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Author/s:
Brunzell, T;Stokes, H;Waters, L

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Trauma-Informed Positive Education: Using Positive Psychology to Strengthen Vulnerable Students

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Running head: USING POSITIVE PSYCHOLOGY TO STRENGTHEN VULNERABLE STUDENTS

Abstract

This paper explores the role of a positive education paradigm in mainstream and specialist classrooms for students who have experienced complex trauma resulting from abuse, neglect, violence or being witness to violence. Existing trauma-informed education focuses on repairing regulatory abilities and repairing disrupted attachment in students. However, a dual-continua model of mental health suggests that repairing illness is only part of the education response needed to nurture wellbeing in trauma-affected students. This paper develops the Trauma-Informed Positive Education (TIPE) approach which proposes three domains of learning needed to foster student outcomes: repairing regulatory abilities, repairing disrupted attachment, and increasing psychological resources. By increasing psychological resources in strengths-based domains, the potential is enhanced to promote posttraumatic growth from trauma and adversity. We hypothesize that these three domains support each other in interactive, synergistic ways to create effects that are greater than simply adding the three domains together. The TIPE model will make a contribution to research in positive education, positive psychology, and traumatology; with the applied context of assisting classroom teachers and school-based practitioners to meet the complex behavioral, cognitive, and relational needs of young people struggling in schools.

Keywords: classroom milieu, positive education, healing, growth

The Need for a Trauma-Informed Positive Education

According to the National Child Traumatic Stress Network (NCTS; 2014) close to 40% of students in the United States have been exposed to some form of traumatic stressor in their lives. These students are defined as trauma-affected and are found within mainstream and specialist classroom settings. The high percentages provided by NCTS suggest that many teachers are now faced with the challenges of educating trauma-affected students who present with a range of symptoms and behaviors including attention deficit hyperactivity disorder (ADHD), peer bullying, school refusal, conduct and oppositional-defiance disorders, distracted or aggressive behavior, limited attentional capacities, poor emotional regulation and/or hyper-vigilance (Bath, 2008; Downey, 2007; van der Kolk, 2003). Trauma-affected students arrive at school with the best of intentions, hoping to succeed at the day's tasks with minimal disruption; but despite their best efforts, they find themselves defiant, unpredictable, frustrated, demanding and without hope by the end of the school day (Cole et al., 2009).

Educational approaches are, therefore, desperately needed to address the complex needs of students struggling in classrooms due to their histories of trauma from abuse, neglect, family violence, or family home destabilization (Bloom, 1995; Downey, 2007; Wolpow, Johnson, Hertel, & Kincaid, 2009). Trauma-informed education can be conceived from both a deficit perspective (e.g. *what deficiencies or developmental struggles does this student face?*) and a strengths perspective (e.g. *what positive strengths does this student have to build upon for future success?*). The aim of this conceptual paper is to develop a model that assists teachers to meet both learning and therapeutic needs of trauma-affected students. The Trauma-Informed Positive Education (TIPE) model put forward in the current paper makes a unique contribution that bridges research from the fields of traumatology and positive education.

This paper rests on a number of key assumptions: First, we believe that an education approach to trauma-informed learning should include high learning expectations and aspirations. Second, we propose that all students should have access and opportunities that assist them to increase positive psychological resources (Keyes, 2002; Seligman & Csikszentmihalyi, 2000). Third, we propose that the classroom can be used as therapeutic milieu and is sometimes the best place to meet complex intervention needs (Perry, 2006). Indeed, for trauma-affected students with the most complex needs who may live in uncertain, out-of-home care arrangements, the classroom may be the most stable and consistent therapeutic intervention. Fourth, we advocate that wellbeing should and can be taught in all school settings (Seligman, Earnst, Gillham, Reivich, & Linkins, 2009). However, in order to successfully access many of these cognitive-based positive psychology

interventions (e.g. character development, resilient self-talk, hope and goal-setting) students must be developmentally ready in a number of other affective and interpersonal competencies that have been compromised by trauma's effects (Schore, 2012).

This paper begins by defining childhood trauma and the debilitating and potentially long-term effects and consequences of trauma on child development and learning. Next, the literature on trauma-informed classrooms and trauma-informed teaching is reviewed. Third, the fields of positive psychology, positive education, and posttraumatic growth (PTG) are conceptually linked to this trauma-affected context. Finally, a new model for trauma-informed positive education (TIPE) is introduced in order to include theoretical and phenomenological factors that may contribute to the understanding of successful learning and engagement for trauma-affected students.

Trauma-Affected Students

Trauma is an overwhelming experience that can undermine the individual's belief that the world is good and safe (Berry Street Victoria, 2013). Directly experiencing trauma, witnessing another's trauma, learning about traumatic events, or exposure to aversive details can lead to trauma- and stress-related disorders such as reactive attachment disorder, disinhibited social engagement disorder, posttraumatic stress disorder (PTSD), acute stress, or adjustment disorder (American Psychiatric Association [APA], 2013, p. 271). Traumatization occurs when a child perceives or witnesses external threat; and an acute alarm reaction occurs triggering the body's stress response with long term damage to key neurological and psychological systems (Coade, Downey, & McClung, 2008; Downey, 2007). When trauma occurs to infants and children, the developing brain is detrimentally impacted, including healthy attachment to the primary care-giver (van der Kolk & McFarlane, 1996). Framed in a neurodevelopmental perspective, trauma is not the event—it is the individual's response to the event and continuing effects on stress-related physiological systems (e.g. neuroimmune, neuroendocrine, autonomic and central nervous systems) (Ungar & Perry, 2012, p. 7).

'Simple trauma' (type one or acute trauma) involves an experience of an event that is life threatening or threatens to cause serious harm or injury. Simple trauma is often a one-time, short occurrence. There is less stigma and blaming for the victim, and the trauma is often accompanied with a community response (Australian Childhood Foundation [ACF], 2010). Examples of simple trauma may include accidents, house fires, natural disasters, or community events.

Beyond a one-time event, 'complex trauma' (type two, development or relationship trauma) involves multiple incidents, may be longer in duration and involves personal threat, violence and violation (e.g. child abuse, bullying, sexual violence and domestic violence) (ACF, 2010). Further, this pain becomes manifest in continuing states of grief and loss, abandonment and neglect, persistent anxiety, fear or terror of the future, depression, or physical self-mutilation (Downey, 2007, p. 29).

The Diagnostic and Statistical Manual of Mental Disorders (DSM-V; 2013) explanation of posttraumatic stress disorder (PTSD) advises that the impact and psychological damage due to childhood trauma depends upon the age of the child and the frequency of trauma-exposure and stressor-experiences (APA, 2013, p. 278). PTSD symptoms that have significant impact on the child include problems with self-regulation, aggression to both self and others, attention deficits, dissociation, physical problems, and the inability to maintain interpersonal relationships (van der Kolk, 2003, pp. 293-294).

There is a sizable proportion of students who could be classified as trauma-affected. In a nationally United States representative survey to determine the prevalence of trauma and children age-12 to -17, 8% reported a lifetime of prevalent sexual assault, 17% reported physical assault, and 39% reported witnessing violence (NCTS, 2014).

Trauma affects key schooling outcomes. Anda et al., (2005) and Wolpow et al. (2009) conducted epidemiological studies of adults who experienced adverse childhood experiences (ACEs) in their youth. This study included 17,337 adult HMO members in the United States and examined the role of ACEs in adverse stress-response and neurobiological adult outcomes[1]. Wolpow et al., report that children who have experienced ACEs are 2.5 times more likely to fail a grade and have lower achievement assessments; are at significant risk for language delays and difficulties; are suspended and expelled more often; and are designated to special education more frequently. The impact of ACEs has clear and damaging effects on education attainment and school completion. Yet we know that education offers a powerful intervention opportunity for trauma-affected students. Levels of education are correlated to numerous wellbeing outcomes including economic participation, income, health, social participation and preventative involvement in justice systems (ABS, 2011).

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[1] Adverse childhood experiences (ACEs) included child physical, sexual, and/or emotional abuse, emotional and/or physical neglect, mentally ill, depressed, or suicidal person at home, substance abuse of a family members, witnessing domestic violence against the mother, loss of parent to divorce, death or abandonment, or incarceration of any family member for a crime (Anda et al., 2005).

Trauma's Impact on Neurosequential-Development

Teachers can conceptualize their classroom environment and curriculum from a *neurosequential* perspective for both healthy children, who are growing and learning at age-appropriate benchmarks, and for trauma-affected students who are likely to be developmentally delayed due to trauma, abuse, or neglect (Perry, 2006). Trauma-affected students are served well by a classroom which provides experiences that replicate a sequential process of development.

Sequential neurodevelopment implies the brain has evolved in a *hierarchical* way. Perry (2006) provides a simplified and useful model: the lower parts of the brain (brainstem) govern regulatory tasks of respiration, blood pressure, heart rate and body temperature; the midbrain (diencephalon/cerebellum) regulates motor abilities, arousal, appetite and sleep; the limbic system is the relational center mediating emotional reactivity, attachment and sexual behavior; and the neocortex is employed for cognition and affiliation. The brain develops sequentially through the brainstem, midbrain, and neocortex. However, trauma in childhood delays the development of these sequentially evolving areas of the brain and although a person may be in adulthood, the trauma-affected brain may still be *arrested* at an early stage (e.g. motor functions primarily governed by the midbrain may impact self-regulatory abilities for affect or cognition).

Considering the neurobiology of childhood PTSD, three developmental pathways are thwarted: (1) the maturation of specific brain structures at particular ages, (2) physiologic and neuroendocrinologic responses, and (3) the capacity to coordinate cognition, emotion regulation and behavior (van der Kolk, 2003, p. 294). As conceptualized by Piaget, brain growth and cortical reorganization facilitate cognitive and emotional development (van der Kolk, 2003, p. 294). Within the context of childhood neglect and abuse, these critical periods also correspond to a child's ability to form protective and self-defence behaviors, which reinforce the patterned responses to forming strong relational bonds. Predicated on the foundational understandings of trauma's effects on the stress response systems, neurosequential development and critical periods of growth, a key therapeutic aim is to improve the regulatory capacities of the brainstem and diencephalon. The science of the neurosequential perspective has had a significant impact on the pedagogical approaches to trauma-informed learning that will be explored in the next section.

Trauma-affected students have disruption and maladapted development in the lower parts of the brain, and this dramatically affects the regulatory capacities of the higher regions employed for the integration and memory of cognitive content. Yet, classroom learning depends upon an organized and regulated brain where each level of the neurosequential hierarchy is well-regulated.

Trauma impacts all elements of a child's development (ACF, 2010). Trauma and the dysregulated stress response specifically affect the body: the body reacts to trauma similarly to the way it processes prolonged toxic stress: either fast-acting to mobilize neurobiological system responses in less than twenty minutes or prolonged stress when body functions slow. In both cases, the body and brain are conserving energy for survival and are not in the creative state of learning (ACF, 2010, p. 26). Trauma can lead to consequences such as reduced cognitive capacity, difficulties with memory and concentration, and language delays; impacted social functions include attachment difficulties and poor relationships with peers (Downey, 2007).

Trauma-Informed Learning: The Traditional Healing Approach

The current paper synthesized themes from the last decade of therapeutic-principles adapted for teachers working with trauma-affected students in order to gain a clear picture of the typical approaches currently used in trauma-informed classrooms to examine the recommendations for trauma-informed classrooms including initiatives from research and practice partnerships (see ACF, 2010; Downey, 2007; Wolpow, Johnson, Hertel, & Kincaid, 2009); and from conceptual models from practice leaders in the field (see Bath, 2008; Bloom, 1995; de Arellano, Ko, Danielson & Sprague, 2008; Hughes, 2006; NCTSN, 2005; Perry, 2006; Sarra, 2011). A systematic review of 29 trauma-informed intervention models for use with trauma-affected youth was conducted. Papers from published, peer-reviewed data were reviewed from 1994 to 2014 using the Web of Science and PsychInfo databases[2]. Our review found that the major focus of trauma-informed learning was on *repairing* trauma-affected students. More specifically in the 29 peer-reviewed publications, 100% of the models included two broad approaches: (1) repairing regulatory abilities and addressing the dysregulated stress response; and (2) repairing disordered attachment styles through the formation of strong teacher-student relationships.[3] Rather than separately review the findings of each of the 29 studies, we integrate the key findings to address evidence about the two major themes emerging from the review.

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[2] For consideration for this paper, intervention models were reviewed and included based upon their adaptation to trauma-affected youth for specific group implementation (versus individual or family implementation) in school, community, or clinic settings. Additionally, intervention models were considered based on their adaptation to culturally diverse cohorts including factors of socio-economic status, race, ethnicity, sexual orientation, spirituality or other relevant and distinguishing factors in trauma-affected populations.

[3] Within the reviewed 29 studies, a number of strengths-based interventions have been embedded in frameworks of *healing* dysregultion and maladaptive attachment; interventions of this nature include: social and interpersonal skills (Alternatives for Families [AF-CBT]; Adapted dialectical behavior therapy [DBT-SP]); mindfulness or relaxation training (Cognitive behavioral intervention for trauma in schools [CBITS]; DBT-SP; Trauma-focused cognitive behavioral therapy [TF-CBT]); resiliency (Attachment, self-reguation, competency model [ARC]; CBITS); finding strengths within the context of family, community, or culture (Real Life Heroes [RLH]); creating meaning and values as a result of trauma (Structured psychotherapy for adolescents responding to chronic stress [SPARCS]; Trauma affect regulation [TARGET-A]); and goal setting for achievement (Skills training in affective and interpersonal regulation/narrative story-telling [STAIR/NST]).

Repairing the dysregulated stress response in trauma-affected students. Perry (2006) clarifies that self-regulation (e.g. maintaining and regulating impulses) is a core developmental strength for children (i.e. "Think before you act"). A major emphasis of trauma-informed classrooms has been repairing the dysregulated stress response in trauma-affected students. Bath (2008, p.20) proposes that regulatory capacities strengthen emotional control and impulse management as "a fundamental protective factor for healthy development." Addressing the dysregulated stress response involves creating environments that introduce students to co-regulatory experiences, self-regulatory capacities, identification of difficult and negative emotions, and management of classroom behavior—all in the service to facilitate two regulatory pathways of a young person and their environment: (1) to enable cortical mediation (i.e. *top-down* regulation) which can be witnessed when a student can effectively self-direct their own regulation; and (2) to support adolescents in resetting their baseline levels of their stress response and arousal in order to strengthen the body's ability to self-regulate (i.e. *bottom-up* regulation) (see ACF, 2010; Cole et al., 2009; Perry, 2006).

Perry emphasizes core elements of healing experiences for maltreated and traumatized children which feature relationally mediated rhythmic regulation (Heibert, Platt, Schopok & Whitesel, 2013, p. ix). Within the context of relational health, rhythmic interventions address the self-regulatory foundations of organizing sensory input, modulating arousal levels, and mediating responses to sensations. When considering strategies and interventions to address the dysregulated stress response, practice recommendations employ staged and adaptive perspectives which refer to the sequential nature of brain development; thus strategies and new skills must be consolidated, rehearsed and practiced in a sequential manner (ACF, 2010).

In the trauma-informed literature, emotional regulatory capacities refer to acknowledging, labelling, and working with difficult feelings (Bloom, Foderaro, & Ryan, 2006, p. 24). Providing opportunities to self-regulate in the classroom includes the improvement of emotional and behavioral competencies by identifying and acknowledging feelings of self and others; linking internal thoughts to feelings and external experiences; practicing strategies to de-escalate heightened emotions; and returning to a comfortable state after arousal (Wolpow et al., 2009). If students are provided with the opportunities to connect the causal relationships between emotions and thinking, they will be better equipped to self-regulate at moments of uncertainty, stress, or confusion. Students who build these emotional regulatory capacities will be enabled and empowered to identify their feelings, understand them and communicate with others. Strategies to enable students to gain a

deeper sense of emotional control should incorporate the skills of making linkages between the past and the present, feelings and behavior, thoughts and actions (ACF, 2010, pp. 60-61). Based upon these understandings, teachers can assist students when difficult emotions occur throughout the day; teachers may help students anticipate difficult life events; or teachers can design specific activities to mitigate the effects of difficult emotions on student behavior.

Managing unregulated classroom behaviors in a safe and supportive manner is a hallmark of trauma-informed teaching. Teachers should be prepared to address dysregulated students and defuse conflict through structure and consistency, encouraging positive behaviors, setting enforceable limits on unacceptable behaviors, determining logical consequences instead of punishment, and providing choices to allow student autonomy and control (Downey, 2007, p. 18). Within these regulatory-supports, teachers can begin to co-regulate student behavior through their own voice, proximal positioning (e.g. side-by-side with child versus facing confrontationally), and assisting the student to understand how to address and restore negative outcomes.

Repairing disordered attachment styles. The second emergent domain of trauma-informed practice is the healing of disordered attachment styles and the ability of students to form strong relationships. Attachment can be defined as an enduring relationship with another person (e.g. parent, carer, teacher, or friend) that is characterized by soothing, comfort, pleasure or safety (Ludy-Dobson & Perry, 2010, p. 30). Schore (2012) describes attachment within psychobiological models as "the interactive regulation of states of biological synchronicity between and within organisms" (loc. 1425). Based upon the foundational work of John Bowlby (1971), attachment theory describes how the process of attachment nonconsciously and interactively regulates the mother-infant dyad, and how attunement and stress impact upon relational hardiness which in turn influences the growth of brain regulatory systems; and thus, viewed within this frame, attachment theory is essentially a regulation theory (Schore & Schore, 2008). Baim and Morrison (2011) summarize attachment theory as the presence, or absence, of nurturing interactions which form templates for self-protective strategies. Attachment theory connects developmental interactions between a child's stress responses and perceived threats or danger.

Crittenden (2008) suggests that attached co-regulation occurs when the regulatory capacities of one person (e.g. care giver) influence and mirror the other (e.g. child) to regulate their thoughts, feelings and behaviors. Crittenden suggests three key attachment tasks: (1) to protect and comfort children when they are

not able to comfort themselves; (2) to guide children to protect and comfort themselves; and (3) to allow children the opportunities to take developmental responsibility for themselves.

Teacher-student relationships, emphasising teacher empathy, warmth, genuineness, nondirectivity and encouragement of critical thinking, along with reciprocal and secure attachments yield positive student outcomes (Cornelius-White, 2007). Additionally, levels of adult support have a direct influence on student engagement (Klem & Connell, 2004; Woolley & Bowen, 2007). Students benefit from connectedness and belonging through relationships which serve as a protective factor for resilience and wellbeing (Roffey, 2013; Stewart, Sun, Patterson, Lemerle, & Hardie, 2004).

Relationships and strong relational interactions are integral to classroom practice with vulnerable and traumatized students (Downey, 2007). Often, trauma-affected students have backgrounds of broken attachments and therefore an inability to create, sustain, or develop strong and lasting relationships. Thus, many of the existing trauma-informed classroom approaches advise teachers to take deliberate steps to establish trust, validation, and safety so as to support the student to take risks in both emotional and cognitive exchanges for learning. A relationship-based classroom is predicated on the premise that struggling students learn from reciprocal relationships with teachers they like and respect (Fay & Funk, 1995). When students challenge these relational bonds with resistant behaviors, teachers can employ attachment-principles to continuously present a consistent, proactive, and welcoming invitation to stay in the teacher-student relationship in order to create safe opportunities for learning.

Teacher-student connections and relationships in the trauma-informed context can be built on attachment principles of *unconditional positive regard*. Humanistic psychologist Carl Rogers (1902-1987) popularized Stanley Standal's concept of unconditional positive regard as a guiding principle in humanistic (person-centered) psychology (Rogers, 1961). Unconditional positive regard facilitates an environment where the client (student) feels valued regardless of their presenting behaviors, affect, or cognitions; rather than looking to others for identity and approval, the client is encouraged to learn and listen to themselves. Rogers (1961, p. 283) describes this relationship as a "warm caring" for the client—a warmness that is not possessive or demanding of personal gratification for the carer.

The concept of *intersubjectivity* is helpful in this context: in attachment-focused interventions and relationships, intersubjectivity refers to "the other's active presence in the psychological development of the child" (Hughes, 2004, p. 265). This joint, side-by-side attunement experience allows the child to experience dyadic-based affect, regulation, and meaning; thereby opening windows of opportunity for healthy development.

Thus, teachers can focus on repairing the disrupted attachment-styles of students struggling with the effects of trauma from abuse or neglect through the cultivation of strong, attachment principles within teacher-student relationships. Within the learning context, teachers can employ concepts of intersubjectivity and side-by-side attunement to work closely next to students to facilitate environments of warmth and care, while leading classroom activities and interventions.

A new perspective on trauma-informed learning: A strengths-based approach. As outlined above, the two common approaches of existing trauma-informed learning models focus on repairing regulatory abilities and repairing maladaptive attachment styles. While this healing approach is critical, we question whether existing approaches that focus on repair of dysregulation and maladaptive attachments offer enough to trauma-affected students. Moreover, we contend that in addition to a focus on repairing these negative developmental delays, trauma-informed learning needs to also incorporate advancements made in the science of positive psychology in order to build positive resources in trauma-affected students. We base our argument on Keyes' two-factor theory that building mental health requires more than repairing illness (Keyes, 2002; Keyes & Annas, 2009). Trauma-affected students also need to be given opportunities in the classroom to increase psychological resources and build upon strengths towards wellbeing—not just reduce stress and insecure attachments.

Counterintuitively, strengths and weaknesses are not opposites, and one does not learn about strengths by studying one's weaknesses (Magyar-Moe, 2009, p. 3). Even as a trauma-affected student struggles with disrupted relational-attachment or self-regulatory needs, he/she may also show strengths in specific academic content or character domains, and these strengths and potentialities can be deliberately nurtured *in addition* to the repair of dysregulated emotions and disrupted attachments. Students must be given opportunities to nurture multiple strengths and assets (Wright & Lopez, 2009). However, many of the current trauma-informed approaches have failed to explicitly focus attention on identifying and increasing these strengths. As such, we argue that existing trauma-informed approaches are not reaching the full heights of healing that are possible within the therapeutic classroom milieu because they only focus on repairing negatives and have not given sufficient emphasis on healing by building on the strengths of trauma-affected students.

Keyes and Lopez (2002) designed the Complete State Model (CSM) of mental health encompassing the study and clinical care of individuals in this two-factor, two-continua model to clarify that mental health and mental illness are not at opposite ends of the same continuum. Research has shown individuals who have mental illness also report growth and increased dimensions of psychological wellbeing (see figure 1, below)

(Keyes, 2009). Thus, while the single-factor model of mental health implies that the reduction of illbeing is a necessary prerequisite to preventatively and proactively building wellbeing; the new two-factor model shows illness and wellbeing are distinct constructs, although there is a modest association between pathways of mental illness and mental health. This new theory has potent implications for the trauma-informed classroom because it means that while building wellbeing (i.e. positive strengths and positive states) students can simultaneously reduce illbeing (i.e. poor regulation and disrupted attachment).

Insert figure 1 here.

Figure 1 illustrates the complete state model (CSM) of mental health (Keyes & Lopez, 2002, p. 50). Particularly useful in the CSM is the crossing axis of the two-factors of mental health and mental illness to create four categories, yielding dynamic opportunities to preventatively and additively address mental health and growth towards wellbeing. The Complete State of Mental Health (2-factor) model suggests that the reduction of mental illness and the promotion of complete mental health require two different types of interventions (Keyes & Annas, 2009). Yet, trauma-informed learning at the moment mainly focuses on the reduction of negative states in trauma-affected students.

Keyes (2002, p. 220) advocates further investigation into the strengths and competencies of flourishing individuals with the specific purpose of providing therapeutic insight for mentally ill and struggling populations. Seligman and Csikszentmihalyi (2000) call for a focus on prevention and the cultivation of strengths as buffers to the debilitating effects of mental illness. Further, these authors theorize that strengths of courage, optimism, hope, perseverance, and the capacities of flow and insights are beneficial for all young people. Maddux (2009, p. 62) recognizes that beyond illness ideology, strategies and interventions to assist both clinical and nonclinical populations (e.g. students who have been identified with specific trauma-based needs and those struggling with like-concerns) the most effective therapeutic supports will come outside clinics or hospitals and in educational, relational environments—between teacher and student. This call is for a strong emphasis on the conditions to foster mental health, wellbeing and flourishing for young people, particularly for young people struggling with developmentally complex needs in the classroom.

Encouraging trauma-affected students to feel well and do well: Insights from positive psychology. Positive psychology is an umbrella term for the study of wellbeing, human strengths, and optimal functioning that provides the theorising and evidence-base to understand wellbeing (Gable & Haidt, 2005, p. 103). The

current paper contends that positive psychology is a useful discipline when incorporating a strength-based approach in the trauma-informed classroom. A model of trauma-informed positive education is complete with both the aforementioned therapeutic aspects of *repairing* (e.g. disrupted attachment and regulatory capacities) and the inclusion of positive psychology's paradigm of *growth* by increasing psychological resources. In trauma-informed classrooms, exploring the role of wellbeing in the context of dysfunction and mental disorder is of priority concern.

Positive psychology is the scientific pursuit to understand and enable the conditions of flourishing for individuals, communities and societies (Seligman & Csikszentmihalyi, 2000, p. 5). Positive psychology offers an important counter-perspective to trauma-informed approaches through understandings of the full range of human experience and the ways in which we can help students choose pathways towards wellbeing and accomplishment. The goals of positive psychology can be summarized as enabling the two conditions of wellbeing: 'feeling well' and 'doing well' (Jayawickreme, Forgeard, & Seligman, 2012). A constellation of positive outcomes, including effective learning, productivity, creativity, positive relationships, pro-social behavior, health, and life expectancy are all associated with high levels of wellbeing (Huppert & So, 2013, p. 838).

Seligman (2011) theorizes that wellbeing is a construct composed of measurable domains, each contributing to wellbeing. These dimensions of wellbeing theory include positive emotion, engagement, meaning, positive relationships and accomplishment (PERMA). Each of the PERMA domains has these properties: the domain contributes to wellbeing; people pursue it for its own sake; the domain is defined and measured independently of other wellbeing domains. The five domains of PERMA represent both subjective and psychological wellbeing domains. Positive emotions refer to the cultivation of positive affect and learning the skills 'to amplify the intensity and duration' of positive emotional states; engagement in the PERMA model is defined as the psychological state of absorption and focus; positive relationships carry emotional, meaning, and accomplishment benefits; meaning refers to a connection to something bigger than oneself; and accomplishment toward the service of wellbeing is defined as completing tasks pursued for their own sake without thought to additional personal gain (Jayawickreme, Forgeard, Seligman, 2012, p. 335).

Positive education is the application of positive psychology in a school setting. Positive education integrates the traditional business of academic learning while nurturing wellbeing and promoting mental health (Seligman, 2011; Waters & Stokes, 2013). Positive education is not a program, it is a philosophy that extends beyond a strategy (Ruberto, 2013). Positive psychology interventions (PPIs) in classrooms increase wellbeing

in mainstream classrooms (Waters, 2011; 2014). Within the mainstream classroom context, PPIs have been shown to increase levels of student hope (Green, Anthony, & Rynsaardt, 2007; Marques, Lopez & Pais-Riberiro, 2011); to cultivate gratitude, optimism, and life satisfaction (Froh, Sefick, & Emmons, 2008); to show benefits of mindfulness training (Huppert & Johnson, 2010; Waters, Barsky, Ridd & Allen, 2014); and to promote student learning about signature character strengths and positive emotions (Seligman et al., 2009; Waters & Stokes, 2013). Additional positive education themes incorporated into school-based programming include growth mindsets, flow, personal values, virtues, and appreciative inquiry (Waters & Stokes, 2013). Positive psychology interventions distinctly build positive factors, not otherwise addressed in mitigating the reduction of negative factors (Waters, 2011).

The current paper proposes that when teachers focus on repairing regulatory competencies and repairing maladaptive attachment styles *together* with a positive education approach (which emphasizes increasing psychological resources) the outcomes will be a fuller-bodied approach to trauma-informed education. Indeed we contend that by adapting a positive psychology approach, teachers can move trauma-affected students beyond healing from their ACEs to also experience posttraumatic growth.

Posttraumatic growth (PTG) describes the growth through positive changes and enabling conditions that can be experienced after challenging life events (Tedeschi & Calhoun, 2004). PTG does not transpire as a direct consequence of experiencing trauma; nor does growth occur as a result of healing trauma; rather, PTG is possible through the "individual's struggle with the new reality in the aftermath of trauma" (Tedeschi & Calhoun, 2004, p. 5). Further, this struggle manifests as a *constructive cognitive processing* of trauma (i.e. productive rumination) which offers new growth-focused orientations towards self, others, and one's new life (Cryder, Kilmer, Tedeschi, & Calhoun, 2006, p. 65). Trauma-informed classrooms are sold short if only addressing the healing aspects of therapeutic practice (e.g. repairing maladaptive attachment). A comprehensive trauma-informed positive education must include practices that foster thriving, flourishing, hope and posttraumatic growth.

The Organismic Valuing theory of Growth through Adversity (Joseph & Linley, 2008) has relevance to trauma-informed learning and is grounded in a psychosocial framework, a person-centered position that people are motivated toward growth, and a process of personal coping. This theory explains three cognitive outcomes of accommodating new trauma-related information: (1) experiences are assimilated, leading to a return to a pretrauma baseline; where defences are vulnerable to future retraumatization; (2) experiences are accommodated in a negative direction, leading to psychopathology; (3) experiences are accommodated in a

positive direction, leading to growth (pp. 13-14). The trauma-informed classroom can play a protective role in this accommodation. Although some students accommodate in a negative direction (e.g. disengaging from education, harmful behaviors), teachers can employ strategies that encourage experiences to accommodate in a positive direction. This is a key contention of our paper: to encourage teachers to build positive education interventions into trauma-informed classrooms so as to allow for trauma-affected students to not only heal but to also grow.

The benefits and changes reported in PTG explain possible areas for growth (see Calhoun & Tedeschi, 1998). These five domains include: new possibilities (e.g. new interests, new paths, new opportunities); relating to others (e.g. closeness and compassion for others); personal strength (e.g. feeling self-reliance, knowing I can handle difficulties, discovering that I'm stronger than I thought I was); spiritual change (e.g. a better understanding of spiritual beliefs, a stronger religious faith); and appreciation for life (e.g. life priorities shifted, appreciation of life and each day) (Tedeschi & Calhoun, 1996, p. 7). Hefferon suggests that PTG should also include potential changes and new understandings of growth in the *body* as the result of stored-trauma within the body and post-traumatic healing. Hefferon criticizes positive psychology for its 'lack of embodiment' and for overlooking the role of the body in human flourishing (2012, p. 1238). Positive changes through PTG can include new physical abilities, somatosensory integration, or compensatory strategies as part of healing and recovery.

The study of posttraumatic growth in children is a recent area of inquiry (see Meyerson et al., 2011). Cryder, Kilmer, Tedeschi, and Calhoun (2006) propose that PTG in children is assisted by factors that yield greater PTG including *ruminative thinking, social support,* and *competency beliefs*. Children showing PTG reported lower-levels of PTSD psychological symptoms, but across the review, these findings are not consistent (Meyerson, et al, 2011, p.956).

The study of PTG in children has not yet been included in trauma-informed education models of practice. While trauma-informed learning's domains focus on healing aspects of addressing the dysregulated stress response and repairing disrupted attachment styles, PTG encourages teachers to consider ways in which they can help trauma-affected students grow as a result of the trauma they experienced to build competencies in the face of adversity.

The Trauma-Informed Positive Education Model

Embedded in a positive education paradigm, the application of positive psychology in the school context, a model of Trauma-Informed Positive Education (TIPE) links approaches addressed in trauma-informed classrooms that focus on the repair of regulatory capacities and maladaptive attachment styles with proven positive psychology interventions which focus on growth by increasing psychological resources. As previously discussed, such integration conceptually acknowledges a two-factor theory of mental health (Keyes, 2009). This developmentally-informed model meets the complex needs of traumatized and vulnerable children—both their areas of deficit and building upon their strengths (see figure 2).

Insert figure 2 here.

The three domains suggested in the TIPE model are informed by extensive literature that is presented in summary form in Table 1. In order to develop the TIPE model, 74 published studies, meta-analyses, and conceptual papers were reviewed and the authors classified existing trauma-informed and positive education pedagogical approaches into one of three domains. The authors also classified studies according to sub-domains within each domain. The subdomains for repairing regulatory abilities (17 studies, 23.0% of TIPE literature) include: sensory integration, self-regulation, rhythm and repetition, and mindfulness. The domain of repairing disrupted attachment (22 studies, 29.7% of TIPE literature) include: strong attached relationships, emotional intelligence, and healthy play and fun. The third domain, increasing psychological resources has been group by PERMA wellbeing domains (35 studies, 47.2% of TIPE studies): positive emotions, engagement, relationships, meaning, and accomplishment—and further divided into subdomains.

Domain 1: Repairing Regulatory Abilities

In the first domain of TIPE, *repairing regulatory abilities,* the classroom focus is on the healing aspects of trauma-informed practice including sensory integration, self-regulation, rhythm and repetition, and mindfulness applications to learning tasks. This domain addresses the specific effects of trauma on the body and the neurosequential principles which guide developmental understandings of individual student needs.

Aligning the body's regulatory processes for learning are the first aims in this domain: **sensory integration** and **self-regulation**. When assessing the special needs of traumatized children, these two foci ask teachers to consider sensory processing and regulatory competencies in the body (Bath, 2008; Biel & Peske,

2005; Kopp, 1982). These domains address teacher concerns when looking at social-emotional learning programs which require a cognitive flexibility that traumatized students cannot easily access (Cohen, Deblinger, & Mannarino, 2004). For instance, when asked to reflect on a concept, share their feelings or identify difficult or positive emotions, vulnerable students may have neither the vocabulary nor the readiness or willingness to participate. Schore (2012) refers to many cognitive-based interventions as having 'above-the-neck limitations'; so what can teachers do if a student does not have ready-control of their cognitive functions? Full bodied learning begins by addressing sensory integration and self-regulation with students.

Rhythm and Repetition is the next domain and one featured intervention area is the regulation of students' heart-rates. Research suggests that children who have experienced trauma often have a resting-heart rate that far exceeds the desired 60 – 80 beats per minute for healthy children, and this elevated heart rate continues long after trauma-exposure (Perry et al., 1995; Perry & Szalavitz, 2006). Effective activities should be relevant to the age of the child, rewarding in a relational sense, and have enough rhythmic repetitions for the body to incorporate in a sustained manner (Perry, 2006). Inconsistent classroom routines create variable expectations for students; therefore, the principles of rhythm and repetition can also be applied to routines of academic lessons, classroom rituals, and other regularly occurring activities that emphasize predictable daily patterns for students.

Finally, we look at **mindfulness**, the benefits of mindfulness-based programs and the ways in which teachers can consider their classroom tasks, interactions, and relationships in a mindful way (Burke, 2010; Waters et al., 2014). Mindfulness interventions have shown improvements in reduced aggression, greater empathy and improved impulse control (Hassed, 2008). Mindfulness is a specific pathway towards a TIPE that can teach life-long regulatory skills to young people. In the TIPE classroom, mindfulness is used as a specific and special domain of body regulation (e.g. the autonomic nervous system balancing out the parasympathetic branches) which in-turn improves attuned communication (Siegel, 2009). Siegel elaborates that attuned communication allows for dyadic creation of a resonating whole encompassing emotional balance, fear modulation, response flexibility, empathy and insight. By bringing our students into the present moment and allowing them to learn mindfulness strategies such as 'body-scan', 'listening in on breathing', or 'noticing sounds around them' our students are taken out of their emotional (limbic) centers and brought back to thinking (cortex)—which readies the brain for learning. These mindfulness strategies can build in precious seconds to cognitive abilities, which can make the difference from emotion-based reaction toward cognitive decision making.

Domain 2: Repairing Disrupted Attachment

Within the second domain, *repairing disrupted attachment*, classroom priorities center on strengthening the relational milieu and the relational supports surrounding struggling students. A relationally-mediated milieu environment is a result of the mirroring qualities of our brain and can be a major determinate in stress-response regulation (Ungar & Perry, 2012, p. 12). TIPE classrooms seek to strengthen the innermost beliefs, values, and trust that struggling students have towards enduring connections to others, while working through the effects of trauma on their relational competencies. The effects of trauma affect the core of the individual, and both healing and growth are made possible through multiple, consistent, and persistent relational supports and relational interventions (Perry, 2006). This domain is comprised of three intervention areas: (1) strong attached relationships, (2) emotional intelligence, and (3) play and fun.

Strong attached relationships form the basis of relational health that serve as protective circles of safety required to take learning risks in the classroom (Roffey, 2013; Stewart et al., 2004). The TIPE model explores the strategies that strengthen belonging and connection in the relational milieu within the classroom. Ludy-Dobson and Perry (2010) argue that relational health is protective. In a research review with maltreated children, they conclude that relational health (e.g. the presence, quality and number of relational supports) has clear correlation to the development and function of 28 brain-mediated functions. In the case study of a ten year-old boy in foster care, when comparing his relational interactions to a typical child, the authors found that the typical child received upwards of 40 relational interactions in a given day; whereas the boy in foster care received on average eight relational conversations—and many days, the nature of these interactions were negative or the number of relational interactions was zero (p. 40). The frequency, regularity and predictable nature of these interactions are key learnings for teachers to remember in TIPE classrooms. Strong teacher-student relationships represent complex interactions of modelling, proximity, communication, and availability.

Emotional intelligence builds competencies to better understand self and others (Mayer, Roberts, & Barsade, 2008). Through building skills of perceiving emotions, using emotions, and self-regulating emotions, struggling students will gain confidence through self-knowledge particularly in their ability to articulate their frustrations in difficult and adverse encounters.

EI can be conceptualized as the integration of two scientific concepts: intelligence (i.e. abilities to understand and problem-solve information) and emotions (i.e. coordinated responses to changes in the environment involving subjective experiences and bodily states); and thus EI is the ability to understand and problem-solve employing the management of emotional responses, understanding emotions and their meanings,

appraising emotions from situations and identifying emotions in faces, voices, or postures (Mayer et al., 2008). Teachers can better understand EI in the following four themes: (1) perceiving emotions and emotional cues (e.g. *How do I feel? How do others feel?*); (2) using emotions to facilitate mood (e.g. *How does mood influence thinking and decision making?*); (3) understanding complex emotions and how they change over time (e.g. *How is it that I can feel many different emotions at once?*); (4) Managing and self-regulating emotions (e.g. *When is the right time to express difficult emotions?*) (Hefferon & Boniwell, 2011; Mayer et al., 2001).

Although emotional intelligence can be, and should be, integrated into other areas of classroom practice, in TIPE classrooms, it is important to specifically name this concept. Teachers will recognize the need to explicit address emotional literacy within their work with struggling students. If students are empowered through building competencies in identifying and connecting emotional states to cognitions required for life's problem solving, they will be able to make stronger and more accurate judgments in difficult situations (Mayer, Roberts, & Barsade, 2008).

Lastly, this domain focuses on **play and fun** as an explicit relational strategy to connect and engage struggling students (Hughes, 2006; Keltner & Bonanno, 1997). An emphasis on play and fun primes the teacher-student relationship for positive interactions which primes safe spaces for students to take healthy learning risks. When teachers engage through play and fun, the relational interaction can move towards spontaneity, curiosity, and exploration (Hughes, 2006). Playfulness conveys optimism, developmentally-appropriate challenge and a safe space to try and fail; and in classrooms where teachers must be aware of the secondary effects of trauma-exposure responses, playfulness can interrupt students' sadness, heaviness, or frustrations (Take Two, 2012). In the context of distress, laughter has been shown to facilitate a healthy adaptive response by enhancing social relationships (Keltner & Bonanno, 1997).

Childhood play has been shown to increase children's creativity (Sheerod & Singer, 1989) and facilitate healthy brain development (Panksepp, 1988). Play can build enduring resources, and laughter can indicate a student's openness to new experiences and interactions (broadening) and can lead to lasting skills, bonds, and attachments (building) (Cohn & Fredrickson, 2009, p. 15). Within the classroom context, teachers can improve engagement through play by lifting student energy, employing humour, using games or inconsequential competition, igniting friendly controversy, or exploring content in a new or usual way (Marzano & Pickering, 2011). Teachers can use daily strategies to bring these playful elements into classroom management routines, lesson-hooks, group projects, or as dual-purpose learning experiences.

Domain 3: Increasing Psychological Resources (PERMA)

The third and final domain of the TIPE model is *increasing psychological resources* which represents learning strategies and areas of growth that employ 'above the neck' language, cognition, and social skills. From a neurosequential perspective, the extent of the effectiveness of the following strategies is facilitated by strengthening the whole body, including the improvement of physical regulation and strong, trusting relationships (Perry, 2006). The TIPE model acknowledges the valid concerns of those arguing that many students are neither ready, nor prepared for, these 'above the neck' interventions without building competencies in regulatory and relational domains (Schore, 2012). Thus, within this neurosequential understanding, we introduce this third domain of the TIPE model as comprised of 'above the neck' wellbeing domains of PERMA: positive emotion, engagement, relationships, meaning and accomplishment (Seligman, 2011).

Positive emotions play an important role in their ability to broaden and build a student's repertoire for the resources to tackle challenging classroom tasks creatively and confidently (Cohn & Fredrickson, 2010; Fredrickson, 1998, 2001). Strategies for teachers in the TIPE model encourage the savoring and capitalizing aspects of positive emotions. The **savoring** aspect and positive reminiscing of positive emotions holds particular relevance for the care and education of traumatized children. Savoring positive events can be described as generating, intensifying and prolonging enjoyment of positive experience; and this skill requires the individual's capacity to not only feel pleasure, but to regulate oneself to find it, manipulate it and sustain it (Bryant, 2003, p. 173). Amongst a cluster of negative outcomes, trauma has significant impacts on maintaining positive state affect and sustaining memory (ACF, 2010; van der Kolk, 2003). Often, a child who has experienced trauma may have positive experiences and corresponding positive emotions, but this does not imply that these children are capable of savoring or capitalizing on the flow-on benefits from resulting positive emotions. For traumatized students to fill a reservoir of positive emotion that can serve them well in times of adversity, teachers and TIPE classrooms will be well-aware of providing specific opportunities to observe, practice, and experience the tangible wellbeing effects of positive emotion. Teachers cannot assume that positive emotions occur for students, nor can they assume that students will have the ability to employ savoring and other capitalizing skills.

Positive engagement has been defined as deploying your highest strengths and talents in order to meet the world in flow (Seligman, 2011, p. 11). A focus on the phenomenological states of engagement, **flow** (i.e. concentration, interest and enjoyment), enables teachers to better understand the conditions in which students can feel fully immersed in learning (Csikszentmihalyi, 1990). Focussing on immediate feedback and upwardly

scaffolded tasks, teachers will be directed to take an active role in the planning and pacing of individualized learners. One goal is the evolving investment from active-engagement towards building stamina for intervention skills needed to strengthen critically important academic competencies. Teachers can work with students to achieve classroom flow, academic persistence, and long-term engagement through approaches such as peaking student-interest through hands-on or vocationally-based activities, knowing that they will move focus towards building stamina and persevere for academic tasks.

In the **values and character strengths** focus, TIPE teachers empower students by helping them to clarify their own values and to practice the character strengths in order to stay aligned to those values (Ryff & Singer, 2008; Peterson & Seligman, 2004; Seligman, 2011). By living towards these strengths, students will make strides towards psychological well-being, specifically *environmental mastery* (Ryff & Singer, 2008). Within the TIPE classroom, struggling students need multiple opportunities to identify, reflect, and set goals using their signature strengths. Often, vulnerable students need to build confidence when naming and working with their strengths.

The repositioning of relationships as **positive relationships** in this domain frames classroom relationships through concepts such as *relational density* (Ungar & Perry, 2012) and *active-constructive responding* (ACR) (Gable et al., 2004). We position relationships twice in the TIPE model to conceptually link relationships as a healing intervention (see prior section on Repairing Disrupted Attachment); and reiterate the importance of increasing psychological resources through positive relationships as part of the PERMA model of wellbeing. Active-constructive responding will remind teachers that the timing and quality of positive interactions have meaningful consequences which fortify the relational milieu (Gable et al., 2004).

Positive meaning within the lives of trauma-affected students can be cultivated through the teaching and understanding of daily resilience. Resilience is positioned in the TIPE model not as a destination, but as a daily mosaic of opportunities that students can practice and reflect upon (Brunwasser, Gillham, & Kim, 2009; Gillham, Reivich, Jaycox, Seligman, & Silver, 1990; Gillham et al., 2007; Seligman et al., 2009; Ungar & Perry, 2012). Curriculum ideas include lessons that get students to identify messages, heroes, and paragons of resilience (Reivich & Shatte, 2002; Peterson & Steen, 2009). In the trauma-informed context, teachers will be encouraged to recognize and validate small steps towards a resilient mindset within young people.

Finally, **positive accomplishment** reminds the school community that all students have the potential to succeed; and must experience accomplishment to reach further and farther in their personal goals. The cognitive reframing of hope is applicable in the daily reality and struggles of trauma-affected students understanding the

dimensions of hope (i.e. will-power and way-power) and working towards successful goal-setting and goal-attainment Marques, Lopez, & Pais-Ribeiro, 2011; Snyder, 2000). Hope, defined in this context, requires strong relational coaching from teachers; and thus, teachers play a critical role in building hope through the conception of visible and attainable goals.

A focus on **growth mindsets** reminds teachers that students enter the classroom internalising deeply held self-derived theories about the nature of their own intelligence and their abilities to learn (Dweck & Leggett, 1988; Dweck, 2000, 2007). A growth mindset concerns how the student *perceives* the nature of intelligence and the possibilities for his or her growth (Dweck, 2000). While those with a fixed mindset believe that their abilities are 'carved in stone', a growth mindset frames basic beliefs about one's abilities, efforts, and talents as dynamic and improvable with effort over time (Dweck, 2006). A growth mindset implies that *everyone* can grow through application and experience (p. 7). Whereas fixed mindset students may primarily care about whether they are judged as smart or not smart; students with a growth mindset embrace opportunities to grow, make mistakes and learn from them (Dweck, 2007). Further, those with a fixed mindset believe that their intelligence is static, avoid challenges, give up easily, see effort as useless, may ignore negative feedback, and feel threatened by others; individuals with a growth mindset believe that they can develop their intelligence, embrace challenges, persist in adversity, believe effort leads to mastery, learn from criticism, and feel inspired by other's success (Dweck, 2006). In order to develop a growth mindset voice within each of our students, teachers must be consistently mindful of both their own messages to students and the attributions that students are making about their own success. Strategies such as giving process-praise, teaching about brain plasticity, and ensuring visible reminders of growth and progression all remind students that learning is the result of incremental effort and willingness to risk, fail, and try again.

Table 1: Review of trauma-informed and positive education approaches identified in the literature

TIPE Domain	Sub-domain	Evidence-base	Brief Description	Classroom intervention
Repairing regulatory abilities	Sensory integration	(Brown & Dunn, 2002; Biel & Peske, 2005; Heibert et al., 2013)	Processing sensory information in a coherent and organized manner	Sensory accommodations including seating and work-station; sound sensitivity interventions; fidget toys; somatosensory activity breaks; dance, movement, and music therapy. VIA character strengths: curiosity, love of learning, self-regulation.
	Self-regulation	(Hughes, 2004; 2006; Perry, 2006; Bath, 2008; Kuypers, 2011; Hiebert, Platt, Schopok, & Whitesel, 2013)	Self-regulation defined as the domains of sensory processing, executive functioning, and emotional regulation; Relationally mediated rhythmic regulation to facilitate both 'bottom-up' (e.g. strengthening the body's regulatory systems) and 'top-down' regulation (e.g. cortical regulation)	Teaching students about their own heart-rates using heart-rate monitors; allowing students to track their heart rate through a week of activities while learning strategies to self-regulate; whole-school approaches to teaching and reinforcing self-regulation; pre-emptively asking students to identify their current ability to self-regulate on a youth-friendly rubric. VIA character strengths: self-regulation (self-control), persistence.
	Rhythm & repetition	(Perry, 2006; Ratey, 2008)	Effective therapeutic interventions must have enough repetition to influence the regulatory functions of the brainstem (e.g. heart rate, body temperature, respiration);	Aerobic exercise included in classroom time-table (e.g. routine of short stationary bike time before independent reading); Applying principles of rhythm and repetition to physical activity (e.g. short, regular breaks for drumming, clapping, song); to rhythmic and consist lesson and daily time-tables; incorporating the rhythms of the season and school year through traditions, festivals, and celebrations. VIA character strengths: self-regulation (self-control), social intelligence, vitality.
	Mindfulness	(Kabat-Zinn, 2003; Thompson & Waltz, 2007; Hassed, 2008; Burke, 2010; Waters, 2011; Monshat et al., 2013; Waters, Barsky, Ridd, & Allen, 2014)	Awareness that emerges through paying attention on purpose and using focus to bring the mind to the present moment; improves school-based intervention outcomes for decreased substance use, improved sleep, and hyperactivity symptoms	Mindfulness strategies such as 'body scan', 'noticing sounds', and 'listening in on breathing' can be time-tabled into student schedules; therapeutic martial arts, yoga or tai-chi; 'every day' mindfulness. VIA character strengths: self-regulation, open-mindedness, kindness.

TIPE Domain	Sub-domain	Evidence-base	Brief Description	Classroom intervention
Repairing disrupted attachment	Strong attached relationships	(Rogers, 1961; Bowlby, 1971; Klem & Connell, 2004; Stewart et al., 2004; Woolley & Bowen, 2007; Cornelius-White, 2007; Crittenden, 2008; Ludy-Dobson & Perry, 2010; Schore, 2012; Roffey, 2013)	Strong attached relationships are the conduit towards healing, growth, and learning; relational interactions serve as co-regulatory factors (e.g. regulating the stress response systems and healthy neuroendocrine and neurophysiological states)	Creating a positive relational milieu with emphasis on small teacher/student groupings; classroom environment promotes safety; open and regular communication to parent/carer; teacher modelling of positive relationships and help-seeking at proactive, assertive, and strengthening. VIA character strengths: kindness, courage, integrity, love, social intelligence, fairness.
	Emotional intelligence (EI)	(W.T. Grant Consortium, 1992; Goleman, 1996; Eisenberg, Fabes, Guthrie, & Reiser, 2000; Schultz, Izard, Bear, 2004; Rivers et al., 2012; Lomas & Stough, 2012)	Cluster of skills to identify helpful and difficult emotions, motivation to encounter adversity, to control impulse and delay gratification, to regulate one's moods, to empathize and to hope; the difference between thoughts, feelings, and actions; reading and interpreting social cues, verbal and non-verbal communication	Teachers modelling positive emotional intelligence and emotion regulation; morning circle routines allow students to report daily and teacher to assess emotional states; addressing difficult behaviors framed through an EI perspective: tracking student emotion on a 'mood metre'. VIA character strengths: social intelligence, citizenship, fairness, self-regulation.
	Play and fun	(Panksepp, 1988; Sheerod & Singer, 1989; Hall, Kaduson, & Schaefer, 2002; Bratton, Ray, Rhine, & Jones, 2005; Marzano & Pickering, 2011; Take Two, 2012)	Healthy play and fun are often missing from the education experiences of trauma-affected students; playfulness can interrupt students' sadness, heaviness, or frustrations; play in the therapeutic contexts allows children to process emotional or behavioral problems through developmentally appropriate interventions	Lifting student energy by using humour, games, or inconsequential competition; physical, age-appropriate play through sports; artistic play; curriculum units which engage students through play and challenge (see Barry, 2010). VIA character strengths: vitality (zest, enthusiasm, vigour, energy).

TIPE Domain	Sub-domain	Evidence-base	Brief Description	Classroom intervention
Increasing psychological resources (PERMA)	Positive emotions:	(Lyubomirsky, King, & Diener, 2005)	Positive emotions have causal effects of greater school success, relationships, and mental and physical health	Quality and frequency of explicitly naming and teaching positive emotions, as in a 'positivity toolkit' (see Fredrickson, 2009); visual reminders to capitalized on positive memories and accomplishment (savoring); 'What Went Well' (WWW) routine (see Fox Eades, 2006); helping students anticipate and co-create festivals and celebrations which integrate academic accomplishment, personal narrative, food, traditions, and relationships; a 'positive memory bank' to provide students the opportunity to apply for funds to create positive memory experiences that would be otherwise provided for by a stable household. VIA character strengths: creativity, curiosity, open-mindedness, love of learning, vitality, gratitude, hope, humour.
	Broaden and build	(Fredrickson, 1998/ 2001; Cohn & Fredrickson, 2010)	Positive emotions 'broaden' one's thought-action repertoire and those positive actions 'build' personal resources	
	Savoring	(Bryant, 2003; Bryant, Smart, & King, 2005)	Generating, intensifying and prolonging enjoyment of positive experiences	
	Gratitude	(McCullough et al., 2001; Emmons & McCullough, 2003, 2004; Froh, Kashdan, Ozimkowski, & Miller, 2008; Froh, Sefick, & Emmons, 2009; Howells, 2012)	Increases in gratitude lead to a greater sense of wellbeing, optimism, decrease in depression, connectedness, improved relationships, and greater ability to deal with adversity; for trauma-affected students, an *embodied* sense of gratitude through action, lived experience and connection to others	Adaptations of gratitude interventions: gratitude letter to a valued friend or teacher, listing gratitude statements and recognising "WWW"; beginning each day with a warm welcome and gestures of gratitude to encourage belonging to trauma-affected students; regular and ongoing opportunities for students to create gestures and actions of gratitude; gratitude walls; gratitude diaries; gratitude rituals. VIA character strengths: gratitude, appreciation of beauty and excellence, spirituality, citizenship, social intelligence, kindness.
	Positive engagement:			
	Flow	(Csiksentmihalyi, 1990/1997)	A special state of optimal engagement encompassing concentration, interest, and enjoyment; flow is present when there are clear goals, appropriate responses and immediate feedback	Progression from high-impact 'hands-on' learning towards building perseverance for academic and intervention competencies; regular academic assessment and feedback are critical to engage trauma-affected students in order to engage in sustained goal-directed learning; apprentice learning through a self-sustaining workshop literacy model (see Calkins, 1994/2000; Harvey, 1998; Witter, 2013). VIA character strengths: creativity, curiosity, love of learning, persistence (perseverance, industriousness), self-regulation.

TIPE Domain	Sub-domain	Evidence-base	Brief Description	Classroom intervention
	Character Strengths	(Park, Peterson, & Seligman, 2004; Peterson & Seligman, 2004; Seligman et al., 2009; Gillham et al., 2011; Proctor & Fox Eades, 2011; Shoshani & Slone, 2012; Weber & Ruch, 2012)	Character strengths classifications models (e.g. VIA) provide opportunities to identify and practice signature strengths and to unify school language for teaching and learning	Using signature strengths, students set individual learning and wellbeing goals and determine other ways they can practice strengths; *strengths spotting* promotes strengths identification in stories, personal narratives, or public recognition; storytelling and literature selection allows for a specific dual-purpose for meeting literacy and strengths learning
	Positive Relationships:			
	Relational density	(Ungar & Perry, 2012)	The timing and quality of positive interactions improves relational density (i.e. the number and proximal nature of relationships) and the possibility of relational permanence for trauma-affected students	Emphasising small-group and one-to-one interactions with a consistent and invested adult; always conceptualising classroom interventions within a relational context. VIA character strengths: curiosity, kindness, love, social intelligence, fairness, forgiveness, self-regulation, gratitude, hope.
	Active constructive responding (ACR)	(Gable et al., 2006; Swinson, J. & Harrop, A., 2005)	ACR is employed to help others capitalize on their good news or good fortune; positive feedback from teacher to student increases 'on-task' behavior and decreases 'off-task' behavior	Teachers must be well-aware of the amount and quality of positive and reinforcing statements in the classroom; teachers and students can model ACR inside and outside the classroom, parent/carer interactions, school/home reports, assessments, and individual learning plans. VIA character strengths: gratitude, appreciation of beauty and excellence, hope, kindness, social intelligence.
	Positive Meaning:			
	Resilience	(Gillham et al., 1990; Reivich & Shatte, 2002; Ungar & Perry, 2012)	Resilience is conceived as a cumulative process employing biological, psychological, and social resources to address adversity leading to either decline or growth; a resilient mindset can be learned through strategies to understand the link between beliefs, feelings, and behaviors, to identify cognitive explanatory styles, to challenge and dispute negative thinking, and to practice other problem-solving strategies	A resilient explanatory style can be taught within the classroom explicitly (e.g. such in a manualized curriculum, see PRP, 1990) or implicitly using literature or historical examples of resilient mindsets. VIA character strengths: hope (resilience, optimism, future-mindedness), courage (bravery, valour), perspective, persistence.

TIPE Domain	Sub-domain	Evidence-base	Brief Description	Classroom intervention
	Positive accomplishment:			
	Hope	(Snyder et al., 1997; Snyder, 2002; Park, Peterson, & Seligman, 2004; Peterson & Seligman, 2004; Green et al., 2007; Marques et al., 2011)	Hope is expecting the best in the future and working towards achieving it; a hopeful mindset can be increased through goal setting and coaching interventions; people high in hope generate alternative pathways when encountering adversity	Teaching with stories of hope (i.e. ambitious goals while considering alternative pathways); students receive individual goal-setting support; whole-classroom or –school goals for community or public recognition. VIA character strengths: hope (optimism, future-mindedness), creativity, courage (bravery, valour), persistence, prudence, self-regulation.
	Growth Mindsets	(Dweck & Leggett, 1988; Dweck, 2006; Blackwell, Trzesniewski, & Dweck, 2007)	Teaching students the incremental theory that intelligence, personality and character is malleable and can be improved over time; those with a fixed mindset believe their abilities will not change, avoid challenges, and give up easily	Teachers should focus feedback on growth-, process-, and effort-praise to increase motivation by recognising a student's engagement, perseverance, or strategies; visible process charts to focus on growth and successful goal-attainment; heroes that represent growth mindsets; 'green' and 'red' light thinking examples. VIA character strengths: persistence (perseverance, industriousness), perspective, curiosity, kindness, love of learning, creativity, hope.

Embedding the TIPE model

This TIPE model is sequentially developmental in that it suggests teachers need to explicitly nuture a hierarchy of skills in trauma-affected students as building on regulatory abilities assists the development of secure attachments which supports the building of psychological resources. Specifically, TIPE is developmentally designed with *neurosequential* principles to guide teacher practice (see prior section and Perry, 2006; 2009). TIPE also acknowledges that traumatized and vulnerable students have missed healthy stages in a cluster of compromised domains[4]. To recall, Perry's principle of *developmentally-informed, age-respectful* emphasizes the importance of matching age-appropriate engagement to relevant developmental competency.

In addition to the sequential relationship of the three components of TIPE, we suggest the model also creates iterative synergistic effects. Although neurosequential interactions do suggest a developmental sequence of increases, accommodations, and growth, we also propose that the interactions between the three TIPE domains (repairing regulatory abilities, repairing disrupted attachment, and increasing psychological resources) create synergistic interactions. Synergy describes behavior within systems when the effects of the integrated whole are greater than can be explained by each isolated, separate element (Buckminster Fuller, 1975). This synergistic principle (1+1=4), originating within geometry and chemistry studies, explains that interacting, mutual behaviors facilitate synergistic relationships; the whole is stronger than, and cannot be predicted from, the sum of its pieces.

Lindsley, Brass and Thomas (1995) define a spiral as a pattern of consecutive increases or decreases when a minimum of three task attempts creates a pattern of change. This pattern includes reciprocal interactions, perceived efficacy and performance, and requires the cognitive processing to confirm the evidence that one's functioning and behavior is positive or negative. Here, we suggest that the three TIPE domains interact in a synergistic upward spiral. A spiral vortex is a useful structure to theorize TIPE learning based upon the proposition that human systems evolve through increasing complexity, and each spiral is a more elaborated version of what existed before (Beck & Cowan, 1996, p. 29).

Further, spiral dynamics and the spiral vortex represent a unifying framework which enables the conceptualisation of a holistic system (p.30). Beck and Cowen (1996) assert that the upward spiral: (1) expands psychological space towards multifaceted personalities, (2) expands conceptual space towards bigger picture

[4] TIPE addresses these missed stages of healthy development by including strategies which address the coping behaviors that students develop in response to adversity, responses such as defiance, resistance, or withdrawal.

views, widen spans of influence, and extends time frames; (3) progressively increases alternatives towards more choices; and (4) progressively increases behavioral freedom toward more possibilities in terms of how to be, ways to display emotion, and relational engagement.

Cochran (2009) summarizes that an upward spiral is an accumulating sequence of three or more cycles of reciprocal causation and deviation-amplifying feedback, all increasing the possibility of desirable outcomes. Maruyama (1963) explains that reciprocal causation occurs when system elements influence one another in simultaneous or alternating ways. Deviation-amplifying (as opposed to deviation-counteracting) feedback occurs when causal relationships amplify an 'initial kick' from the initial condition (Maruyama, 1963). This concept came from the study of cybernetics, the science of self-regulating and equilibrating systems (e.g. thermostats, physiological regulation of body temperature, economic and political processes). A deviation-amplifying system has mutual positive feedback loops reinforcing the synergistic effects between each separate domain. Wender (1968) uses the deviation-amplifying feedback loop by describing 'virtuous cycles' of accomplishment when increases in skill, praise, gratification, and achievement reinforce one another in compounding ways. Lindsley et al. (1995, p.646) explain the occurrence of efficacy spirals in individuals, groups and organizations as 'deviation-amplifying loops' when positive outcomes of perceived efficacy and performance reinforce and build upon one another. A deviation-amplifying loop spirals when there is a high interdependence between variables; each variable alternates as both the cause *and* the effect; and a deviation in one variable amplifies the positive relationships between other variables.

The broaden-and-build theory of positive emotions has been modelled on this self-reinforcing upward spiral of amplifying psychological resources (Fredrickson, 2000; 2001). This theory has shown that positive emotion increases the ability to build psychological resources (Fredrickson, 2001)[5]. In turn, increasing psychological resources amplify one's ability to generate positive emotion (reciprocal causation). Fredrickson and Joiner (2002) have shown as part of an amplifying feedback process, positive emotions accumulate while having both a generative and reciprocal role to play when increasing psychological resources.

Upward spirals of positive emotion and their inherent synergistic and reciprocal effects have been found to increase wellbeing. Fredrickson and Joiner (2002) have shown through *broad-minding coping,* individuals who have more positive emotions are more resilient to adversity; and reciprocally, the increased ability to employ coping skills (resiliency) predicts positive emotions over time. Sheldon and Houser Marko

[5] Psychological resources are increased by broadening thought-action repertoires, thereby generating greater capacity for attention, cognition, and action.

(2001) studied the *self-concordance model*, showing that healthy goal striving increases wellbeing over time; predicting further increases in both goal striving, ego development, and wellbeing to the second time period. The authors note when people initiate an upward spiral of positive outcomes, with each outcome, they are able to maintain momentum onto the next iteration of the spiral.

Applying the notion of upward spirals to the TIPE model, we propose that all 3 elements of the model interact to transform each other in a reciprocal, amplifying, and synergistic manner. For this reason, we have integrated the VIA-Inventory of Strengths as they apply to each TIPE domain (see table 1; Peterson & Seligman, 2004). In the TIPE classroom students may nurture inherent strengths and capacities that are causally reciprocal and amplify their ability to build and maintain strong positive relationships. By using their strengths to learn how to develop strong attached relationships, the relational safety affords the time and space to increase their capacity and motivation to self-regulate in order to accomplish ambitious academic goals or develop deeper relational investment to actively participate and find meaning, value, and belonging (attachment) in the classroom community which then feeds back into their knowledge of their character strengths.

Insert figure 3 here.

An illustration of the TIPE model. To illustrate the way in which a TIPE approach can foster upward spirals of synergistic, amplifying, and reciprocal interactions among domains of self-regulation, attachment, and increasing psychological resources, we present the following example which begins with a typical experience reported in the trauma-informed literature, but we show how learning can be enhanced by using the three domains in interactive ways. The two domains of regulation and relational attachment can be synergistically integrated as relationally-mediated regulatory activities within the classroom (Perry, 2006). Effective routines and interventions can build emotional regulation, while providing opportunities to develop attached relationships. Increasing psychological resources amplifies this spiral process as outlined below.

An adolescent student, whose family is known by child-protection services, enrols in a school using the TIPE model. As part of this school's new student induction and assessment processes (e.g. explanation of school values, expectations and procedures; assessments to determine academic needs and relevant therapeutic supports), it is determined that this student is reading and writing far below age-typical standards and has significant regulatory delays and complex behaviors as result of past family trauma and abuse.

The VIA-Youth survey is then administered, and the teacher builds relational attachment by sitting side-by-side with the student and helps to explain the VIA indicators (Peterson & Seligman, 2004). If the student needs to stop during the survey due to poor concentration, the teacher can co-regulate by walking around the school (attachment, regulation, rhythm), and the teacher can positively prime the student to return to the assessment by pointing out character-strengths visuals on the school walls (visual reminders of increasing positive resources). Once the VIA assessment is completed, the student reflects on his results and notices that *humour* is identified as his signature strength. His teacher explains, "This is your signature strength—humour. It is our job to help you notice humour, practice humour, and find ways to show humour every day. This is how we will build your academic and wellbeing success." This strength-based appraisal from the teacher may provide the initial 'kick' to generate positive momentum in the student's learning journey.

Each day this student participates in a highly regulated and predictable daily schedule (rhythm, regulation). This day begins with a morning meeting where students and teacher sit side-by-side in a classroom ritual of greeting one another around the circle (regulation, rhythm, repetition, attachment). The teacher has an opportunity to check-in and observes the current state-affect of the student to adjust the day's activities and expectations as needed. Within the morning circle, prompts are given, "What went well yesterday? Give us one word which describes how you are going this morning," (relational attachment, emotional intelligence, positive emotion). Next, the students in the circle play a speed-game of passing beanbags in a pattern determined by the teacher (regulation, rhythm, play and fun, positive emotion, flow). After announcements and updates, the circle ends with a prompt, "What strength will you focus on today? And who will you look to for support?" (character strengths, hope). The students answer in turn and transition to their next class.

Literacy class follows a reading workshop routine (Witter, 2013), and this student is reading *Holes*, by Louis Sachar (1998). After participating in a reading strategy mini-lesson, the reading stamina goal of 13-minutes is agreed upon between teacher and this student based upon yesterday's reading goal of 12 ½ minutes being met; and throughout, the teacher is monitoring closely and gives timely feedback through individualized reading conferences (relational regulation, attachment, flow, growth mindset). The student elects to read sitting on an ergonomic foam-pillow in a rocking-chair (sensory integration, rhythm, regulation). While reading *Holes,* the teacher asks the student to consider text details which show: (1) the emotions, (2) the self-talk, (3) and the character strengths exhibited in the main characters (emotional intelligence, character strengths, hope, resiliency, meaning). While reading, the student requests to take a break because he is having a difficult time concentrating. A teaching assistant takes the student to the stationary bicycle in the corner of the classroom;

both student and adult take alternating turns on the equipment, pedalling for one-minute each, noting the way their heart-rate changes in this brisk activity (relational attachment, regulation, rhythm) and then return to meet the reading stamina goal of the day. The teacher elects to switch on the metronome that is set to pulse quietly at 80 beats per minute (regulation, rhythm). The teacher ends the lesson with a review of the day's learning aims and a short reflective writing prompt. Since the teacher knows that humour is this student's signature strength, the student is asked to find and write examples of humour from *Holes* in his reading journal as the literacy period concludes (emotional intelligence, character strengths). These writing drafts will eventually form an essay on the use and effects of humour within the novel.

As the day continues, the teacher may do a heart-rate check (regulation), a mood-metre or stress-check rating (emotional intelligence; Rivers et al., 2012; Goleman, 1996), or a 'brain-break' to practice a 30-second breathing strategy (mindfulness, regulation, rhythm). Regular brain-breaks are scheduled every 90-minutes this term, and today, he selects a new friend he has made since joining the school (relational attachment) to practice free-throws on the miniature basketball court set up in the hallway (regulation, rhythm, attachment, positive emotion play and fun). Other academic classes follow and right before lunch, he participates in a 30-minute personal development class. Today's learning aims are identifying personal assets (*way-power*) and environmental supports (*will-power*) to reach his personal goal, obtaining a learner's permit to drive (hope, growth mindset, character strengths; Snyder, 2002). In the afternoon, this student has a choice of relationally-mediated regulatory activities that serve as elective classes: therapeutic martial arts, drumming, studio art, drama, industrial arts—each designed with flow principles while drawing on opportunities to practice character strengths.

Throughout the term, this student builds self-regulatory capabilities through relationally-mediated tasks (i.e. amplifying and synergistic interactions); which gives him more opportunities to increase psychological resources including his signature character strengths (i.e. amplifying and synergistic interactions); fostering upward spirals that further support his skills in regulation, relationship-building, and academic engagement (i.e. reciprocal causation and synergistic interactions). Armed with this resonating truth (i.e. *humour is my signature strength*) teachers can open doors to explore further interventions towards increasing wellbeing and academic accomplishment. For this student, conversations about humour can lead to the student's developing competencies of social-intelligence, kindness, and gratitude. These strengths help the student to form more secure attachments with his teachers and peers. These newly formed secure attachments help the student feel

safe, which then supports his capacity to regulate his emotions; and allows him to use his ever-developing character strengths of humour, kindness, and social intelligence to self-regulate.

Conclusion

This current paper proposes a model of trauma-informed positive education (TIPE) to best meet the needs for struggling students who have experienced trauma from abuse or neglect. We argue that interventions and concepts from positive psychology carry important possibilities for student growth and wellbeing in the trauma-informed context. Yet, to successfully access many of these cognitive based positive psychology interventions, students must be developmentally ready in domains such as emotional regulation and attachment—domains that research sadly shows have been compromised in trauma-affected students due to the brain-based effects of trauma. The TIPE model proposes that teachers approach student learning by addressing three domains of therapeutic learning and growth: (1) Repairing regulatory abilities, placing focus on the stored-trauma within the student's body using strategies for physical and emotional self-regulation; (2) Repairing disrupted attachment, boosting the relational core of teacher-student relationships which then serves as a safe conduit to learning; and (3) Increasing psychological resources, promoting growth in character and wellbeing. The three strategies can be practiced sequentially but also interact in cyclical ways that foster healing and growth via synergy, amplification, and reciprocal causation. The TIPE model fundamentally expands the possibilities of trauma-informed teaching and learning by maintaining rigorous attention towards the healing of developmental deficits, while simultaneously providing pathways towards posttraumatic growth.

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