no need to extensively cover this topic during the training. Another question in this section was regarding whether trauma was a greater factor than other causes for student misbehavior. There was less agreement on this topic but the majority (57% of respondents) believed that it was a major factor meaning this was an area that the training

needed to address, but not to a great extent. The last question in the section asked the respondents about how changes in the physical structure of the brain due to trauma impacted student behavior. The responses to this question were the most widely varied on the entire survey with some respondents believing that there was no impact on student behavior due to trauma impacted brain development, up through those who believed that it was the greatest factor. This wide variety of responses demonstrated that there was less prior knowledge regarding the physical effects of trauma on brain development and that this would be a good area to focus the training on.

The third section of the pre-survey dealt with beliefs about student behavior in the classroom. There were six questions in this section and the responses to most of them demonstrated that a large majority of the respondents (78.6%) felt that exposure to trauma had a sustained impact on student behavior, reduced student motivation, made students more volatile and less cooperative. Responses to the two additional questions indicated that a significant majority of respondents agreed that exposure to trauma made students more withdrawn (64.3%) and made it harder for students to retain information. Interestingly there were only two questions where there were responses that disagreed with current research. A small percentage of respondents (7%) felt that exposure to trauma did not have a sustained effect on student behavior, nor did it make it harder for students to retain information. This disagreement showed that it was important for the training to address these issues but the overwhelming majority in agreement indicated that it did not need to be the main focus of the training.

The final question of the pre-survey asked about the extent of the respondent's experience as a teacher. 50% of respondents had been a teacher for 10+ years and as the largest group, they also had the widest range of responses. It was in this veteran teacher group that the majority of responses questioning the impact of trauma occurred. In fact, the only other group that had any responses that were not aligned with current research was the 3-5 year experience group, and it was only one respondent. All other responses that called into question the impact of trauma were from the veteran teacher group.

Presentation

The format that this training took was as a stand-alone workshop to be delivered via PowerPoint presentation in a lecture and question and answer session. The PowerPoint presentation consists of 42 slides broken up into three sections and is included in its entirety in Appendix C. The slides that contain content as opposed to section headings make use of images to better illustrate the information on the slide. The first section consists of seven slides and is designed to introduce the concept of ACEs and trauma and to illustrate the significance to Humboldt County. The second section consists of 15 slides to explain how exposure to trauma affects brain development and the potential impacts on behavior. The remaining section, made up of 19 slides, describes behavioral profiles that one might expect from a student that has experienced trauma during seven phases of escalation. This section also includes strategies to use at each phase of escalation to help mitigate the effects of trauma and minimize the disruptive

behavior. The final slide is a brief summary that reiterates the main points of the brain development and escalation and strategies sections of this training.

This training was presented to the approximately 30 of the certificated staff and 5 classified staff at 9:00 AM Monday, April 16th. The training was held in the school library because it had the capacity to easily and comfortably hold all of the staff and the necessary technology to facilitate the training, namely a computer and a projector. This was to be the first training provided to staff during a district wide professional development day. The presentation took 58 minutes including the question and answer session at the end.

Post training survey

This project also used a researcher created post-training survey to collect qualitative data on the effectiveness of the presentation. This ¨exit ticket¨ survey is included in appendix C and consists of 3 questions. This survey was given a face validity check by two professionals in the field. The first question asked about what was most useful, the second question asked what should have been covered more fully, and the third question asked what was unclear or what would you like more information about. These questions were designed to acquire data that could be used to further refine the presentation.

Procedure

Once the training was over the ¨exit ticket¨ survey was distributed and staff were encouraged to fill it out. Staff who were unwilling to fill it out were invited to leave it

blank and that all of the surveys would be collected when the break started, which was approximately 10 minutes later. The results of the ¨exit ticket¨ will be shared in Chapter Four.

RESULTS

Introduction

This chapter will discuss the results of this project and specifically the post training survey or ¨exit ticket.¨ This was a tool created to determine the effectiveness of the training in keeping the information imparted relevant and useful as well as to determine what could be done to make the training more effective. This was the second survey instrument created in relation to this project. The first tool was discussed in Chapter Three and the purpose of that tool was to determine the level of the participants' knowledge regarding ACEs and trauma. The pre-training survey data were used to shape the final training presentation so that it would activate and build upon the participants' prior knowledge, without being overly redundant, or too far, beyond what they already knew. The post-training survey tool was administered after the training and gathered information regarding the effectiveness of the training.

Challenges to implementation

The first challenge to the implementation of this project was the scheduling. The professional development calendar for the year had already been set by the time this project was conceived. Fortunately, the principal of the school had scheduled a presentation from the school climate committee on the morning of Monday, March 16, 2020. When approached about using this time slot the school climate committee agreed

that a discussion of ACEs and trauma was exactly in line with their goals and they would gladly have this presentation given during their allotted time. This included both benefits and challenges. The benefit was that there was now a formally scheduled time slot for this presentation to happen. The challenge was that there was no wiggle room; everything had to be adjusted, dialed in, and ready to go on that day. It wasn't easy to get everything together, but on the morning of March 16th the presentation was prepared and ready.

However, the professional development format and scheduling of the school was not the largest challenge. The largest challenge came in the form of the Coronavirus 19 (COVID 19) global pandemic outbreak. The presentation was scheduled for a staff development day on Monday, March 16, 2020. This meant that there were no students scheduled to be on campus that day. This was fortunate because on March 13, 2020 the state of California announced that schools should close to students and restructure to teach remotely. Over the weekend, the local school board made the decision to follow state guidelines and close all campuses to students. This was a challenge for this presentation going forward because the focus to the professional development day was shifted from school climate to distance learning training.

The principal of the school decided to let this presentation go forward because the disruption of COVID 19 to students' daily routine and the closure of face-to-face education is definitely an Adverse Childhood Experience, so the training was deemed to be relevant. Monday, March 16, 2020 was the last day that staff worked a full day on campus. The following Tuesday and Wednesday staff was expected to be on campus for

only four hours per day and by Thursday staff was expected to work from home unless otherwise directed.

Post survey

The post survey, or ¨exit ticket,¨ was given to all workshop participants, and consisted of three questions. The first question asked the respondent to name two things that they found useful from the training. The second question asked the respondent about what they felt the training should have covered more thoroughly. The last question asked what the respondent was still unclear on or what they would like more information about. Twenty ¨exit tickets¨ were collected which is 67% of those who attended the training.

The responses to the first question (What was useful?) fell into two categories. The first category included responses that appreciated the explanation of the physiological effects of trauma on brain development. For example, one participant shared that learning about, ¨Brain development and how it affects behaviors beyond the student´s control¨ was useful. Included in the second category were responses that appreciated the strategies that were provided for helping students who become emotionally escalated. This was clearly exemplified by this response, ¨How <u>we</u> can better help students who are actively escalated & need support to calm & recover to allow learning to happen." These responses clearly indicate that the training was perceived as useful and productive by the majority of attendees.

The second question (What would you like to have covered more thoroughly?) had a broader range of responses including comments about the potential of using role plays in the training, a desire for more information on self-care, and strategies to avoid compassion fatigue. However, the majority of responses were requests for more strategies. The strategies of interest were primarily classroom strategies, followed by interest in systemic strategies.

The last question (What was unclear or you would like more information about?) included requests for resources where the respondents could find additional information, and questions about how experts incorporate other culturally inclusive ACE scores. These include such tools as the Philadelphia Urban ACE survey, that added questions about racial or ethnic discrimination, neighborhood safety, and foster care, or the World Health Organization ACE International Questionnaire that includes questions about bullying, community violence, and exposure to war. Responses to the question clearly indicated that participants were primarily interested in learning more about strategies for use both in and outside of the classroom. As an example, one respondent was interested in strategies for parents and how teachers can assist parents of students who have experienced trauma. Another respondent was interested in learning about long term "to help students or staff to help heal the trauma & improve quality of life." Lastly, respondents praised the content and format of the presentation. There were many general appreciative comments but the response that best demonstrates that this project was successful was, ¨I think this was very illuminating and not just repeated info. Thank you for explaining more of the <u>why</u> this happens in the brain.¨

DISCUSSION

Conclusion

Based on the responses to the first question where 65% of participants appreciated the information on brain development and 75% appreciated the strategies provided, this appears to have been a very successful workshop. This does not mean that there is not room for improvement. It is clear from the responses to the second question that including more strategies in this presentation would be well received, but not necessarily at the cost of the academic information. While one participant responded by saying, ¨I get the how and the why, I need more strategies,¨ there were many responses that indicated that the academic content was valuable.

My conclusion, based on these responses, is that the workshop needs to be longer with an increased focus on practical strategies. This aligns with current theories of andragogy. Hawley and Valli (2001) found that, for professional development to be successful, it needed to include the participants in the planning and development of the professional development offerings. Making the workshop longer presents a couple of options. The first is that we simply expand the content of this training increasing the length of time that the participants would attend from one hour to as many hours as deemed necessary to fit in the relevant strategies. This would vary from site to site but at this particular site, this training could easily take 4 hours and still not cover everything. The better option, and the one more in line with current best practices in

professional development (Tallman 2019), would be to turn this into a series of workshops regularly scheduled throughout the school year.

By taking the ¨exit ticket¨ feedback into account and lengthening this training into a series of workshops focused on specific strategies the participants become involved in planning what topics to address and when. This gives them a greater sense of ownership and more buy-in to the workshops. Another common feature of effective professional development is that it is job embedded and provides opportunities for feedback and reflection (Darling-Hammond, Hyler, & Gardner. 2017). Job embedded means that it is relevant to the participants' day-to-day duties. By using the feedback from the ¨exit tickets¨ the workshops could be used to address issues as they come up throughout the year making the workshops not only job embedded but also giving the participants the opportunity to reflect on their daily practice in a collaborative setting, which is also a common feature of effective professional development (Stewart 2014).

Best practice would provide opportunities for this presentation to become the first in a series of monthly workshops of about 45 minutes each. The subsequent workshops would be able to focus on strategies for addressing a specific type of behavior and would be able to troubleshoot the participants' current practice (Park, 2011). This approach would allow the training to address each of the topics that participants were unclear on or wanted more information about. This was an idea that was touched on by a participant in response to question three, "I think it would be great to have this presentation again down the road as we process ideas."

This presentation was extremely timely. We are currently in the midst of a global pandemic with people quarantined, non-essential businesses closed, and life put on hold. This is an Adverse Childhood Experience for all children. Coming out of this, every child will be able to add one point to their ACE score. Whether or not it is traumatic depends on the supports they and their families have. Having a staff wide discussion on what trauma is, how it affects the brain, and how those effects manifest in behavior is an important discussion for all districts and schools, especially now. This conversation put the focus on how this is affecting students but the content is also relevant to staff members and brings the concept of self-care to the foreground during this incredibly challenging time for all of us. The positive responses to the presentation demonstrate that this is an area that teachers are thinking about and want, not only more information about, but also more strategies to be able to more effectively support students.

Best practices indicate that this training should be turned into an ongoing series of workshops that take place regularly over the course of the next school year. Trauma informed practices and de-escalation strategies will be more important than ever. Everyone is currently living through something that could easily be traumatic. Having a staff that is knowledgeable and prepared for the return of students who have been through this will be very important. Equally important is to have a staff that is knowledgeable and able to recognize the signs of trauma in themselves and use effective self-care strategies to mitigate those effects.

Reflection

This project is the culmination of a multiple year journey. The seeds of this project were planted when I became employed as a school climate coach. It was in this position that I first learned about the existence of ACEs and trauma informed practices. It was my employment in that position that led me to enter the Administrative Services Credential/Masters Degree in Educational Leadership program. Through the coursework of that program, I learned about the many facets of an effective administrator and the effects that they can have on a school or district. While there is a plethora of effects an administrator has on a school community, the ones that piqued my interest were issues around school climate and culture, after all this is what led me to the Administrative Services Credential program in the first place. With the Administrative Services Credential, wrapping up I felt that there was still more for me to learn and I wanted to look more closely at trauma and how it affected the physiology of the brain.

In order to continue my learning, I enrolled in the Master's Degree in Educational Leadership program. Through this program, I have been able to delve into the physical effects of trauma on brain development and the behaviors with which these changes correlate. As an educator, it is never enough to simply possess knowledge there is always the need to share it. Through this project, I was able to research the most effective way to share the knowledge that I have gained with my colleagues. It was this need that led to the creation of this project. Hopefully, this project has planted the seed at my school that will encourage us to continue the conversation about trauma and how to support both

students and each other through the current COVID-19 pandemic, and any other trying times in our lives and the lives of our students.

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APPENDIX A: Adverse Childhood Experience (ACE) Questionnaire

While you were growing up, during your first 18 years of life:

1. Did a parent or other adult in the household often …
   Swear at you, insult you, put you down, or humiliate you?
   or Act in a way that made you afraid that you might be physically hurt?

   Yes No If yes enter 1 _____

2. Did a parent or other adult in the household often …
   Push, grab, slap, or throw something at you?
   or Ever hit you so hard that you had marks or were injured?

   Yes No If yes enter 1 _____

3. Did an adult or person at least 5 years older than you ever…
   Touch or fondle you or have you touch their body in a sexual way?
   or Try to or actually have oral, anal, or vaginal sex with you?

   Yes No If yes enter 1 _____

4. Did you often feel that …
   No one in your family loved you or thought you were important or special? or Your family didn't look out for each other, feel close to each other, or support each other?

   Yes No If yes enter 1 _____

5. Did you often feel that …
   You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you?
   or Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?

   Yes No If yes enter 1 _____

6. Were your parents ever separated or divorced?

   Yes No If yes enter 1 _____

7. Was your mother or stepmother:

Often pushed, grabbed, slapped, or had something thrown at her? or Sometimes or often kicked, bitten, hit with a fist, or hit with something hard? or Ever repeatedly hit over at least a few minutes or threatened with a gun or knife?

Yes No If yes enter 1 _____

8. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?
9.

Yes No If yes enter 1 _____

10. Was a household member depressed or mentally ill or did a household member attempt suicide?

Yes No If yes enter 1 _____

11. Did a household member go to prison?

Yes No If yes enter 1 _____

Now add up your "Yes" answers: _____ This is your ACE Score

APPENDIX B: Survey Tools

Trauma Informed Practices Survey

Please help me understand what you think about the effects of trauma on our students and classes. Your experiences working with these children is essential in shaping effective Trauma Informed Practices professional development and will help guide a discussion about the effects of trauma on our efforts to teach and foster productive relationships with our students. This should only take a few minutes and it will really help. The answers are anonymous and sharing your unvarnished views is essential to getting the information needed. Thank you for your help in gathering this information.

1. What percent of students in Humboldt County do you believe are affected by Adverse Childhood Experiences and trauma? (Circle one)

0-20% 21-40% 41-60% 61-80% 81-100%

2. To what extent do you believe: (rate each item on the scale)	**Not a factor**	**Somewhat**	**About 50%**	**A major factor**	**Greatest factor**
a. early trauma is a factor impacting a student's ability to regulate their emotional state in class?	**1**	**2**	**3**	**4**	**5**
b. that trauma is a factor for the affected students' trouble self-regulating their behavior in school?	**1**	**2**	**3**	**4**	**5**
c. that the changes to the physical structure of a student's brain caused by trauma is a factor in their overall behavior?	**1**	**2**	**3**	**4**	**5**
d. a student's trauma is a more influential factor for their unproductive behavior in the classroom than other causes such as culture?	**1**	**2**	**3**	**4**	**5**

3. To what extent do you agree that early trauma is likely to: (rate each item on the scale)	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**
a. Have little sustained effect on student behavior	**1**	**2**	**3**	**4**
b. Increase volatile student behavior	**1**	**2**	**3**	**4**
c. Increase student withdrawal behavior	**1**	**2**	**3**	**4**
d. Make it harder to retain information	**1**	**2**	**3**	**4**
e. Make students less cooperative	**1**	**2**	**3**	**4**
f. Reduce student motivation	**1**	**2**	**3**	**4**

4. How many years have you been teaching? (circle one)

0-2 yrs **3-5 yrs** **5-10 yrs** **10+ yrs**

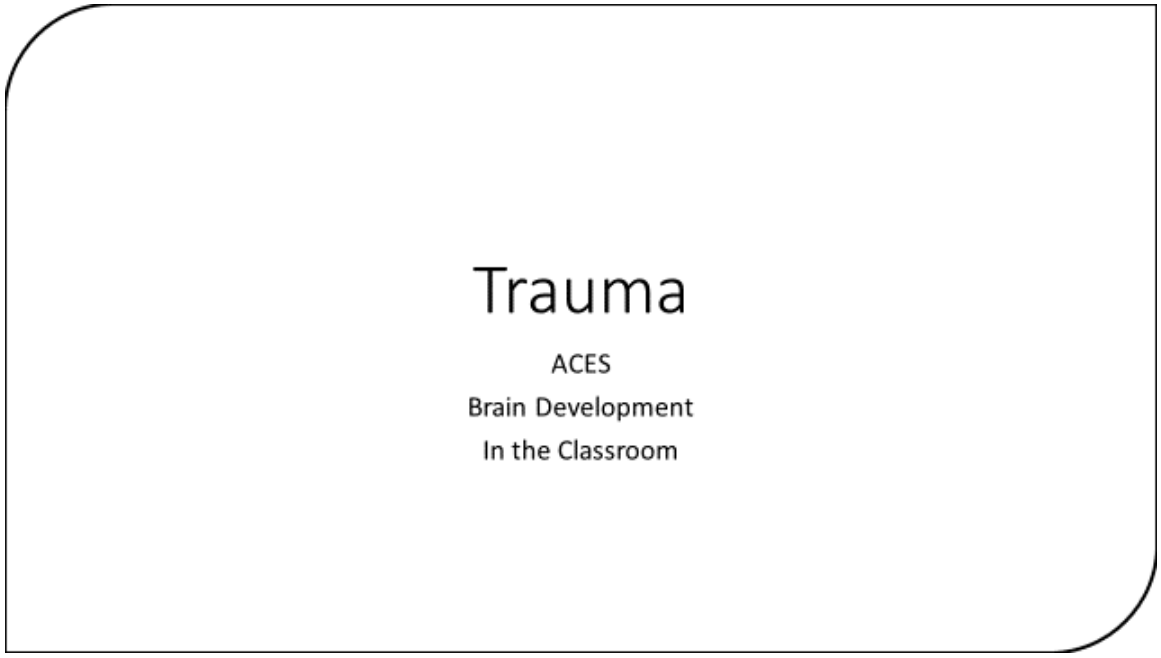
Exit ticket

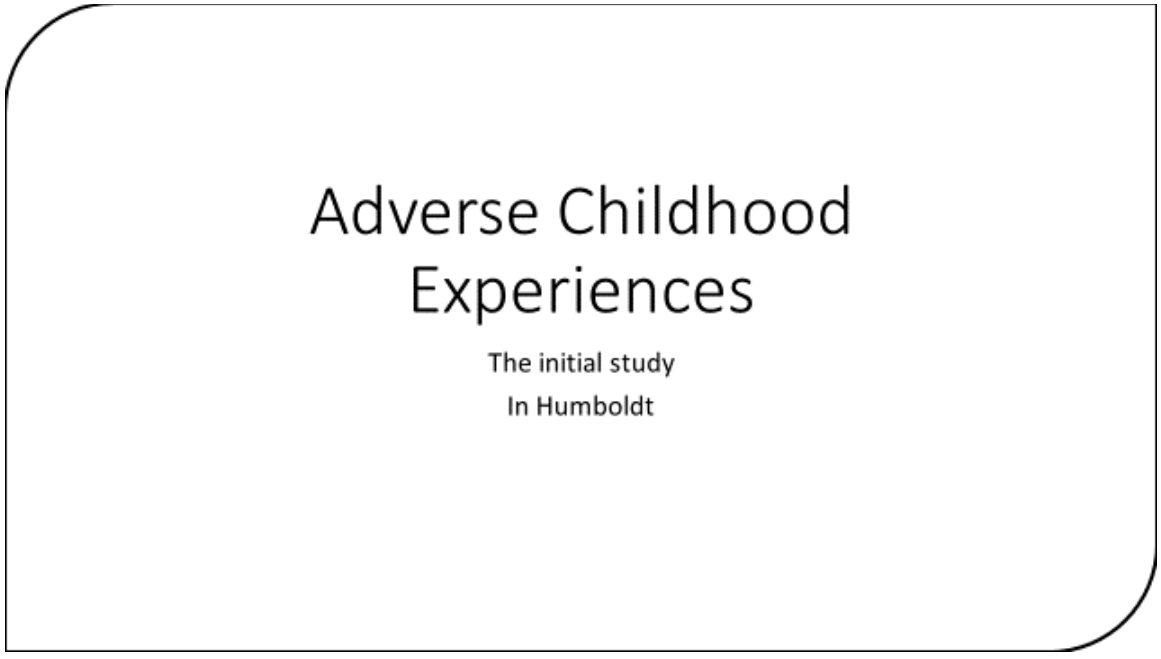
What were the two most useful thing that we covered today?

What do you think we should have covered more thoroughly?

What are you still unclear about or want more information about?

APPENDIX C: TRAINING PRESENTATION





Adverse Childhood Experiences (ACEs)

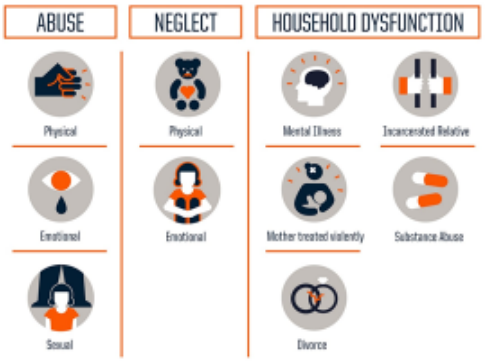
- This study involved **17,337 adults** who became members of Kaiser Permanente, a health care maintenance organization in San Diego, between 1995 and 1997.
- After visiting a primary care facility, they **voluntarily** filled out a standard medical questionnaire that included questions about their childhood.
- More than 134 research papers examining ACES published since 1998

Adverse Childhood Experiences (ACEs)

- **ACEs do not equal trauma**: significant relationships can be pivotal buffers.
- **Not causal, just a risk factor:** Being a member of a marginalized population does not equal trauma or an adverse childhood experience.
- **The individual's experience:** It's not about the event. It's about the **experience** of the event.

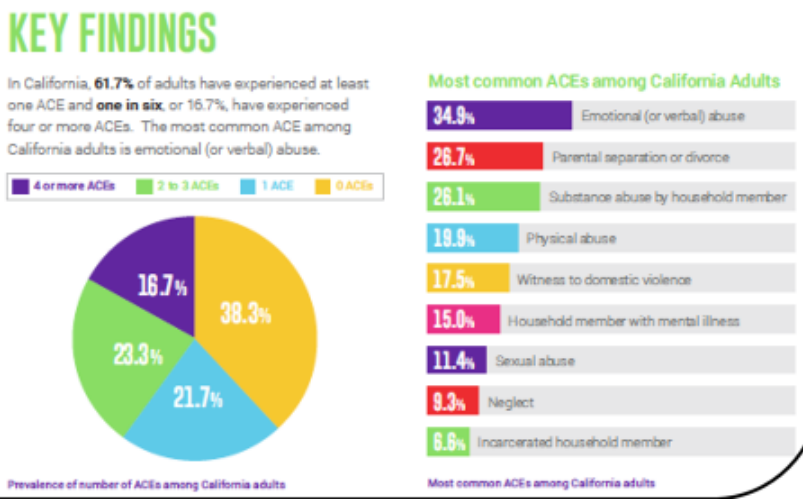
Adverse Childhood Experiences (ACEs)

- The questionnaire asked them about 10 types of child trauma:
  - Three types of abuse (sexual, physical and emotional).
  - Two types of neglect (physical and emotional).
  - Five types of family dysfunction (having a mother who was treated violently, a household member who's an alcoholic or drug user, who's been imprisoned, or diagnosed with mental illness, or parents who are separated or divorced).



Adverse Childhood Experiences (ACEs)

- **Adverse childhood experiences are common** – 61.7% of the study participants had experienced one or more categories of adverse childhood experiences.



In Humboldt

- Because Humboldt and Mendocino Counties have the highest rate of Adverse Childhood Experiences (ACEs) in the state of California.
- **75.1%** of the surveyed population in had one or more
- **30.8%** of the surveyed population had 4 or more. This is almost double the state average of 16 %

Brain Development

Stress

The Hippocampus

The Amygdala

The Prefrontal cortex

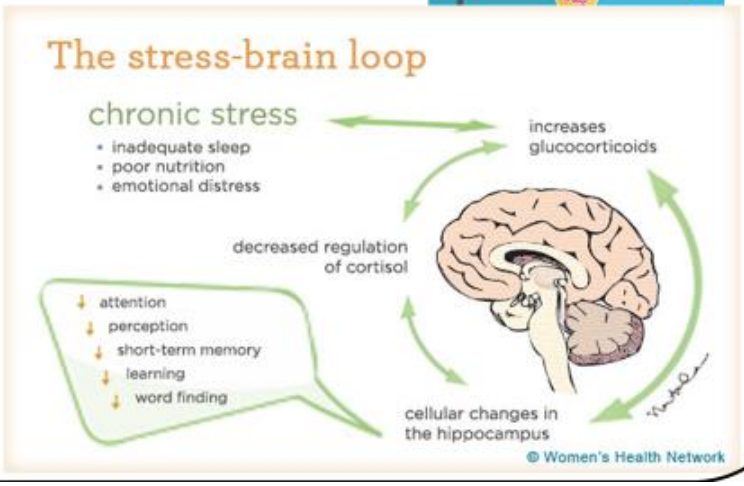
Stress

Types of stress

Neuroplasticity

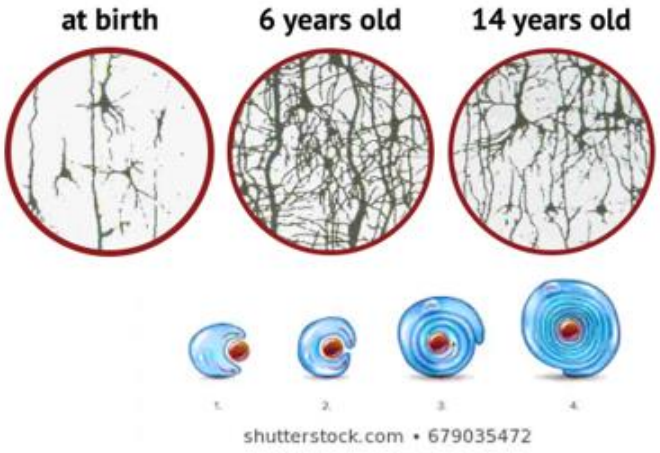
General Adaptation Syndrome

- Alarm
  - Fight, flight, freeze
- Resistance
  - Repair
- Exhaustion
  - Anxiety, depression, fatigue



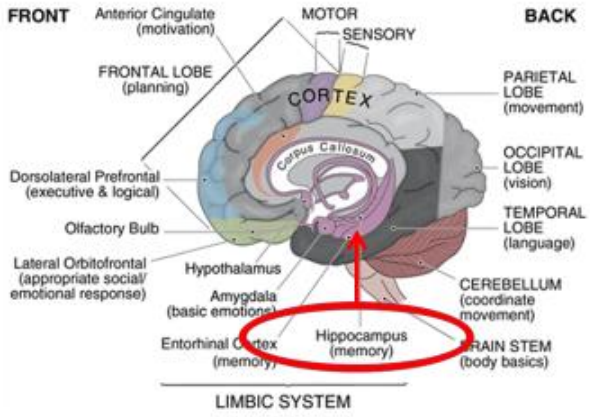
Neuroplasticity

- Myelination
  - Processing speed
- Neural pruning
  - Use it or loose it



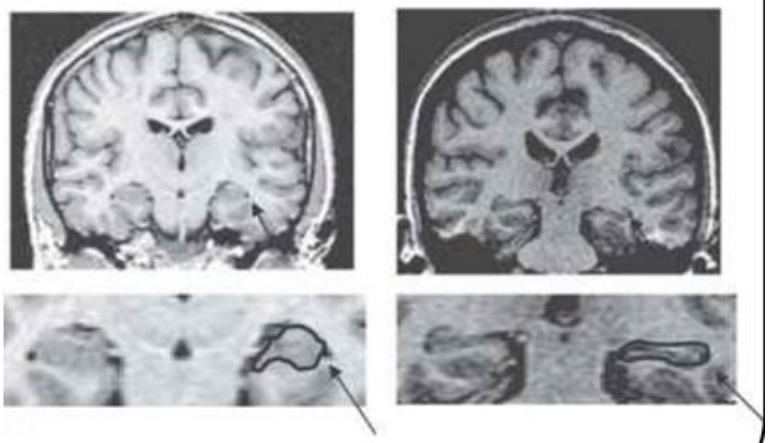
The Hippocampus:

Memories, PTSD, and Trauma



The Hippocampus

- Significant development from age 0-5
- Involved in encoding memories
- Exposure to trauma correlates with less hippocampal volume

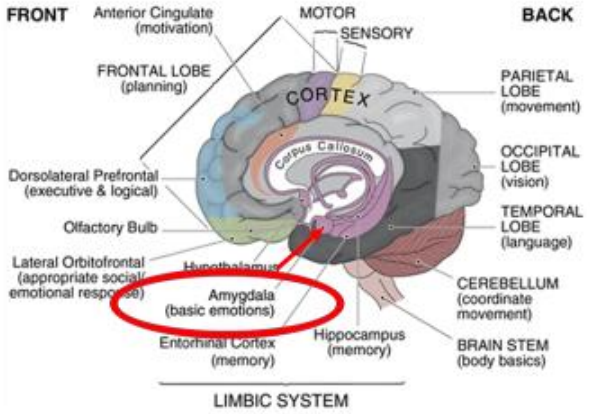


The Hippocampus

- Post Traumatic Stress Disorder
  - Troubling recollections
  - Flashbacks
  - Nightmares
- There is no symptomatic difference between subjects experiencing sever bullying and those diagnosed with PTSD

The Amygdala:

Social interaction, Trauma, and Fear



The Amygdala

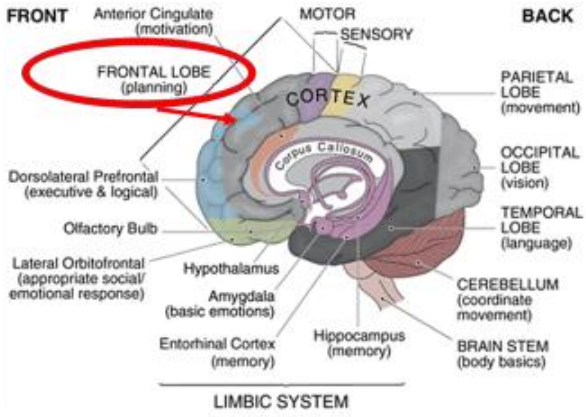
- Peak growth between ages 9-11
- Involved in interpreting social interaction and emotional regulation.
- Exposure to trauma results in uneven development
  - Smaller left side
    - Processing positive stimuli
  - Larger right side
    - Processing negative stimuli

The Amygdala

- Hypervigilance
  - Fearful faces
- Exaggerated sensitivity to emotion

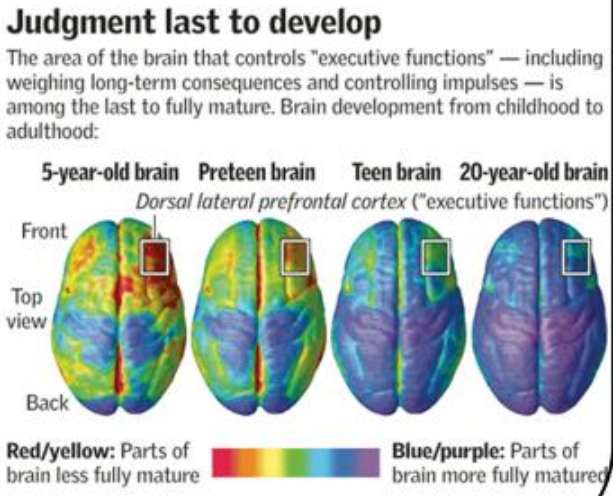
The Prefrontal Cortex:

Executive function, Circadian rhythm, and Trauma



The Prefrontal Cortex

- Significant development between ages 7 and 17
- Involved in Executive functions
  - Planning
  - Goal setting
  - Decision making
  - Sustained attention
  - Inhibition control
  - Problem solving
- Exposure to trauma results in lower prefrontal cortex volume
  - Decreased neuronal complexity
  - Loss of synaptic connections



The Prefrontal Cortex

- Decision making
  - Familiar vs goal oriented
- Circadian rhythm disruption
  - Cognitive flexibility
  - Attention
  - Depression

Brain Development Take-aways:

- Trauma Impacted Youth Can have difficulty with:
- Managing "big" emotions
- Chronic irritability/anxiety that interferes with problem solving
- Empathy
- Expressing concerns/needs in words
- Taking into account the wider context of a situation
- Appreciating how one's behavior impacts other people
- Working in groups/connecting with others

Brain Development Take-aways:

- Exposure to ACEs, toxic stress, and emotional trauma effects how the brain develops.
- These brain developments effect behavior.
- **This is not a cognitive or rational process. It is wired into their physiological response.**

Classroom Practices

Universal practices

Phases of escalation

Universal practices

Personal practices

Classroom practices

Universal Practices:

Personal practices

- Provide **unconditional Positive Regard**. Sustained kindness, empathy, and positive environment.
- Maintain **high expectations**. Students can work up to expectations with support and good instruction.
- **Check assumptions**, observe, and question. Notice positive traits as well the challenges.
- **Always empower**, never disempower. Don't make it a power struggle. Offer students options to foster a sense of autonomy and control.
- Be a relationship coach. **Be a role model** for how to interact with others. Help students reframe an interaction that has not gone well.
- Provide opportunities for **meaningful participation**. These opportunities provide solace, create mutual trust, and affirm the self-worth of those involved

Universal Practices:

Classroom practices

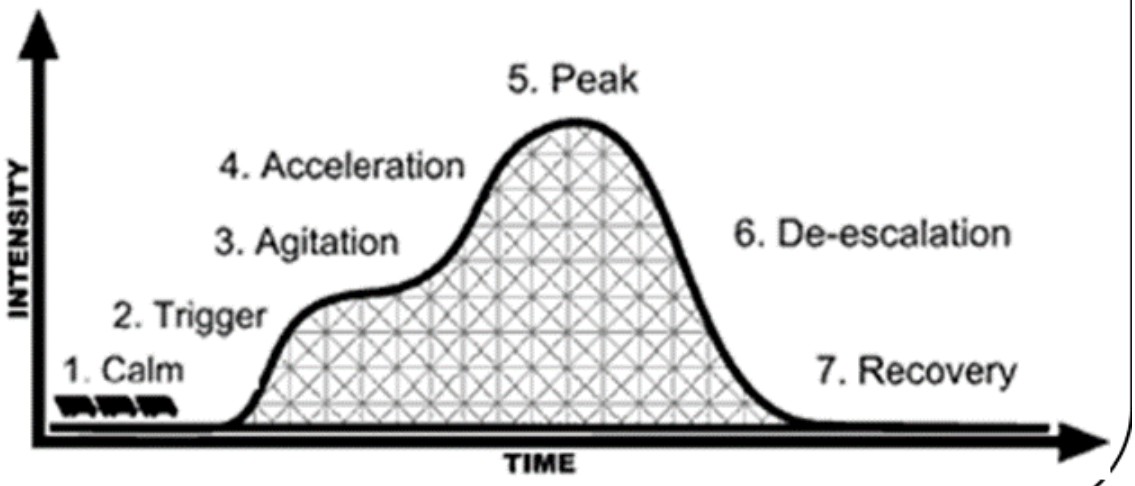
- Predictability and routine
  - Allows students to have a reasonable expectation of know what is going to happen and when.
- This creates a sense of safety
  - Unpredictability is unsafe

Phases of escalation

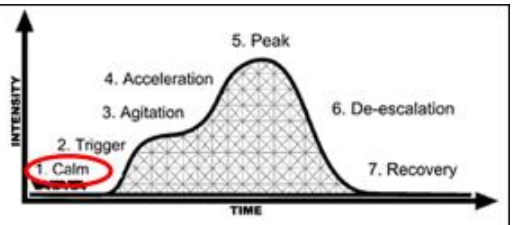
Phases

Strategies

Phases of escalation



Phases of escalation

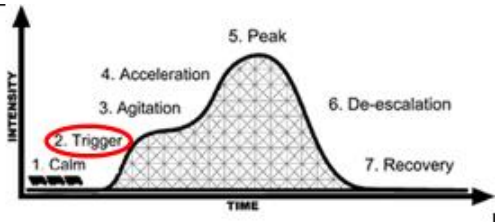


- **Trauma impacted students are**:
- On task
- Following rules and expectations
- Responsive to positive affirmation
- Initiate positive behavior
- Socially appropriate

Strategies

- Every thing is going well.
- Universal practices are sufficient
- No strategies are needed

Phases of escalation



- Something happens that causes an emotional response
- Conflict
- The unexpected (Fire drill)
- Provocations
- Pressure
- Frustration (Ineffective problem solving, academic errors)

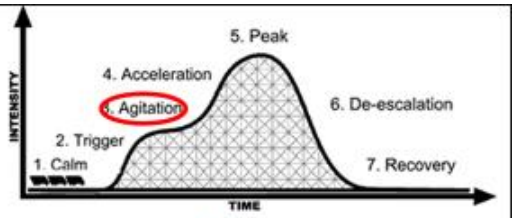
Strategies

- Know your students
- Pay attention to the classroom environment and how it might be impacting students vulnerable to being triggered
- **Anticipating is better than reacting**

Phases of escalation

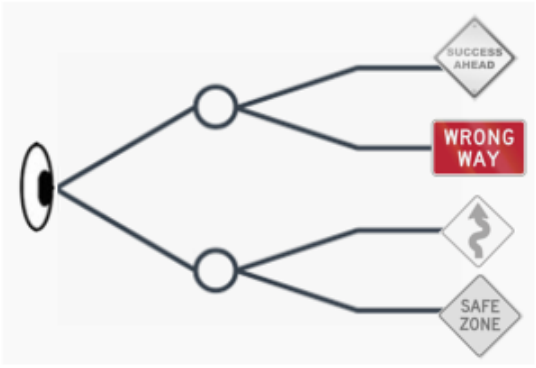
Trauma impacted students are:

- Unfocused or Non-Directed
- In and out of group
- Non-conversational language
- Off-task/on-task
- Out of seat
- Talking with others

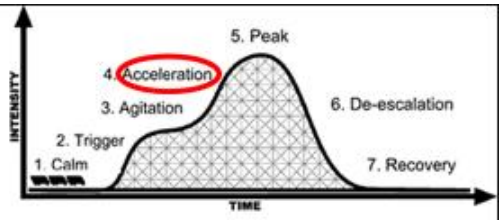


Strategies

- Remove student from or modify the problem context
- Redirection (increase opportunities for success)
- Anticipate problem behavior and intervene beforehand



Phases of escalation



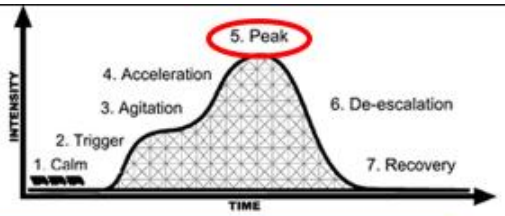
- **Trauma impacted students exhibit**:
- Focused behavior, e.g. provocative, high intensity, threatening
- Compliance—but with accompanying inappropriate behaviors
- Avoidance and escape
- Verbal abuse

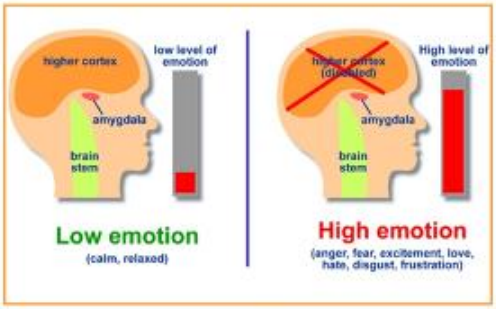
Strategies

- Teacher empathy/proximity
- Relaxation techniques
- Pre-arranged signal
- Emphasize student choices and responsibilities in clear and simple language
- Avoid escalation responses (getting in student's face, discrediting student, engaging in power struggles, raising your voice)

Phases of escalation

- The student is now in crisis.
- The lid is flipped and the amygdala is running the show.
- provocative, intense, threatening
- Avoidance and escape
- Verbal abuse

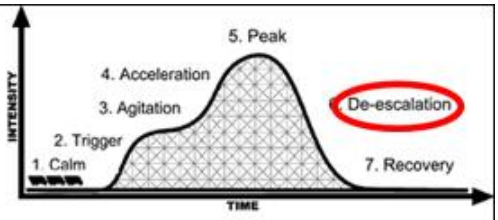




Strategies

- **Your self control is vital at this moment.**
- Control your face
  - Neutral affect
- Control your voice
  - Flat or positive tone
- Control your body
  - Non-threatening body language

Phases of escalation



- Youth in a triggered state need help to calm down from the "there and then" triggers
- And become more present in the "here and now" reality (in which there may be no actual threat).

Strategies

- Noticing signs of distress
- Connecting with the young person
- Re-directing behavior through providing reasonable choices/options for alternative activities
- After youth is calm, discussion about what happened can take place and, if necessary, consequences can be determined.

In the classroom take-aways

- Universal practices support everyone
- Anticipation is better than reaction
- Offer clear choices
- Keep calm and maintain neutral affect, tone, and body language.
- Re establish the connection

Summary

Brain development

- Exposure to ACEs, toxic stress, and emotional trauma effects how the brain develops.
- These brain developments effect behavior.
- **This is not a cognitive or rational process. It is wired into their physiological response.**

In the classroom

- Universal practices support everyone
- Anticipation is better than reaction
- Offer clear choices
- **Keep calm and maintain neutral affect, tone, and body language.**
- Re establish the connection