JASR Volume 2, Issue 1
Welcome from the Editors!

We are delighted to continue this scholarly journey as we deepen our collective understanding of the science and practice of Shanker Self-Reg®.

We extend our heartfelt thanks to Dr. Nina Mafrici, Dr. Susan Hopkins, Sarah King Audley, and Lindsay Samson for their thoughtful and constructive reviews. Their contributions were instrumental in shaping the direction of this volume.

Thank you for your interest in JASR. We look forward to your continued engagement and the inspiring dialogues yet to come.

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Applied Self-Regulation Knowledge is published by ASK Applied Self-Regulation Knowledge Network in Peterborough, Ontario.

Painting by Charlotte Iannacito

The Role of Parental Co-Regulation in Enhancing Treatment Outcomes for Children with Eating Disorders

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Abstract

Emotional dysregulation has been increasingly identified as a central factor in the development and maintenance of Eating Disorders (EDs) in children and adolescents. Difficulties in identifying, processing, and managing emotional states are consistently linked to ED psychopathology, with maladaptive emotional regulation strategies such as rumination and emotional avoidance exacerbating symptoms (Leppanen et al., 2022). While established treatment models, such as Family-Based Treatment (FBT) and Emotion-Focused Family Therapy (EFFT), emphasize the critical role of parents in managing eating behaviours and emotional distress, their effectiveness can be further enhanced through the concept of co-regulation. Stuart Shanker's model of co-regulation offers a complementary, relational approach, emphasizing how caregivers can actively support their child's emotional and physiological regulation through calm, attuned interactions (Shanker, 2016). By integrating co-regulation into family-based interventions, caregivers can transform emotionally charged environments, such as mealtimes, into opportunities for healing, emotional attunement, and nervous system stabilization. This paper explores the role of emotional dysregulation in EDs, examines how co-regulation complements existing family-based therapies, and argues for the integration of parental co-regulation to strengthen family bonds, reduce emotional distress, and foster long-term recovery in children with Eating Disorders.

Introduction

Living with a child who has an Eating Disorder is often a daily struggle marked by confusion, fear, and emotional turmoil within families. Eating disorders do not just affect the individual; they ripple outward, reshaping family life, emotional patterns, and relationships. While established treatments, such as Family-Based Treatment and Emotion-Focused Family Therapy, provide essential support, their effectiveness can be further enhanced through the concept of co-regulation. As Stuart Shanker (2016) defines it, co-regulation occurs when two individuals help regulate each other's behaviour, mood, and emotions through the use of interactive signals, supporting one another in maintaining a balanced emotional state– a dynamic especially important in parent-child relationships. Integrating co-regulation into treatment reframes disordered eating behaviours as responses to overwhelming stress rather than deliberate control, cultivating compassion and more profound understanding within families (Shanker, 2022). By embracing co-regulation alongside clinical interventions, parents can better support their child's emotional and physiological regulation, creating a safer environment that promotes healing and strengthens recovery.

Eating Disorder Prevalence Among Youth

Eating Disorders typically emerge during adolescence and early adulthood, with the highest risk period occurring between the ages of 15 and 35 (Burton, 2020). Among children and adolescents under 18, anorexia nervosa affects approximately 0.3% to 0.5% of the population, making it a relatively uncommon but serious condition (Burton, 2020). Despite its lower prevalence compared to other pediatric mental health disorders, anorexia nervosa carries some of the highest mortality rates among psychiatric illnesses, underscoring its clinical significance (Burton, 2020). Gender disparities are also well-documented, with prevalence rates showing a notable skew toward females. Among children under 12 years of age, the female-to-male ratio is approximately 4:1, increasing to 9:1 during adolescence (ages 13–18), reflecting both biological and sociocultural factors that heighten risk among girls and young women (Burton, 2020).

Social and environmental factors perpetuate these beliefs, such as Adverse Childhood Experiences (ACES) and the pressures of Western beauty ideals and social media (Burton, 2020). Problematic social media use (PSMU) has emerged as a key contributor to Eating Disorders, exposing young people to harmful content such as idealized body images, cyberbullying, and misinformation about food and fitness (Burton, 2020). In response to these alarming trends, health authorities are now recommending routine mental health screenings in youth, highlighting the urgent need for early intervention and greater media literacy to protect vulnerable developing minds (Montag et al., 2024). The "Four P's" framework helps conceptualize these complexities: i) predisposing (genetic, personality, or early experiences); ii) precipitating (triggering events or cultural pressures); iii) perpetuating (factors that sustain the illness); and iv) protective (such as family support, secure attachments, and resilience), all of which shape the onset, maintenance, and recovery trajectory of Eating Disorders in youth (Burton, 2020).

Eating Disorders Association with Emotional Dysregulation

Difficulties with emotional regulation have been increasingly recognized as central features in the development and maintenance of Eating Disorders. Emotional regulation refers to the processes and strategies individuals use to identify, initiate, and modify emotional responses (Leppanen et al., 2022). These strategies, whether automatic or deliberate, help manage both the internal experience and external expression of emotions, particularly when those emotions are perceived as distressing or disruptive (Leppanen et al., 2022). Within the context of Eating Disorders, patterns of emotional dysregulation often emerge, with ruminative thinking, referring to the repetitive and passive focus on one's distress without moving toward solutions, and non-acceptance of emotional states being especially closely linked to Eating Disorder psychopathology (Leppanen et al., 2022).

A systematic review and meta-analysis by Puttevils et al. (2021) highlighted that while individuals with anorexia nervosa (AN) and bulimia nervosa (BN) show similar tendencies to use maladaptive emotional regulation (ER) strategies, those with AN demonstrate significantly lower use of adaptive strategies. These difficulties may be influenced by features specific to AN, such as low body weight and high levels of alexithymia, which impair emotional awareness and expression (Puttevils et al., 2021). Complementing these findings, Ruscitti et al. (2016) examined ER challenges across the

full spectrum of ED diagnoses, including Eating Disorder Not Otherwise Specified (EDNOS) and Binge Eating Disorder (BED). Their results confirmed that individuals with EDs exhibit greater overall emotional regulation difficulties compared to other psychiatric populations, particularly in areas such as emotional acceptance, impulse control, and the availability of effective strategies for coping with emotional distress (Ruscitti et al., 2016). Additionally, Christensen et al. (2020) demonstrated how emotional dysregulation not only contributes to the onset and persistence of ED symptoms but also affects social relationships. Behaviours such as rumination, reassurance-seeking, and "fat talk" within social interactions may amplify emotional distress and perpetuate disordered eating behaviours (Christensen et al., 2020).

These findings demonstrate a critical clinical implication. While individual emotional regulation skills training is essential, addressing emotional regulation solely at the personal level may be insufficient. Stuart Shanker's model of co-regulation offers a complementary framework, highlighting the relational and neurophysiological processes that support emotional regulation (Shanker, 2016).

The Shanker Method®: Understanding Eating Disorders in Families Through a Self-Reg Lens.

Self-regulation refers to the way the nervous system manages stress. It involves viewing challenging behaviours and emotions as signs of stress, then working to identify stressors, reduce them, reflect on reactions, and restore energy (Shanker, 2016). This process occurs across five interconnected areas: biological, emotion, cognitive, social, and prosocial. Alongside self-regulation, co-regulation is a relational and reciprocal process, rooted in the interbrain, by which one individual supports another in navigating the five steps of Self-Reg:

1. Reframe the Behaviour: This involves moving away from interpretations of disordered eating as a failure of self-control and instead recognizing it as a maladaptive attempt at self-regulation. From this perspective, rigid eating patterns, avoidance of food, or binge-purge cycles can be understood not simply as choices but as efforts to cope with overwhelming internal states or external stressors. Rather than asking, "What's wrong with this behaviour?", practitioners, caregivers, and professionals are encouraged to reflectively ask, "Why and why now?" (Shanker, 2016). Why might disordered eating behaviours spike during mealtimes? Why now, following specific transitions or interpersonal conflicts? These questions invite a deeper exploration of hidden stressors, which may be explained by sensory overload in the eating environment, relational tensions, emotional overwhelm, or even physiological imbalances. This reframing shifts the lens from blame to compassion, emphasizing curiosity over judgment (Shanker, 2016). It allows caregivers and professionals to engage with the behaviour as a signal of distress rather than a deliberate act of control, ultimately helping create the safe, co-regulated relationships necessary for healing.
2. Recognize the Stressors: Recognizing stressors across Shanker's (2016) five domains—biological, emotion, cognitive, social, and prosocial- is key to understanding Eating Disorder behaviours. For the child, biological stressors may include disrupted hunger cues or hormonal shifts, while emotion stressors can involve feelings of fear, disgust, or frustration related to food. Cognitive stressors

often manifest as rigid beliefs or intrusive thoughts, while social stressors may include family conflict or feeling observed during meals. Hidden prosocial stressors, like shame or the need to appear "fine," are prevalent in Eating Disorders. It's equally important to reflect on the stressors affecting parents. A mother might suppress her anxiety to "keep the peace," while a father might hold rigid expectations about meals, both carrying their emotional loads. Applying this lens may encourage families to see how their stress patterns overlap or conflict, shifting the focus from blame to curiosity and compassion (Shanker, 2016). By doing so, they create opportunities for true co-regulation and relational healing (Shanker, 2016).

3. Reduce the Stress: Children and families need to recognize the ways they already help reduce stress. This doesn't mean removing all structure; it means lowering unnecessary stress around food and offering a calm presence. Co-regulation, as defined by Shanker (2019), involves helping another person progress through their Self-Reg steps, often beginning with reducing stress and facilitating a shift in their brain-body state before any talking or problem-solving occurs. These calming exchanges occur moment by moment through tone, facial expression, and body language, as Digby Tantam calls it, the "interbrain." This is more than just comforting; it's active emotional work (Shanker, 2016).
4. Reflect: Reflection in self-regulation involves building interoceptive awareness, helping individuals recognize signals such as hunger, muscle tension, or racing thoughts. This supports recognizing when they're shifting into "red brain" states, such as fight, flight, or freeze as stress responses (Shanker, 2019). It's about shifting the focus from "What's wrong with you?" to "What's stressing you?"—an essential step in recovery and co-regulation.
5. Restore: For children with Eating Disorders, restoration means more than just feeling calm; it is a return to both physiological safety (e.g., stable heart rate, digestion resuming) and emotional safety in relationships (Shanker, 2016). This is particularly important after distressing moments, such as meals or emotional outbursts. Calm is not something we can demand, but something we help create by reducing hidden stress (Shanker, 2020). Importantly, restoration is not a reward for eating or cooperating; it is a core need for recovery and resilience.

Co-Regulation as a Complementary Approach within Family-Based Treatment (FBT) and Emotion-Focused Family Therapy (EFFT) for Eating Disorder Recovery

Therapeutic models such as Family-Based Treatment (FBT) and Emotion-Focused Family Therapy (EFFT) have incorporated interventions aimed at reducing parental self-blame, fear of engagement, and highly expressed emotion, while preserving parental confidence in their caregiving role (Stillar et al., 2022). Within this context, parental self-efficacy is defined as the parents' belief in their ability to take a leading role in managing the Eating Disorder within the home environment to support their child's recovery (Stillar et al., 2022). Co-regulation can serve as a vital adjunct to these therapeutic models by providing parents with concrete strategies to help soothe and stabilize their child's emotional distress during difficult moments, such as mealtimes. By strengthening parents' sense of competence not only in managing eating behaviours but

also in supporting emotional regulation, co-regulation directly complements and enhances the goals of family-based therapies.

Family-Based Treatment (FBT)

Family-Based Therapy (FBT) is currently the leading intervention for children and adolescents with Eating Disorders, especially for those affected for less than three years (Rosen, 2010). Family-Based Therapy has long been regarded as the gold standard for treating Eating Disorders in children, emphasizing the pivotal role of parents in managing their child's nutritional rehabilitation and symptom interruption (LaFrance et al., 2020). FBT is structured around the idea that parents are best positioned to help their children recover from trauma. It involves three structured phases that actively engage the family in the recovery process. In phase one, parents, guided by therapists, take full responsibility for ensuring their child is eating adequately and for interrupting disordered behaviours (NEDC, 2021). Phase two gradually returns age-appropriate control over eating to the child, while Phase Three supports the development of a healthy, independent identity beyond the disorder. FBT empowers families to challenge these beliefs, restore physical health, and rebuild emotional connections in a collaborative and transparent therapeutic setting (NEDC, 2021). Recovery is possible, though for some, long-term management may be the more realistic goal (NEDC, 2021).

Despite its efficacy, a notable subset of families does not fully respond to FBT alone (LaFrance et al., 2020). To address these gaps, researchers have advocated for the integration of emotion-focused principles into the FBT model, resulting in enhanced frameworks where parents not only manage their child's eating behaviours but also serve as emotional co-regulators (LaFrance et al., 2020). By teaching parents to act as "emotion coaches" and providing tools to work through emotional "blocks," these integrated approaches help caregivers become accustomed to their child's distress (LaFrance et al., 2020). This shift aligns with Stuart Shanker's model of co-regulation, where a caregiver's calm, attuned presence, expressed through voice, eye contact, and body language, can help soothe a dysregulated nervous system and promote safety during intensely emotional moments, such as meals (Shanker et al., 2020). By positioning parents as both behavioural and emotional supports, this integrated approach enhances the likelihood of recovery while fostering relational security (LaFrance et al., 2020).

Emotion-Focused Family Therapy (EFFT)

Emotion-Focused Family Therapy (EFFT) further expands on this integration by placing emotional attunement at the core of treatment (Crane, 2024; Dolhanty & Lafrance, 2019). Rooted in the broader principles of Emotion-Focused Therapy, EFFT helps caregivers develop deeper emotional awareness and provides them with tools to facilitate their child's emotional expression, regulation, and emotional processing (Crane, 2024; Dolhanty & Lafrance, 2019). Central to EFFT is the belief that families possess powerful healing potential, particularly when caregivers are supported to engage in their child's emotional world confidently. The four core domains of EFFT are recovery coaching, emotion coaching, relationship repair, and working through emotional blocks (Dolhanty & Lafrance, 2019). Evidence supports the efficacy of this approach; for example, a study by Goveas et al. (2024) demonstrated significant increases in parental self-efficacy and improvements in caregivers' perceptions of their child's emotional

difficulties after just a brief two-day workshop. Similarly, Nash et al. (2020) found that EFFT participation fostered greater caregiver confidence, reduced fears of treatment engagement, and improved emotional communication within families. By emphasizing emotional co-regulation alongside behavioural strategies, caregivers learn to reframe their child's behaviours through the lens of emotional dysregulation rather than defiance or control. EFFT not only facilitates nutritional recovery but also strengthens the emotional fabric of the family (Nash et al., 2020).

The Parental Role in Co-Regulation Application

Caring for a child with an Eating Disorder has a positive correlation with health outcomes when early detection, timely intervention, and strong parental support are incorporated (NEDC, 2021). Parents are often the first to notice symptoms, and early action is preferable, as delays in treatment are associated with a more chronic illness (NEDC, 2021). Caring for children with Eating Disorders through the lens of co-regulation requires attuned, self-regulated parenting that recognizes how body image and food behaviours are shaped within relational and environmental contexts.

In family-based treatment contexts, particularly during emotionally charged situations like shared meals, parents and caregivers can serve as external sources of regulatory support. Through a calm tone of voice, sustained eye contact, and non-threatening body language, caregivers can engage in dynamic feedback loops that help soothe a child's heightened stress response (Shanker, 2022). Integrating co-regulation practices into interventions like Emotion-Focused Family Therapy (EFFT) provides a pathway not only for reducing maladaptive emotional regulation strategies but also for fostering emotional attunement within the family system (Nash et al., 2020).

The body does not define a person's worth, yet it is central to how we live and relate. Suppose a mother can embody this belief, and her daughter can witness it in practice. In that case, they may begin to co-regulate in ways that repair not only their relationships with their bodies but also their bond, disrupting cycles of shame, control, and conditional love (Winkler, 2022). The parent-child relationship, most extensively researched in the context of mothers and daughters, can convey intergenerational messages about the body, food, and value (Pastore, 2023).

Sons, too, are deeply affected by body image pressures, often centred on masculinity and strength. Adolescent boys and young men increasingly pursue muscle-enhancing behaviours and may internalize rigid ideals of masculinity that discourage emotional expression or help-seeking (Nagata, 2020). Within Shanker's (2022) Self-Reg Framework, the key to supporting both daughters and sons lies in the parents' ability to self-regulate, modelling emotional awareness, rejecting perfectionism, and creating a safe relational space where children can process distress without fear of judgment. By doing so, parents help cultivate internal validation and resilience, regardless of gender, body type, or identity.

Conclusion

Eating disorders in children are deeply intertwined with emotional and physiological dysregulation, which extends beyond the individual to affect the entire family dynamic. Integrating co-regulation, where parents support a child's emotional and behavioural regulation, offers a vital complement to traditional treatments. As Shanker's

(2016) model emphasizes, this interactive process helps parents tune into their child's hidden stressors and respond with compassion rather than judgment. By lowering stress, reframing behaviours, and fostering a sense of safety within the family, co-regulation creates a foundation for sustainable recovery (Shanker, 2016). Ultimately, learning and applying the co-regulation framework empowers parents to become active partners in their child's healing journey, strengthening family bonds and enhancing treatment outcomes.

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Developing a Self-Reg Lens with Preservice Teachers

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Abstract

In many parts of the world, teachers and students report increasing stress loads and witness or experience dysregulated behaviours within teaching and learning environments. In what ways are universities preparing future teachers to understand and navigate these challenging behaviours and manage their own stress load? This paper shares findings from a Canadian research project titled *Investigating Preservice Teachers' Stress Praxis*. This research occurred within a university setting where Shanker Self-Reg was embedded within three Bachelor of Education courses. This paper shares findings from surveys from this research that: Examine preservice teachers' perceived growth in understanding and application of Self-Reg theories and practices and ways they envision future application; describe five promising approaches/activities in engaging preservice teachers in thinking through a neuro-informed lens; and, provide three considerations for teacher educators responsible for designing courses within the Bachelor of Education degree.

Introduction

Preservice teacher educators are tasked with preparing future teachers for their work in a rapidly changing and increasingly stressful world. The literature is rich with examples of critical aspects of this preparation. Beyond knowing how to teach and assess content and skills associated with the elementary or secondary fields, preservice teacher preparation also seeks to develop candidates' capacities to: Identify and dismantle systemic inequities and decolonise teaching and learning conceptions (Hammond, 2015; Hill et al., 2020); teach through a lens of equity, diversity, inclusion and antiracism (Hammond, 2015; Hill et al., 2020; Leung et al., 2024); think critically (Lorencová et al., 2019) and conduct themselves ethically (Lindqvist et al., 2021); and, create and manage learning environments that centre "culture, methods, practice, relationships, and partnerships" (Kwok, 2021, p. 206) .

Alongside course work, preservice teachers also engage in practicum experiences where they are immersed in the complex work of a teacher. The literature describes the complex and energy expensive nature of this work (Edwards, 2022a, 2022b; Gold & Roth, 2013; Kyriacou, 2011; Prilleltensky et al., 2016), yet where do we see preparation for this in their post-secondary course work?

Reports of teacher burn out, challenging student behaviours, and ever-increasing demands on teachers highlight some of the challenges in the teaching profession (Gluschkoff et al., 2016; Kyriacou, 1987, 2001; Pressley, 2021; Skaalvik & Skaalvik, 2017). The literature also connects teacher wellbeing to student outcomes (Clunies-Ross et al., 2008; P. Jennings et al., 2021; Ramberg et al., 2020; Spilt et al., 2011). A well-regulated teacher is better positioned to coregulate their students (Jennings & Greenberg, 2009), than a teacher who is low in energy and carries a high stress load (Shanker & Hopkins, 2020). In what ways are teacher educators supporting preservice teachers to develop awareness and understanding of the brain-body response to stress and

apply processes that can support self-regulation and coregulation?

Advances in neuroscience provide insights into mechanisms and relationships within the brain that challenge educators to examine their practices (Hammond, 2015; Rosati & Lynch, 2022; Shanker & Hopkins, 2020; Whiting et al., 2021). Excessive stress loads create barriers to learning and communication and can lead to negative health outcomes (McEwen, 1998; Selye, 1976; Shonkoff et al., 2012; van der Kolk, 2014). These excessive stress loads are referenced by Shanker (personal communication, August 2023) in his webinar series on bullying. He describes three factors evident in society today: Excessive and increasing stress; maladaptive forms of self-regulation; and, a lack of restoration that returns the body to homeostasis. Are these factors catalysts for the many challenging behaviours and wellbeing issues observed within school communities today?

Recently, researchers have suggested that neuroscience does not feature in most teacher preparation programs and provide an argument for this to change (Ching et al., 2020; Coch, 2018; Dubinsky et al., 2022). Over the last decade, research shows how application of neuroscience in educational settings has affordances for students' (Rosati & Lynch, 2023; Salo & Kajamies, 2024; Swabey et al., 2019; Whiting et al., 2021) and teachers' wellbeing (Edwards, 2022a; Johnson & Naidoo, 2017; Salo & Kajamies, 2024). Participants in Hachem et. al.'s (2022) research identify significant benefits of professional learning on neuroscience for inservice teachers and the resulting improvement in relationships with students. How might we bring this learning into our preservice teacher education programs more deliberately and consistently to ensure it can benefit early career teachers and their students? In recognising the growing field of neuroscience and its implications for educators, this research suggests promising practices for how preservice teacher education programs can include this critical element of neuroscience.

To conclude this introduction, it is important to clarify four of the terms used in this paper. These terms are self-regulation, Self-Reg, coregulation, and praxis. While self-regulation is a popular term used in education, the term has many interpretations and definitions (Burman et al., 2015). The term Self-Reg is used to distinguish Shanker's Self-Reg (the understanding of stress and management of energy and tension using 5 steps of Self-Reg and the 5 domains of stress) from other definitions of self-regulation (Shanker & Hopkins, 2020). Similarly, coregulation suggests supporting another person to regulate, while Co-Reg specifically involves Shanker's 5 steps and 5 domains in this process.

The Merriam-Webster online (2025) provides various definitions for praxis such as an "action or practice such as the exercise or practice of an art, science, or skill or customary practice or conduct," as well as "the practical application of a theory". Salo and Kajamies (2024) extend this definition within the literature:

> "Praxis refers to morally committed professional actions (Kemmis & Smith, 2008, p. 4) (Kemmis and Smith 2008, p. 4). As praxis, professional learning should model and foster a good life (in the Aristotelian sense), both for those involved in it as well as for humankind. This means enhancing possibilities to live well in a world worth living in (Kemmis et al., 2014, pp. 25–26). (p. 444)

These definitions frame this research which sought to further understand how preservice teachers develop a stress praxis; morally committed professional actions through practical application of theory.

Context

The Program

This research was conducted in the School of Education at a small liberal arts University in eastern Canada. At the time of the research, there were approximately 120 preservice teachers completing their Bachelor of Education degree. Half of these students were completing the degree as a compressed 16-month degree, while the other half were in a 2-year program. It was this 2-year program cohort that were invited to partake in this research.

One of the first courses in the Bachelor of Education program is *Principles and Practices 1 (P&P1)*. In P&P1, preservice teachers are introduced to many big ideas in education, for example: Equity and inclusion; assessment; methods of instruction; and, curriculum design. Relevant to this research, preservice teachers also learn about the brain-body response to stress, stressors within educational contexts, how these stressors can manifest in behaviours for teachers, students, parents, and colleagues, and neuro-informed ways to respond. The process of Shanker Self-Reg and other relevant theories are briefly explored as preservice teachers consider how educational practices, particularly around understanding and responding to behaviours, are changing due to advances in neuroscience.

Towards the end of the Bachelor of Education program, the 2-year program preservice teachers take the *Healthy Learning Environments (HLE)* course. In this course, students explore ways to create and maintain equitable, safe, and inclusive learning environments in much more detail. Content includes mental health literacy; consideration of social determinants of health; establishing, maintaining and developing various relationships; and, management and organisation of the classroom to support teacher and student wellbeing.

This research began as preservice teacher participants in the 2-year program neared the completion of their studies. Their final block of four courses included Healthy Learning Environments, and for some in the secondary cohort, a Classroom Management elective. Both of these courses included a Self-Reg focus and led into the final four-week teaching practicum marking the final part of their Bachelor of Education studies.

Lead Researcher and Course Instructor

My role in this research was two-fold. I was both the lead researcher as well as the course instructor for *Principles and Practices 1*, *Healthy Learning Environments* and the *Classroom Management* elective. As an Assistant Professor at this University, I brought a history of centring Self-Reg in research. My 2013 Masters research explored elementary school students' perceptions of self-regulating across Self-Reg's 5 domains (biological, emotion, cognitive, social, and prosocial) in various settings within various school learning environments; and, my PhD research (Edwards, 2022a) investigated how teachers develop self-regulation knowledge and skills to support their stress management. Another important prerequisite to this research was my engagement in Self-Reg courses with the MEHRIT Centre (TMC). These courses and my ongoing role as a facilitator and presenter for TMC positioned me well to bring a Self-Reg lens to all aspects of the

teaching, learning and research.

Ethics approval to conduct this research was granted through the university in December 2023. Specific procedures outlined in this ethics document ensured anonymity for participants completing the initial surveys, and delayed my access to the data until all course grades were submitted to the Registrar. The approval of a grant enabled me to employ a research assistant. This research assistant was a Master of Education graduate who completed a course with me introducing key Self-Reg principles. This supported the necessary Self-Reg lens for data analysis.

Participants

Participants for this research were recruited from the two-year Bachelor of Education Program. There were 57 students representing both the elementary and secondary cohorts. The majority of students were in the final courses of their Bachelor of Education learning. All but two participants had completed Principles and Practices 1, 15 months earlier, where Self-Reg was initially introduced.

Method

Mixed Methods

This research utilised a mixed methods approach to capture the experiences, understandings and perceptions of the Bachelor of Education preservice teachers through surveys, focus groups and interviews. This paper draws from the qualitative and quantitative data collected via the anonymous surveys at the beginning and end of the *Healthy Learning Environments* course.

Procedure for data collection and analysis

Fifty seven preservice teachers in the 2-year program were invited to participate in this research. The following table outlines relevant information for the survey data collection reported upon in this paper.

Table 1

Survey administration information

Date administered	Instrument	Participants
January 5, 2024	Survey 1 (18 questions)	28 (12 elementary, 16 secondary)
March 8, 2024	Survey 2 (37 questions)	40 (17 elementary, 23 secondary)

Survey 1 and 2 were administered during the first and last classes of the Healthy Learning Environments course. I maintained participant confidentiality by inviting a staff member within the School of Education to administer and securely store the surveys, only returning them to me when I had all grades for the courses submitted to the Registrar. Deductive and inductive thematic analysis (Braun & Clarke, 2008) was conducted collaboratively with the research assistant, the latter of which is included in the following results.

Results

Data analysis from both surveys provided many interesting insights to begin exploring the teaching and application of Self-Reg and neuroscience relevant to teacher education. In this section, I will share three findings. The first finding gives insight into preservice teachers' perceptions of their understanding and application of key Self-Reg theories across the Healthy Learning Environments course. The second finding suggests course learning that pre-service teachers hope to apply beyond the Healthy Learning Environments course for themselves and their students. The third finding provides five course activities that preservice teachers suggested were the most helpful to support their learning and application of Self-Reg.

Finding 1: Understanding and application of Self-Reg theories

Almost all participants indicated that their introduction to Self-Reg theories occurred 15 months prior to Survey 1 during the P+P1 course. In both surveys, participants were asked to consider their understanding separately from their application of various theories connected to Self-Reg. They were asked to rate their perceived understanding of a concept on a Likert scale from one to five, with:

- 1 indicating – no understanding of this concept
- 2- limited understanding
- 3- basic understanding
- 4- thorough understanding
- and, 5- extended understanding.

They were also asked to share their perceived application of the concept from one to five, with:

- 1- never applied
- 2– applied a few times
- 3– applied sometimes
- 4- applied many times
- and, 5- consistently apply

The following graphs show Survey 1 responses in the left column with understanding on the top and application on the bottom and Survey 2 responses in the right column following the same pattern to represent understanding and application. The figures are percentages reflecting the 28 participants from Survey 1 and then the 40 participants from Survey 2.

Understanding and application of the Thayer Matrix

In Figure 1, participants' understanding and application of the Thayer energy and tension matrix in January at the beginning of the HLE course is displayed on the left. On the right is participants' understanding and application of this matrix 10 weeks later, at the end of the HLE course.

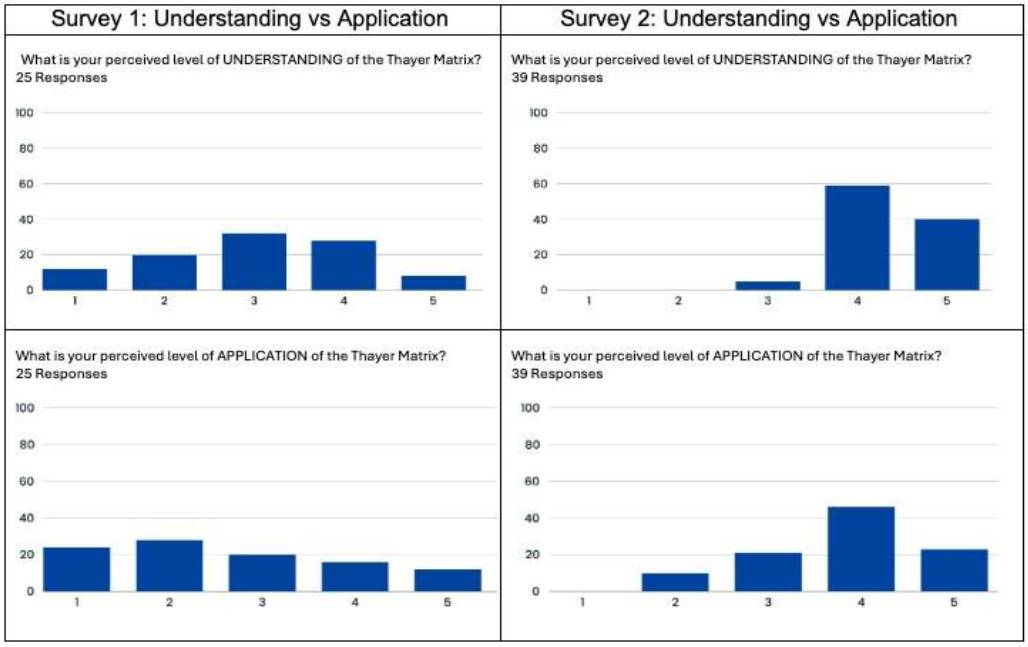

Figure 1. Understanding vs Application of the Thayer Matrix for Survey 1 and Survey 2

Comparing data from Survey 1 and 2, strong growth in understanding of the Thayer Matrix is apparent, with 94% of participants reporting a thorough or extended understanding of this concept, compared to 40% 10 weeks earlier. Survey 2 data also suggests that all participants perceived they were applying this theory to some degree in contrast to Survey 1 where around 20% shared no application.

Understanding and application of the Triune Brain metaphor

In Figure 2, participants' perceived understanding and application of the Triune Brain metaphor at the beginning of HLE (on the left) provides a comparison to participants' perceived understanding and application of the Triune Brain metaphor (on the right) at the end of HLE.

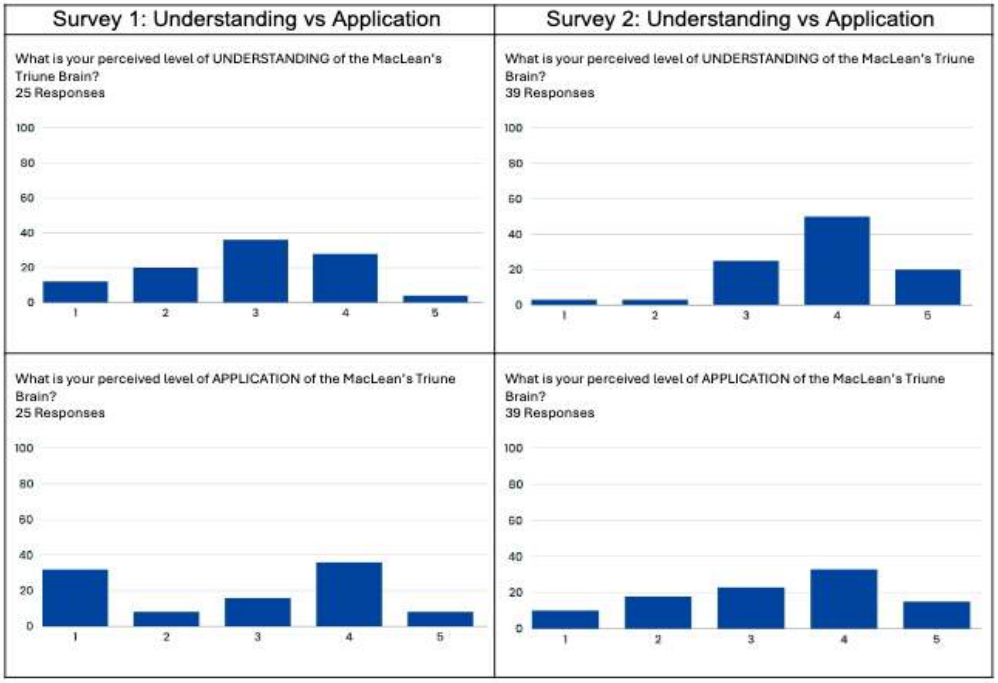

Figure 2: Understanding vs Application of the Triune Brain for Survey 1 and Survey 2

Once again, growth between Survey 1 and Survey 2 is evident when considering the participants' understanding and application of the Triune Brain. For this theory, 30% of participants reported no or limited understanding of the Triune Brain in Survey 1, whereas 4% reported this in Survey 2. This suggests that 96% of survey 2 participants perceived at least a basic understanding of the Triune Brain theory (most considered their understanding to be thorough). Application rates also increased between January and March. The January data shows 40% of participants declaring no or limited application, whereas in March, at the end of the course, this dropped to 28%.

Understanding and application of Shanker's 5 steps of Self-Reg

Figure 3 compares participants' perceived understanding and application of the 5 steps of Self-Reg over the 10-week course.

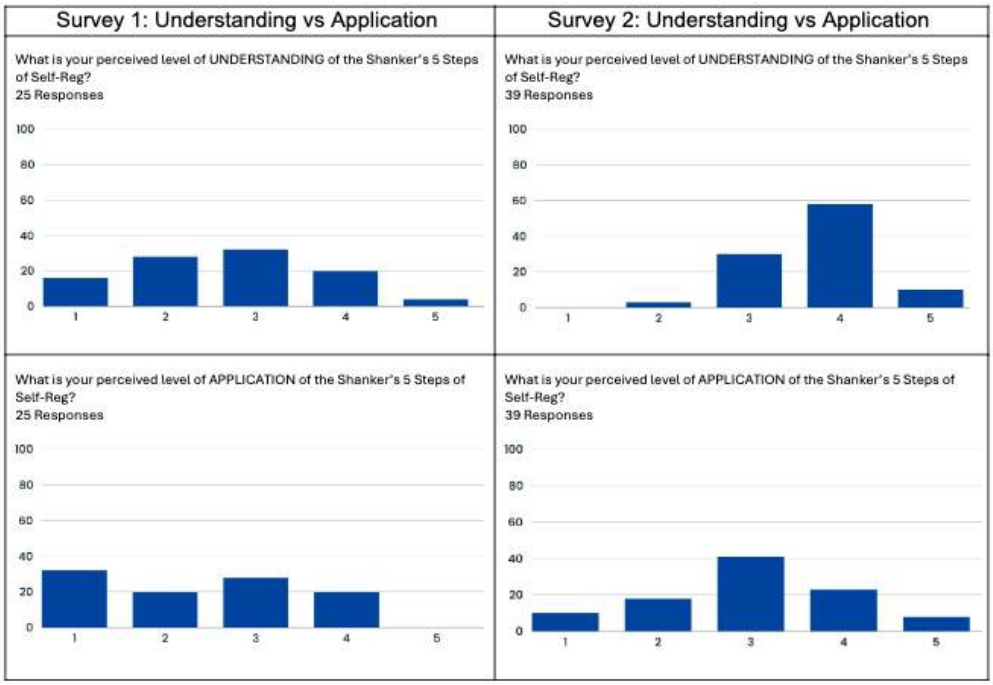

Figure 3: Understanding vs Application of the 5 Steps of Self-Reg for Survey 1 and Survey 2

All participants reported some understanding of Shanker's 5 steps of Self-Reg in Survey 2, with the just under 60% perceiving their understanding to be thorough. Some degree of application was reported by 90% of Survey 2 respondents.

Understanding and application of Self-Reg's 5 domains

Finally, Figure 4 shows participants' perceived understanding and application of the 5 domains across the 10 weeks of the course.

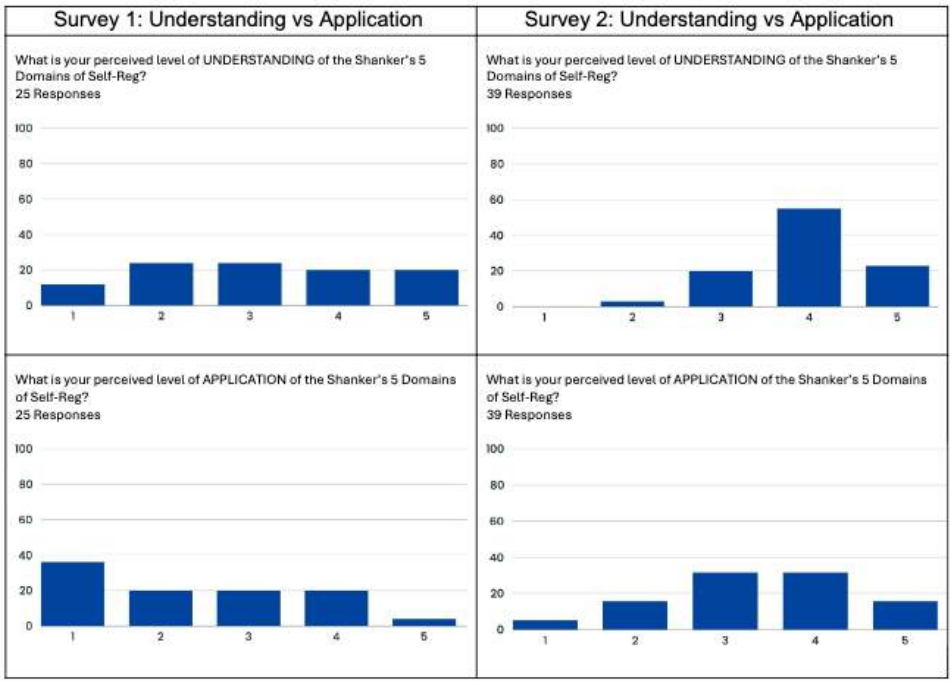

Figure 4: Understanding vs Application of the 5 Domains of Self-Reg for Survey 1 and Survey 2

Understanding and applying Self-Reg's 5 domains also saw growth across the surveys. Survey 2 showed that all participants perceived some level of understanding of this concept, with 80% ranking this in the top two categories. Over 70% of respondents indicated applying this sometimes, many times, or consistently.

In summary, consistent growth in perceived understanding and application was reported for this cohort of preservice teachers between Survey 1 at the beginning of the Healthy Learning Environments course and Survey 2 at the conclusion of the course. Only one theory (Triune Brain) had a participant report no understanding in Survey 2, all other theories were reported as understood. Understanding did not directly correlate with application, with application percentages being consistently lower that understanding.

Finding 2: Future application of learning

Survey 2 posed two questions about future application of learning from the Healthy Learning Environments course. When prompted by the yes/no question, "Are there elements of HLE learning you want to apply to support your own personal navigation of stress within the practicum context? 100% of participants answered "yes". When prompted with the same question with regards to supporting students in navigating their stress, all but one responded "yes" as well. The one participant responding "no" reported that they did not have enough time to develop relationships with the students in their high school Math class therefore would not apply this learning.

Participants described their plans for application of a diversity of learning from the HLE course. Examples included: The Thayer energy and tension matrix; the 5 domains of stress; allostatic load; practical ways to apply learning; and, changes in language.

Thayer's Matrix

Beginning with the Thayer Matrix, one participant commented, "Thayer's Matrix helps me have a better understanding of where I am, and what I should do to help reduce stress." Another participant shared, "Using Thayer Energy-Tension Matrix with reflective journaling [helps] facilitate my cognitive appraisal of the 5 domains of stress."

The 5 Domains of Stress

The 5 domains of stress received numerous comments as participants shared their planned application. One stated, "Using 5 domains and Thayer Matrix [helps me] to identify and navigate my own stress." Another planned to, "[Look] at the 5 domains to see where [their] stress might actually be coming from." Yet another planned, "Consideration of the 5 domains of stress" to support them and their students in addition to considering the stressors within the environment as often as possible.

Allostatic Load

Allostatic load was also mentioned directly by some as evidenced by the following quotes: "Allostatic load to ensure I allow myself to decompress;" and "Understanding allostatic load is a reminder to take home for myself to recuperate. I'm no use if I burn myself out." Indirect messaging about managing allostatic load came through in comments such as, "Taking the time to regulate MYSELF (breathing, going for a walk)... but how do I make the time?" and "Understanding that when I'm freaking out, I need to calm down BEFORE I can start problem solving."

Practical Ways to Apply Learning

There were many comments sharing practical ways preservice teacher planned to apply this learning. These included music therapy, daily planning, physical activity, good routines, self-care, and mindfulness. When considering the learning for application, one participant enthusiastically responded, "All of it! All the theories, most importantly looking at children through soft eyes and activating empathy first and foremost."

Applying this learning to help their future students navigate stress was also a priority for preservice teacher participants. Again the 5 domains of stress, the 5 steps of Self-Reg, Thayer's Matrix, and Triune Brain were mentioned in comments. Participants considered application of the 5 domains as they shared how they might support students. One suggested possible adjustments to support the biological domain, "Physical classroom space (during homeroom have lights off so they can adjust/prep for the day)" while another planned on, "Giving a quiet space for students highly aroused." Another considered, "I certainly want to work to recognise and change the environment of my classroom to promote greater change to stressors for my students to enable their safety and comfort in learning while challenging them adequately to think critically."

Changes in Language

The first step of Self Reg, reframe behaviour, was evident in comments. Comments suggesting reframing and a shift in language included, "Understanding why a student might be distracted / "disobedient" may be (likely is) related to stressors and not just because and they want to cause trouble," "Stress behaviour, not just acting out," and "Understanding they are trying their best, reactions are a result of their stress, not to make

things difficult." Another participant was keen to apply this by, "Reframing my understanding of their stress and stress responses to be in a better mindset to help them." Steps 2 and 3 of Self-Reg, recognise and reduce stressors, could also be found in the data, "Doing my best to remove stressors and identify ones I wasn't aware of." Additional comments included reference to the Thayer Matrix and the Triune Brain. "Coregulation and regulation and being more in tune with theories such as Thayer Matrix, red/ blue brain, to support students," and, "Triune brain: Knowing how blue brain and red need to be balanced. Using this to check in with students. Self-Reg toolbox - example fresh air, knowing if students need a reset, to get outside and breathe and move" were examples of this. It was interesting to note participants show awareness of how their own stress may affect their students, with comments such as, "Being mindful of how my stress transfers to them," and "The best thing I can do is remain calm and understanding."

Finding 3: The top five learning opportunities that supported preservice teachers' development of their stress praxis

The Healthy Learning Environment course revisited Self-Reg and related theories to create a reflective lens for application across diverse educational situations. Using this lens, preservice teachers considered policies and legislation, school-based scenarios, key transitional times in education (example transitions being beginning school, middle school into high school, high school to other life pursuits, or perhaps just being a new student arriving in the middle of a school year), parent teacher interactions and their own personal wellbeing as educators. There were also guest speakers who shared how their work supports or promotes a Self-Reg lens. These presentations included a school counsellor, an advocate for the Alliance Against Seclusion and Restraint, and a school principal who actively integrates a Self-Reg philosophy into his leadership.

Survey 2 invited participants to reflect on these activities and presentations and comment on how helpful they were in supporting the development of their stress praxis as a teacher. Participants could answer:

- not helpful
- a little helpful
- helpful
- very helpful
- or, extremely helpful.

Figure 5 provides an overview of perceived helpfulness for 11 course activities represented on the survey.

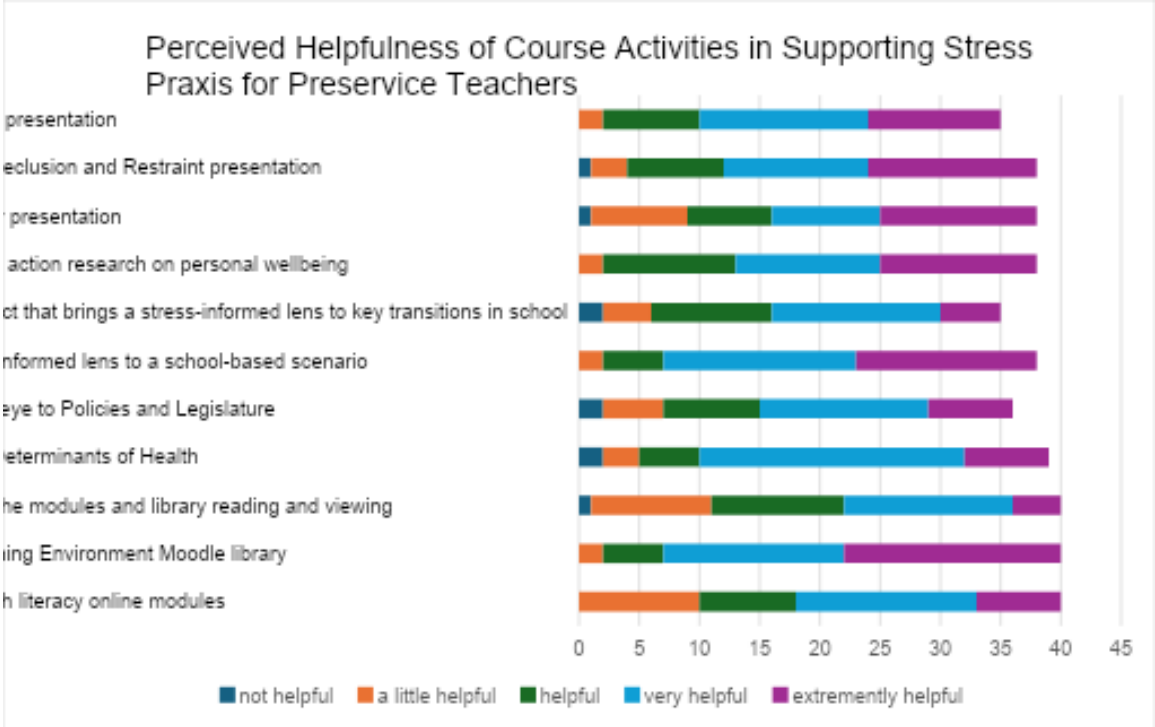

Figure 5: Perceived helpfulness of course activities in supporting stress praxis for preservice teachers

The following five learning opportunities highlighted in this paper were chosen due to the absence of "not helpful" responses, and the high number of very helpful and extremely helpful responses.

Learning opportunity 1: Self-Reg principal presentation

Figure 6 shows the perception of 35 respondents from Survey 2 as they considered how helpful the presentation from a Self-Reg principal was to their development of their own stress praxis.

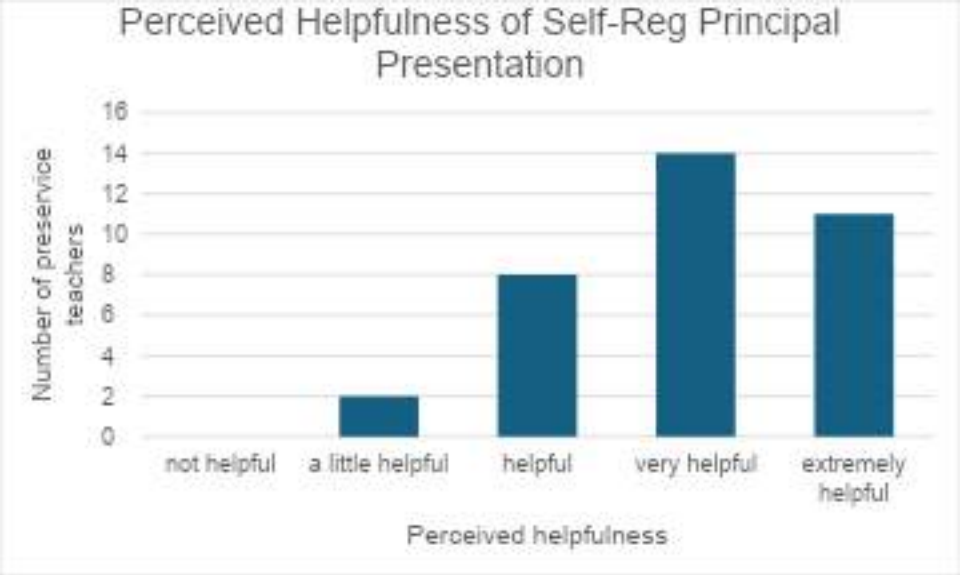

Figure 6: Helpfulness of Self-Reg Principal presentation for the development of stress praxis

Hearing from a practicing Principal, whose work is grounded in Self-Reg, supported the development of preservice teachers' stress praxis according to Survey 2 respondents. This was a one-hour session conducted through Zoom with an Ontario principal who is a facilitator and presenter of Self-Reg through the MEHRIT Centre. Participants commented on the practicality and the hope in this presentation. One participant responded, "This was so positive and motivating. The lens of Self-Reg is clearly present here and he did a great job. Anyone would benefit from this. AWESOME!" while another shared, "This was one of my favourite presentations and allowed me to see how Self-Reg may be applied in the school environment." There were "practical examples on how to apply theory," and Self-Reg noted as an "approach with understanding and empathy – work to help students develop Self-Reg skills and be more aware of their stressors." One participant noted it was, "important to see this valued so highly in a real school setting."

Learning opportunity 2: Conducting a mini action research project on personal wellbeing

There were 38 respondents suggesting how helpful the mini action research project was for the development of stress praxis. Figure 7 provides further details.

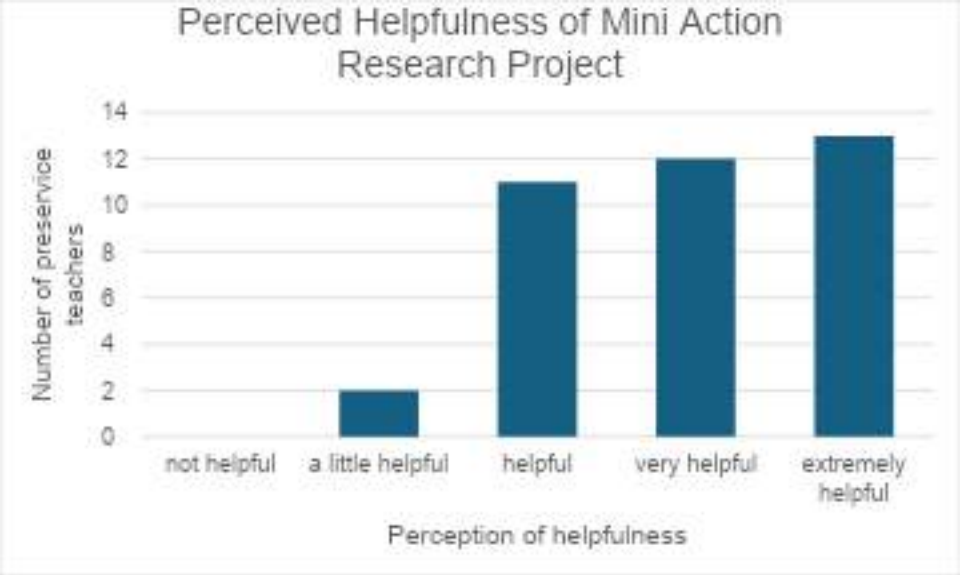

Figure 7: Helpfulness of Mini Action Research Project on Personal Wellbeing for the Development of Stress Praxis

A well-regulated teacher is positively positioned to coregulate dysregulated students. This assignment asked preservice teachers to choose an area of their own wellbeing that they were curious about and conduct a mini action research project that used a theory covered in class that was relevant to their investigation. By focusing on their own well-being, preservice teachers might learn ways to support their own self-regulation.

There were many comments on how helpful it was to connect the theories we had been learning in class to practice. Some included, "Helpful to apply info we learned to our own research," "I like that I got to implement the theories to my own life and apply it," and, "This allowed me to reflect on something specific and gave me the chance to apply Self-Reg strategies." Participants also commented on the benefits that came from the assignment. One stated, "[This was] beneficial [for] understanding my own stressors and factors that affect my daily life, while another claimed, " I learned more about myself and what I need to stay focussed and happy." Some also made the link between their personal wellbeing and their students, with comments like, "My wellbeing = student wellbeing," and, "Navigating stress and finding out ways to address it are incredibly important for us as teachers and benefits our students." Within the data, two participants also noted, "I hated this assignment; however, it highlighted so many things about my personal well-being," while another cautioned, "It was too short to provide meaningful data so while I think it could be good to introduce the concept, I would be careful to apply too much meaning to the results." These comments suggest considerations for future iterations of this assignment.

Learning opportunity 3: Bringing a neuro-informed lens to a school-based scenario

Using a Self-Reg and neuro-informed lens to possible school-based scenarios supported participants in developing their stress praxis. Figure 8 indicates the levels of helpfulness shared.

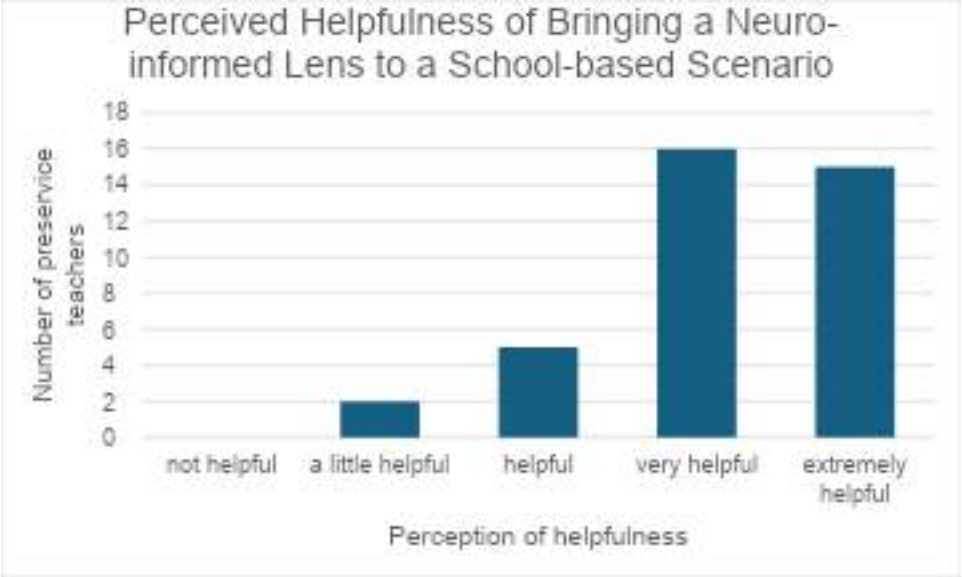

Figure 8: Helpfulness of Bringing a Neuro-Informed Lens to a School-Based Scenario for the Development of Stress Praxis

One of the group assignments required preservice teachers to read and respond to a school-based scenario using a Self-Reg approach. Together they needed to triage the scenario, consider various approaches to respond (and play with ideas that might further escalate the situation as well as ideas that might help reduce the escalation). Students then proposed what they would choose to do in the moment, directly after the event, and how they would provide further follow up. Finally, if they were able to wind back the clock, students could suggest proactive ways to mitigate the stressors in the scenario possibly preventing them from arising in the first place.

The feedback from participants was very positive with 82% of respondents finding this very helpful or extremely helpful in developing their stress praxis. “This was a fantastic exercise that really required us to think and consider much of what we had learned,” “So important to have real life scenarios and be aware of how to go about it,” and, “As a teacher I feel like this gave me the chance to reflect on how I would deal with certain scenarios,” were all examples of preservice teachers’ experiences with this activity. A number of comments suggested that the Bachelor of Education program could benefit from more scenarios as it provided practice and an opportunity for reflection.

Learning opportunity 4: The Healthy Learning Environment Moodle library

Rather than having fixed readings assigned in this course, preservice teachers were offered an online library with readings and viewing. In preparation for each class, participants were to choose one reading and one viewing from this library and come prepared to talk about these. Students rated this very highly as they reflected on how helpful this was to the development of their stress praxis. Within this library, there were many links to Self-Reg materials (blogs, podcasts, infographics), as well as provincial policies, like Nova Scotia’s new cell phone policy, and videos by researchers using neuroscience to better understand stress and stress responses.

Figure 9 provides how helpful this was according to 40 respondents.

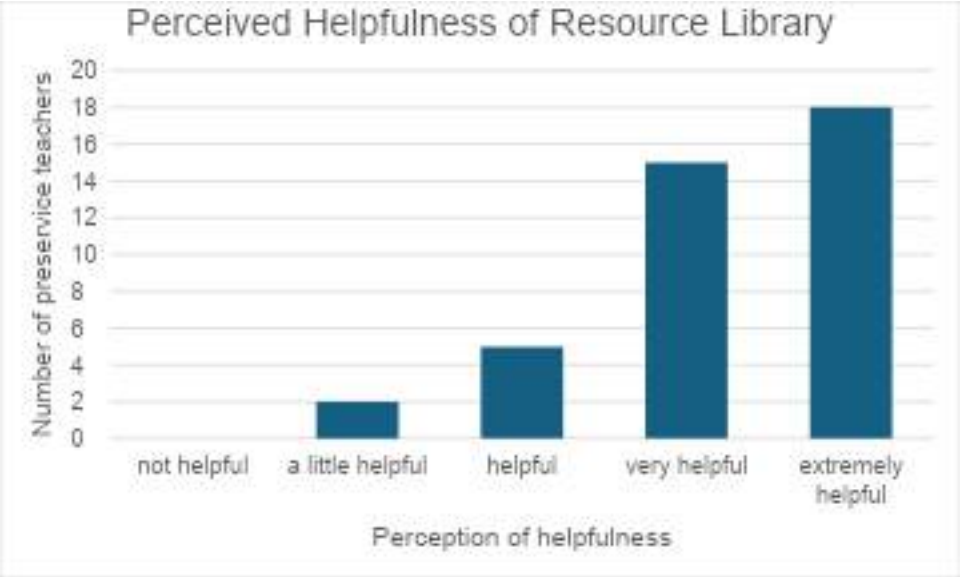

Figure 9: Helpfulness of Moodle Library for Developing Stress Praxis

Preservice teachers enjoyed many aspects of this library. They commented on the "great resources," and how they, "Loved this. I like that I got to choose my own interests." Other comments included, "The resources are wide and varied and will be something I refer back to (particularly LGBTQ2IA+ resources)" and "By getting to choose between very current and relevant topics we developed strategies to support our students through inevitable obstacles." Choice made things interesting for them as one pointed out, "Having the option of choice made completing the mandatory reading/viewings fun and exciting!"

Learning opportunity 5: University of British Columbia Online Mental Health Literacy Modules

Participants indicated how helpful these modules were to learn about or review mental health literacy (see Figure 10).

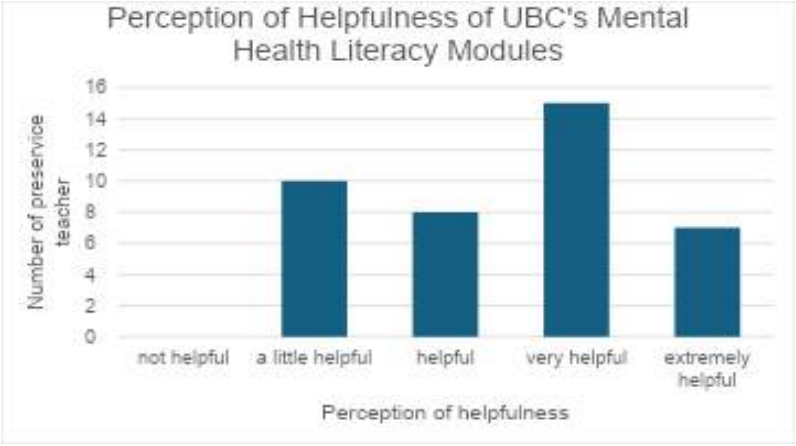

Figure 10: Helpfulness of UBC Mental Health Literacy Modules for Developing Stress Praxis

One participant commented, "I would have said I knew mental health literacy before, but these modules went well beyond what I thought. Plus, it really talked about stigma of mental health." Through conversations in class, we were able to connect the learning in the modules to Self-Reg. How might we reframe behaviour or recognise and reduce stressors for students experiencing various states of mental health? Another participant commented, "Mental health literacy enables me to be more aware and thus understanding of the experiences others may be going through."

In addition to these online modules, learning about the Social Determinants of Health received 30 rankings in the very and extremely helpful categories combined (as well as 2 in the not helpful category). Understanding the stressors families, children, teachers, and colleagues can experience because of their race, housing, income, education or other social determinants of health, also wove into the learning occurring in the University of British Columbia Mental Health Literacy modules.

Discussion and Recommendations

In the abstract and introduction sections of this paper, I questioned if and how teacher educators prepare preservice teachers to understand and navigate the ever-increasing stressors of the teaching profession. The literature suggests that although a significant increase in neuroscience is unfolding, new knowledge about the brain that might support educators in their work is not yet consistently included in teacher education. This learning can support teachers with their own stress management and position them well to effectively coregulate their students. This research demonstrates how Shanker Self-Reg can be a key piece of this learning for preservice teachers and offers promising practices to engage preservice teachers in mobilising learning through application. There are many ways for teacher educators to support preservice teachers in developing their stress praxis. This research provides a starting point and shows how learning and applying Self-Reg and related theories can be a catalyst for positive teacher and student outcomes.

A promising trend noted within the findings indicates that participants perceived an increase in understanding and application over the course of the learning. A pattern worth noting and suggested for future research within this data is that participants consistently reported their perceived understanding of various concepts and theories as higher than their perceived application of this knowledge. In other words, knowing something did not necessarily translate into practice or action. How can we continue to promote rich and authentic opportunities for application of learning in teacher education programs?

This discussion draws three recommendations from across the research, that suggest factors for teacher educators to consider as they look to the future. For rich learning and application to occur for preservice teachers these recommendations include revisiting the learning through cycles of theory and practice; providing authentic opportunities to apply (or witness application) of learning; and, ensuring preservice teachers have agency in their learning.

Recommendation 1: Revisiting the Learning Through Cycles of Theory and Practice

As I work with preservice teachers, I use the metaphor of lenses in a pair of glasses to describe how the way we see things can shift if we develop the lens we use (see Figure 11).

Figure 11: Theoretical Lens Metaphor with images from www. self-reg.ca

By placing the various theories and approaches into these lenses it becomes possible to notice new things and perhaps, as a result, respond in different ways, leading to growth in praxis. For these participants, the roll out of the 2-year Bachelor of Education program enabled two cycles of neuro-informed learning and application possibilities that lead to the development of this new lens. This had powerful affordances for the development of preservice teachers' stress praxis. It allows for establishing and developing a theoretical foundation interspersed with authentic opportunities for application. For this research, cycle 1 included Principles and Practices 1 coupled with the first practicum experience at the beginning of the Bachelor of Education degree providing an effective combination to learn and then apply neuroscience. Cycle 2 occurred as the degree culminated with Healthy Learning Environments (and Classroom Management for some) which took theory further and was immediately followed by the final practicum where authentic application could occur. Each cycle added to and strengthened the lens, supporting changes in perception, awareness, and practice.

Recommendation 2: Ensure Relevant and Authentic Opportunities to Apply Learning

Without authentic, personal and relevant ways to apply learning, learning itself can quickly become dull and meaningless. How can we authentically invite preservice teachers to apply what they are learning? Application is where learners enact cognitive concepts in practice. Preservice teachers developed their lens (Figure 11) then applied it across multiple situations/ documents/ assignments. Teacher educators need to ensure relevant and authentic opportunities are available for preservice teachers to apply and grapple with new learning and thinking. Data confirmed that applying the theories to self, through the mini action research project was insightful for most participants. Finding ways to extend the data collection period would further strengthen this activity allowing for more data to be collected leading to more opportunities to see trends and patterns, as well as more time to engage with the theories themselves. Applying theories to support others, through the school-based scenario response, as well as hearing how others apply

this in their everyday work (Self-Reg principal) all helped in activating this lens. Using this lens then led to new informed practices and actions.

Application beyond the coursework and school setting were also reported as preservice teachers brought this lens into their own homes and contexts. Self-Reg was helping them to navigate stressors and stress responses beyond the course work or practicum contexts.

Recommendation 3: Ensure Preservice Teacher Agency in Learning

Voice and choice in learning personalises and cultivates curiosity. Structuring the course with options and ways to personalise the learning was noted as an affordance by preservice teachers in the data. Rather than having fixed readings, being able to choose from a multimodal library allowed participants to follow areas of curiosity, engage in relevant not redundant learning, and bring different ideas to the learning conversations within class.

Personalising their action research also invited agency. Participants chose a wellbeing area that was meaningful to them. They chose the theory that would best suit this investigation and conducted the research in a way that fit into their time schedule.

Working collaboratively on responses to school-based scenarios also allowed for different perspectives and conversations. There was no one way that was correct and there were many opportunities for participants to apply theory and justify recommendations.

Conclusion

Essential components for today's preservice teacher education include learning about and applying science-based practices and theories about the brain (Coch, 2018). This research shares how Shanker Self-Reg can be a key mobiliser to meet this need for teacher candidates within their preservice teacher education. The research showed that most preservice teachers perceived growth in their understanding and application of neuro-related theories and processes and envisioned the affordances of future application for themselves and their future students. Five promising approaches/activities were highlighted including; engaging professionals in the field who are applying Self Reg principles to their work; conducting action research on personal wellbeing using neuro-connected Self-Reg theories; applying Self-Reg principles and theories to school based scenarios; supplying a library of neuro-informed resources for students to read and view based on their own needs and interests; and, deepening understanding about mental health literacy and social determinants of health to consider the stressors within educational contexts. Three considerations for designing post-secondary teaching and learning were also shared. These included the importance of cyclical learning where theoretical perspectives return across the two-year learning program and merge with the ever-deepening understandings and experiences of preservice teachers; the regular application of theoretical learning through authentic and relevant learning opportunities; and, preservice teacher agency in creating a learning path that meets their unique learning needs and aspirations. In this research, Shanker Self-Reg provided an effective vehicle for preservice teacher candidates to engage with neuroscience as they completed their Bachelor of Education degree and approached their teaching careers.

Acknowledgements

I would like to acknowledge the preservice teacher candidates who volunteered to be participants in this research as well as Acadia University for research funds that enabled me to bring a research assistant onto the project and fund our attendance at the Self-Reg Summer Symposium.

Declaration of interest statement

I declare that I am an employee of both Acadia University and the MEHRIT Centre.

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Self-Regulation and Students with Multiple Developmental Disabilities

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What is self-regulation, and why is it important?

Self-regulation is a term used widely in education and popular media, yet there is some confusion about what self-regulation means. Different authors use the term self-regulation to mean different things, with one study categorizing over 600 definitions for self-regulation in the literature (Burman, Green & Shanker, 2015). This article uses Shanker's (2020, p.1) definition: self-regulation refers to "how people manage stress, how much energy we expend and how well we recover. Self-regulation involves learning to recognize and respond to stress in all its many facets, positive as well as negative, hidden as well as overt, minor as well as traumatic or toxic."

There is substantial evidence that children's early experiences have implications for lifelong physical and mental health and well-being (National Scientific Council on the Developing Child, 2007; Ontario Ministry of Health and Long Term Care, 2013; Ontario Ministry of Education, 2017; The Ontario Kindergarten Program, 2016). Chronic stress in early childhood is associated with persistent effects on the nervous system and the hormone systems that can damage the developing brain and lead to lasting problems in learning and behaviour (National Scientific Council on the Developing Child, 2007). Self-regulation helps a child effectively deal with stressors and recover so that they are calm and ready to learn. Because self-regulation is key to children's long-term physical, behavioural and educational well-being (Blair & Diamond, 2008; Bodrova & Leong, 2007; Florez, 2011; Shanker, 2013) many school boards and districts around the globe require their educators to teach, assess and report on students' development of self-regulation skills.

There is much that educators can do to support children's development of self-regulation including reducing stressors in the classroom, being attuned to children's responses to stressors, teaching strategies to recognize and modulate emotions, and recognizing and supporting students' efforts to self-regulate (Ontario Ministry of Education, 2014). In this article, we will consider what instruction in self-regulation could look like when educators are supporting students with multiple developmental disabilities such as non-ambulatory, non-verbal, medically fragile, and deaf/blind students.

Five steps of Self-Regulation

Shanker (2016b) provides a five-step model for self-regulation, however the steps are not linear or sequential. Educators and students can enter the process at any point and complete the steps in any order.

Step 1 – Reframing

When reframing student behaviour, we stop to ask, "Why this behaviour and why now? Is this misbehaviour or is this stress behaviour?" If it is misbehaviour, this means that the prefrontal cortex is still in charge, the child chose this behaviour, and the child could have chosen to act differently. However, if it is stress behaviour, then the heavy stress load has triggered the student's limbic alarm and the child may not be fully aware of what they are doing or why. With stress behaviour, the student has little capacity to act differently (LeDoux, 1998).

Step 2 - Recognizing Stressors

A stressor is anything that disrupts our homeostasis; this causes us to burn energy as our body works to restore our internal balance. Stressors can fall into five domains – biological, emotion, cognitive, social and prosocial and we can experience stressors from multiple domains simultaneously (Shanker, 2013). For example, when students return to school after a long break such as Christmas or summer vacation they may be dealing with stressors from multiple domains. Biological stress may occur because students may have been eating more often and eating more treats, and their sleep patterns may have been disrupted. Another biological stressor is that they are not used to sitting in their wheelchair for long periods of time as they often have more time out of the chair at home. Social stressors include returning to the group after having lots of individual attention at home, and separation from parents and family can be an emotional stressor. The return to the academic curriculum can create cognitive stressors while returning to the group dynamics of the classroom can increase prosocial stressors.

Stressors are different for everyone, and what is a stressor for one person might not be a stressor for another. To make matters even more complicated, what is a stressor for a child one day may not be a stressor another day. If the child is well-rested, well-nourished, and wearing comfortable clothing, then a cognitive task presented by the educator might be a 'just right' level of challenge for the child. But if the child is already dealing with a stress load from too little sleep, or fighting a cold, or hungry, then the same cognitive task may push them beyond their stress limits and trigger their limbic alarm (Hopkins, 2016).

Some examples of possible stressors in each of the domains:

Domain	**Definition**	**Possible Stressors**
Biological	Physiological stressors	● Nutrition ● Sleep ● Seizures ● Wheelchair time ● High or low muscle tone ● Respiratory distress ● Recovery from surgery or medical procedures ● Medication changes

		• Noise • Crowds • Heat/cold/wind • Light • Visual and/or auditory over-stimulation • Overall health and wellness
Emotion	Feelings and moods	• Strong emotions • Positive emotions such as joy, excitement, curiosity can create energy • Negative emotions such as anger, frustration, fear, anxiety can burn energy
Cognitive	Mental processes such as memory, attention, problem-solving, learning new information	• Difficulty processing information • Too much information • Information in a modality that isn't your best fit (auditory, visual)
Social	The ability to understand, assess and act upon social cues Understand social situations and how to act/react in a socially acceptable manner	• Communication using assistive devices • Multiple caregivers with differing styles and expectations • Appointments with multiple medical professionals • Ability to label emotions • Ability to express emotions • Awareness of the social cues of others • Understand the social cues of others • Develop our own social cues • (Cues include facial expressions, tone of voice, gestures, body language and posture) • Opportunities to engage socially
Prosocial	The ability to engage in behaviors that are positive and helpful, and that promote friendship, community, and empathy	• Coping with other people's stress • Opportunities to engage in prosocial activities • Bullying

(Adapted from Shanker, 2013)

Step 3 - Reducing Stressors

The goal of reducing stressors is not to eliminate all stress from our lives or from the lives of our students. Some stress is necessary for engagement, motivation, and growth (McGonigal, 2015). Reducing some of the stressors that we can control means that the energy students would have expended on those stressors is now available to them for coping with other stressors that they encounter throughout the day. Some possible strategies for reducing stressors for students with special needs include:

Floor time (for students in wheelchairs, standers and other seating) - Many parents of children with disabilities report that their children do not use their wheelchair at home. They may have other strategies for getting around their home such as crawling or rolling, or they may be carried by family members. At school, the transition to spending long periods of time in a wheelchair, stander, or other modified seating can be a huge biological stressor and students may need frequent 'body breaks' throughout the day where they can spend time on mats, pillows or other surfaces (Bray, Noyes, Harris & Edwards, 2017).

Augmented communication devices – Adding vocabulary to communication devices for students to express emotions (frustrated, angry, sad, happy, proud, surprised, etc) as well as vocabulary for social and prosocial engagement may reduce social and emotion stressors (Blackstone, 2010; Zangari, 2018).

Sensory areas – Educators can create a range of sensory areas in the classroom using materials with different textures, lights, sounds, etc. Special consideration needs to be given as to how and when students can access these areas, and this may vary from student to student depending on their needs and strengths. (Stearns, 2022).

Sensory breaks – After a whole group instruction time, educators may want to dim the lights, put on soft music or use other strategies to take a whole group sensory break or create a sensory break for a small group of interested students.

Nutrition – Students with motor challenges, dysphagia, and other disabilities may need extra time for snacks and lunch, or more frequent small meals instead of one large meal (Holland Bloorview Kids Rehabilitation Hospital, 2017; Bell & Alper, 2007).

Quiet areas/areas to be alone –Many students are in child care before and after school, and being with others for such extended periods of time can be very stressful. How can we create spaces in the room where students can safely be alone to rest and restore their energy? This may look different depending on the needs of the students and educators as well as the limitations of the classroom but possibilities include using space adjacent to the classroom, using outdoor space, or creating 'nooks' using blankets, tents, gym mates or other materials that create cozy quiet environments for students while still allowing the educator to see the students clearly (Sim & Yoworski, 2017).

Outdoor time – Time spent outdoors can be a stress reducer for students and educators (Berman, et.al., 2012; Louv, 1998). In a review of evidence from recent experimental and observational studies on nature exposure and health, highlighting research on children and youth, researchers found evidence for associations between nature exposure and improved cognitive function, brain activity, blood pressure, mental health, physical activity, and sleep (Jimenez et. al., 2021).

Note: When considering stress reducing strategies, educators need to consider that students with sensory processing disorders have problems with misinterpreting sensory information such as touch, sound, taste, movement and smells. Hypersensitive students are easily overwhelmed by seemingly normal sensations and which may result in behaviours such as rage, anxiety or avoidance. Outdoor play may be stressful for hypersensitive students, while hyposensitive students may inappropriately seek out excess sensory stimuli such as movement, touch and sound.. Likewise, dimming the lights and playing soft music is usually stress reducing but some students with sensory issues may find it stressful. (eMentalHealth.ca).

Step 4 - Reflect: Enhance Stress Awareness

Calm is a feeling of being relaxed while being aware of what is going on inside and outside of you, and enjoying that feeling of being relaxed (Shanker, 2013). Unfortunately, in today's hyperkinetic society, many adults and children no longer know what it feels like to be calm (Race, 2004; Moses, 1999). We know that educators cannot help students to be calm and regulated if they are dysregulated themselves, so it important to focus on our own self-regulation, stress and tension levels (Farag, Becker, Orlowski, Cranston & Mahfouz, 2019; Hurley, 2018).

Some practical strategies for helping students to develop an understanding of what calm feels like are listed below:

Dolls – educators can use dolls to contrast a robot versus rag doll to demonstrate how our muscles and our body feel when we are relaxed and calm versus when we are stressed. However, this analogy may not be appropriate for students with high or low muscle tone issues.

Breathing – Techniques such as belly breathing can help students to become more aware of how their body feels when calm (Veerman, 2017; Jyskä, 2023). When supporting students who are deaf/blind, the educator can put one of the student's hands on their own belly and the student's other hand on the educator's belly to demonstrate different breathing or relaxation exercises.

Step 5 – Restore Energy

Each educator and each student needs to develop their own personal toolbox of self-regulation strategies that helps them to feel calm and alert. What works for one student may not work for another. And what works as a stress reducer or to restore energy one day, in one context may not work in another (Hopkins, 2016). One strategy is for educators to begin by creating a list of possible personal strategies for restoring energy. Then reflect: which of those strategies can be used during the day at school to reduce stress? Which strategies can be used indoors and which can be used outdoors? Are there strategies that can be used while driving or while waiting for an appointment? In addition to curating a personal restoration strategy list, educators and students can collaboratively create a list of restoration strategies for students, and add to the list throughout the school year as new strategies are learned. The list can be posted in the classroom to be used as a reference for educators, parents, and others.

Importance of our own self-regulation

While educators are supporting students in developing self-regulation skills, they must also focus on their own stress levels and self-regulation. Strengthening

self-regulation skills for educators in kindergarten and child care settings can reduce mental health vulnerability for children and for educators (National Scientific Council on the Developing Child, 2013). As educators develop their own self-regulation skills and note the impact self-regulation has on them, they develop a deeper understanding of why self-regulation is important, not only for the students but for the adults in the school as well (Hurley, 2018).

It is also important to focus on their own self-regulation so they can co-regulate with students, co-workers, parents and others. Students who are struggling to self-regulate rely on others to help them co-regulate. Think of it this way: if someone is drowning, our long-term goal might be for them to learn to swim, and to find out why and how they fell in the water. But our first goal is to save them from drowning (Merck, 2018). Likewise, if someone is overstressed and struggling to remain calm, our long-term goal is to help them develop the skills to self-regulate. But our immediate goal is to co-regulate with them, help them return to calm, and ultimately to help them to identify and reduce their stressors (Shanker, 2016, Hopkins, Shanker & Leslie, 2017). We can't help someone else become calm if we aren't calm ourselves (Race, 2004). Self-regulation begins with the self.

Since self-regulation is central to a child's capacity to learn and provides the underpinnings for essential skills needed throughout life, ensuring that educators understand and can support the development of self-regulation for all students, including those with multiple developmental disabilities, will ensure that every learner, regardless of their exceptionalities, can reach their full potential.

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Youth Hubs and Self-Reg: A Unified Approach to Supporting Mental Health and Community

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Abstract

In this paper, I examine the critical role of youth hubs in addressing the increasing mental health challenges youth and young adults face. As mental health issues within this demographic continue to escalate, youth hubs provide a vital support system that effectively cater to their unique needs. I will discuss how the youth hub, operated by our non-profit organization, Youth2Youth Global, with support from the Vaughan Con Foundation, is adopting a distinctive approach by integrating Dr. Stuart Shanker's Self-Reg® framework. This initiative highlights our commitment to enhancing youth development with innovative strategies that emphasize how individuals manage stress in various forms and recover from the energy exerted during this process.

In addition, I discuss the implementation of the Shanker Method® as a five-step approach within our youth hub to enhance self-regulation among children, youth, and young adults. The steps include 1) reading the signs of stress and reframing behaviour, 2) recognizing stressors, 3) reducing stress, 4) reflecting on enhancing stress awareness, and 5) restoring energy. This approach enables us to evaluate self-regulation and stress across five interrelated domains: biological, emotion, cognitive, social, and prosocial. My experiences in the youth hub have shown that stress can manifest overtly or subtly within these domains. Through comprehensive services and tailored interventions, youth hubs effectively address immediate mental health needs while fostering the long-term development of confident and compassionate youth. Ultimately, these initiatives equip young individuals with the essential skills needed to navigate the complexities of contemporary life.

Introduction

As a dedicated advocate in the field of equity and inclusion, I have spent the last few years striving to dismantle the pervasive stigma surrounding mental health issues in schools and within the border community. I currently sit on the Board of Directors as Chair for Youth2Youth Global, a non-profit organization dedicated to reducing barriers and misconceptions surrounding mental health. I am also the founder of the Vaughan Con Foundation, an initiative dedicated to promoting community well-being. The foundation is committed to supporting the most vulnerable members of our society, ensuring they receive the assistance and resources they need. Both organizations provide inclusive spaces where participants can explore their artistic talents, engage in workshops, and collaborate on projects that promote well-being and self-expression. Through various programs and events, we aim to foster a sense of belonging and empowerment among participants, emphasizing the therapeutic benefits of creativity.

My journey began with a profound recognition of the societal barriers that hinder open dialogue and understanding about mental health. This personal commitment has

driven my current work with Dr. Stuart Shanker's Self-Reg® framework, a comprehensive approach designed to deal effectively and efficiently with stressors. Through this framework, I aim to contribute to a broader societal shift towards acceptance and support for individuals suffering from mental health challenges. My volunteer-based team and I are engaged in several projects integrating empirical research and science with innovative community-based interventions. Youth2Youth Global is dedicated to supporting young individuals facing mental health challenges while actively working to eliminate the stigma associated with these issues. Our mission is to create a safe and inclusive space where youth can access resources, share their experiences, and receive peer support. By fostering open dialogue about mental health, we aim to empower young people to seek help and express their emotions without fear of judgment.

We fulfil our mission through a community youth hub, which provides adolescents and young adults with the opportunity to drop in twice a week for activities, resources, or simply to relax and enjoy our amenities. These include a multi-purpose room, craft space, fitness area, quiet tutoring rooms, lounge, kitchenette, and technology zone. Our youth hub serves as a vital environment that fosters social interaction and community engagement, critical components in mitigating mental health stigma and promoting well-being (Brown & Clark, 2018). The Youth2Youth Global team has designed the hub's programs to encourage participation in a variety of activities, from creative arts to peer-led discussions, aligning with findings that highlight the benefits of structured and informal interactions in mental health promotion (Thompson & Green, 2021). As we continue to develop and refine our approach, we draw upon the extensive body of literature advocating for integrative frameworks like Self-Reg®, which emphasize pathways to improved mental health outcomes (Shanker, 2016). Through these efforts, we are committed to fostering a culture of acceptance and support, where every young person can thrive.

The Self-Reg framework, developed by Dr. Stuart Shanker, aligns seamlessly with Youth Wellness Hubs Ontario's mandates, which seek to provide supportive environments for young people to develop their social-emotional skills and mental health. Each hub collaborates with local service providers and community partners to bring together existing services in new ways and deliver high-quality, developmentally appropriate, and community-based services to youth and their families (Henderson et al., 2023). The collaborative nature of youth hubs, involving various stakeholders—including educators, mental health professionals, and community organizations—reflects the multi-faceted approach advocated by Shanker. This holistic perspective ensures that the comprehensive needs of young people are met, empowering them to succeed both personally and academically (Shanker, 2016; Shanker & McPherson, 2020). Youth Hubs Ontario aims to create integrated community spaces where youth can access resources, participate in activities, and engage with peers in a safe environment. This aligns with Shanker's assertion that effective self-regulation is rooted in supportive contexts that acknowledge the stressors affecting individuals (Shanker & McPherson, 2020). In essence, youth hubs strive to provide an environment that facilitates self-regulation, allowing young individuals to process their emotions and experiences in ways that contribute to their overall well-being. "Building a supportive community around children is vital to their development and well-being. It allows them to feel secure, understood, and capable of managing their emotions and interactions with others" (Shanker, 2016).

The core principles of Self-Reg® highlight the importance of understanding individuals' physiological and emotional states, emphasizing the need for self-awareness and self-management, skills which are crucial for effective functioning in both social and educational contexts (Shanker, 2016). The structured support that youth hubs provide
encourages adolescents to engage in guided self-regulatory practices, such as mindfulness and emotional check-ins, which are integral components of the Self-Reg® model. By incorporating activities that promote self-awareness and coping strategies, youth hubs can help young people navigate their emotional landscapes more effectively (Henderson et al., 2023). As such, integrating the Self-Reg framework within the operational strategies of Ontario's youth hubs not only enhances the support offered to youth, but also aligns with broader educational mandates aimed at fostering healthy, resilient, and self-aware communities (Henderson et al., 2023).

Mental Health Crisis

In society, mental health challenges among adolescents and young adults are on the rise, driven by a multitude of intricate social, environmental, and technological influences. Indeed, the prevalence of mental health issues among young people has become a growing concern (Stats Can, 2023). In 2019, 16% of girls aged 12 to 17 reported their mental health as "fair" or "poor," which was more than double the rate for boys at 7%. By 2023, these figures rose to 33% for girls aged 16 to 21, compared to 19% for boys in the same age group (Stephenson, 2023, p. 1). Additionally, Stephenson (2023) noted that among the 88% of youth who rated their mental health as "good," "very good," or "excellent" in 2019, roughly 21% experienced a decline to "fair" or "poor" by 2023 (Stephenson, 2023, p. 3). The fast pace of modern life, with ongoing technological advancements and social media's influence, brings about pressures and stresses that past generations didn't experience (Robinson et al., 2020).

According to (Twenge, Joiner, Rogers, and Martin, 2019), there has been a notable increase in mental health disorders among adolescents since 2015, correlating with the rise of digital technology and social media use. This digital era, while offering unprecedented connectivity, has also introduced challenges such as cyberbullying, social comparison, and an overwhelming influx of information, all of which can contribute to anxiety and depression in youth (Hoge, Bickham, & Cantor, 2017).

In addition to technological influences, several social factors contribute to the worsening state of mental health among young individuals. The academic pressures to excel and the competitive nature of college admissions have significantly increased stress levels in students (Robinson, Sareen, Cox, & Bolton, 2020). Simultaneously, economic instability and uncertainties regarding career prospects in an evolving job market further compound these stressors. Young people are often caught in a cycle of worry about their future, which affects their immediate mental health and well-being (Sawyer, Azzopardi, Wickremarathne, & Patton, 2019).

Moreover, family dynamics and environmental stressors play a crucial role in shaping the mental health of young people. Changes in family structures, such as parental separation or economic hardship, can lead to emotional turmoil and instability, impacting

mental health negatively (Sanders, Ralph, Sofronoff, Gardiner, Thompson, Dwyer, & Bidwell, 2019). Increased urbanization and reduced green spaces also limit opportunities for physical activities and leisure, essential for maintaining mental health (Volk, Kerin, Lurmann, Hertz-Picciotto, McConnell, & Campbell, (2017).

Additionally, many young people are struggling with mental health issues because of the COVID-19 pandemic (McCoy et al., 2021). The pandemic brought about extended periods of isolation, disruptions to daily routines, and uncertainty about the future, all of which have significantly impacted mental well-being (Robinson et al., 2020). Increased feelings of anxiety, depression, and loneliness are common as many youths cope with changes in their social lives, education, and family dynamics (Robinson et al., 2020). Stephenson (2003) noted that to support young people through these challenges, it is essential to prioritize mental health education and resources in schools and communities, however, such support is often hindered by the stigma that still surrounds mental health, which can prevent young people from seeking the help they need (Stephenson, 2023). Given these complex challenges, it is essential to create supportive environments where young people can access the resources, they need to maintain their mental well-being.

Given these multifaceted challenges, youth hubs can provide crucial support by offering mental health services tailored to these unique stressors. By fostering communities where young people feel safe and supported, these hubs can mitigate some of the adverse effects of modern societal pressures and serve as a valuable resource in promoting mental well-being.

Definitions of Self-Regulation

The expanding body of literature on self-regulation encompasses many perspectives on what constitutes valid measurement, and, as Burman et al., (2015) explained, self-regulation has multiple meanings, all of which differ from one another. And, as described above, there is increasing concern about the mental health and resilience of today's students (e.g., McCain, Mustard, & Shanker., 2007). Difficulties with self-regulation in the context of human development are linked to various issues, including educational outcomes, cognitive difficulties, internalizing problems such as depression and anxiety, externalizing behaviours like aggression, and physical health challenges (McCain et al., 2007; Shanker, 2007). These challenges highlight the importance of addressing self-regulation to support overall development and well-being.

Burman and colleagues (2015) refined the definition of self-regulation, highlighting the significance of clarity in this concept. Their perspective suggests that a clearer understanding can result in more targeted and effective educational practices that enhance students' overall academic and personal development. Similarly, Ross Greene (1998) approached self-regulation strategies from a new perspective that reframed behaviour, communication, and flexible thinking in terms beyond behaviour control. In this way, the approach evolved from radical behaviourism and beyond cognitive approaches into a neurophysiological approach considering aspects of evolutionary psychology and neuroscience (Greene, 1998). Stanley Greenspan redefined child development and early intervention by emphasizing self-regulation as a foundational

element for subsequent developmental stages, such as self-regulated learning and self-control (Greenspan, 2007; Greenspan & Shanker, 2004; Greenspan & Shanker, 2007). Building on these foundational ideas, it is essential to consider the work of Dr. Stuart Shanker.

Dr. Shanker defines Self-Reg® as the body's ability to respond to and recover from stress (Shanker, 2012, 2016). Shanker's approach to self-regulation emphasizes understanding and managing stressors, which is critical in fostering an environment where youth can thrive (Shanker, 2016). According to Shanker (2016), self-regulation is not about self-control but about understanding and responding to stress. His five-step framework, deeply rooted in neurophysiology, emphasizes the need to reframe behaviour, identify and reduce stressors, reflect on one's stress response process, and recover the energy spent managing these stressors (Shanker, 2016). Shanker's Self-Reg® framework (2016) not only contextualizes the differences between traditional self-regulation, self-control, and other traditional definitions, programs, or frameworks, but also provides a five-step process (reframe, recognize, reduce, reflect, respond) across various domains (biological, emotion, cognitive, social, prosocial). This approach comprehensively supports mental and physical well-being (Shanker, 2016). Similar to the principles outlined in Self-Reg®, youth hubs play a crucial role in promoting community building and fostering positive mental health among young individuals. The essence of Shanker's philosophy lies in the belief that supportive connections are foundational to self-regulation and overall well-being. Shanker explains that when a child feels safe, their brain is open to learning and engagement (Henderson et al., 2023). By creating supportive environments where youth can engage in meaningful activities and access necessary resources, these hubs align with the Self-Reg® approach to cultivate community resilience, connection, and overall emotional wellness. As Shanker (2016) emphasizes, "When we help children manage their stress, we're not just improving their behaviour; we're helping them develop the capacity to self-regulate" (Shanker, 2016, p. 78). As we explore the impact of youth hubs further, it becomes evident that they embody the essence of Self-Reg by empowering youth to thrive both individually and collectively.

Youth Hubs: A Foundation for Positive Mental Health and Meaningful Relationships

Youth hubs, which are community-based centres for adolescents and young adults, offer a variety of services, including mental health support, recreational activities, and educational programming. They are crucial in tackling mental health challenges and reducing the associated stigmas (Henderson et al., 2023). These hubs serve as secure and nurturing environments where youth can cultivate positive relationships and enhance their self-esteem. By focusing on creating inclusive and equitable spaces, these hubs actively promote diversity, ensuring that every young person feels valued and respected regardless of their background (Henderson et al., 2023). Programs and activities are designed to celebrate diverse cultures and perspectives, encouraging open dialogue and mutual understanding. Such initiatives empower youth by recognizing their unique identities and preparing them to engage constructively in a diverse world. Through these efforts, the hubs play a crucial role in shaping confident, empathetic, and socially responsible future leaders (Henderson et al., 2023).

Youth hubs' structured yet flexible environment offers a haven where young individuals can explore their identities and express themselves openly, leading to improved mental health. These hubs can provide the necessary conditions for youth to develop resilience and coping strategies, effectively improving their mental well-being. In addition, youth hubs are instrumental in building meaningful relationships with peers and mentors, which are crucial for social and emotional development.

Youth hubs are instrumental in strengthening communities by fostering collaboration among local organizations, schools, and families. By serving as a focal point for community engagement, these hubs facilitate partnerships that leverage resources and expertise to benefit all who seek support. Research indicates that community involvement plays a crucial role in enhancing the effectiveness of youth programs (González et al., 2019). By partnering with schools and local agencies, youth hubs can offer integrated programming that addresses both educational and mental health needs. Such collaboration ensures that young individuals receive comprehensive support, enhancing their well-being. Furthermore, engaging local organizations creates a network of services that respond promptly to youth needs, promote community cohesion, and share responsibility for youth welfare (Shannon & Johnson, 2020). Youth hubs play a vital role in fostering positive mental health and relationships among young people. [By providing access to mental health services (e.g., crisis intervention, peer support groups, workshops, counselling, and different forms of therapy), recreational activities (e.g., yoga, baking, painting, dancing) and social opportunities (e.g., volunteering opportunities, youth lead initiatives, safe space environment and mentoring programs).] These centres support youth in developing strong emotional connections with peers and adults. Positive relationships are fundamental to mental health, providing youth with essential support systems during challenging times (Bowers et al., 2018). Additionally, youth hubs often incorporate programs to build self-esteem and confidence, which are crucial for enhancing overall well-being. For instance, programs focusing on team-building and communication skills can help youth form healthy relationships, ultimately leading to better mental health outcomes (Smith & Williams, 2021).

Moreover, creating a positive environment within youth hubs allows for the development of life skills that are essential for managing stress and promoting resilience. Holland & Andre, (2020) explain that activities such as leadership training and peer mentoring not only equip youth with practical skills but also contribute to building a sense of belonging in the community. When youth experience positive interactions and supportive networks, they are more likely to engage in healthy behaviours and seek help when needed, reducing the stigma associated with mental health challenges (Holland & Andre, 2020).

Youth hubs are designed to be inclusive spaces that serve young people across a diverse age range, from early childhood through adolescence and into young adulthood. These community-based centres provide a variety of programs and services tailored to meet the unique developmental and social needs of different age groups. By offering activities that are specifically designed for various age brackets, youth hubs ensure that they remain relevant and valuable for all participants.

Inclusion, equity, and diversity are guiding principles of youth hubs, ensuring that all young individuals, including those from marginalized groups, have access to resources and opportunities. Research indicates that inclusive programs can foster social

integration and improve the quality of life for youth with diverse needs (e.g., Cavendish et al., 2021). Youth hubs are uniquely positioned to create inclusive environments where all youth feel welcome and valued. For instance, by offering adaptive programs and tailored resources, these centres can effectively accommodate the needs of individuals with disabilities and support their participation in social, recreational, and educational activities. Furthermore, inclusive youth hubs promote understanding and empathy among peers, breaking down stereotypes and fostering acceptance. By engaging youth from diverse backgrounds, these hubs help create a culture of respect and inclusivity. This, in turn, benefits not only the individuals involved but also the broader community by encouraging diversity and equity (Dunn et al., 2019).

As communities become increasingly diverse, recognizing and addressing systemic barriers that marginalized groups face is paramount. Beyond working with youth from diverse backgrounds, youth hubs often implement programs designed to actively promote social justice and cultural competence actively, helping all youth develop an appreciation for their own identities and those of others (Harris & Goodall, 2022). Research shows that inclusive practices, such as engaging families from various cultural backgrounds, significantly enhance the effectiveness of youth programs (Brooks & Smith, 2020). Additionally, by addressing inequities in access to services, youth hubs create pathways for success for all youth, particularly those from historically disadvantaged backgrounds. This commitment to equity not only improves mental health outcomes but also helps cultivate a generation of socially conscious individuals who are prepared to contribute positively to society (Siegel et al., 2021). With this background in mind, I aim to demonstrate that by applying Shanker's Self-Reg® framework, youth hubs can do more than just serve as safe spaces; they can empower young individuals to regulate their emotions and stress, leading to enhanced mental health and stronger, more positive community relationships. Such an approach would not only benefit the youth but also strengthen the community by building a more empathetic and connected society.

The Shanker Method Is A Five-Step Method For Enhancing Self-Reg®

As this Self-Reg® diagram conveys (see Figure 1), the five steps are not a linear sequence. Rather, there are multiple entry points, and Self-Reg® can be pursued in any order. Proficiency in each step grows by working on all the others. This cyclicality is the key to how Self-Reg® becomes custom-tailored to suit every individual's distinctive stress-reactivity and needs. According to Shanker, the first step of Self-Reg® is always to ‘dig deeper’ because you cannot reframe a behaviour until you understand it (Shanker, 2016).

Figure 1. What is Shanker Self-Reg® The MEHRIT Centre

There are five steps in The Shanker Method of Self-Reg®:

→ Reframe the behaviour

→ Recognize the stressors

→ Reduce the stress

→ Reflect: Enhance stress awareness

→ Restore energy

Read the Signs of Stress and Reframe the Behavior: Our staff might notice an individual frequently withdrawing from group activities in a youth hub setting. Instead of interpreting this withdrawal as antisocial or disinterested behaviour, it can be reframed as a possible sign of feeling overwhelmed by sensory overload (Shanker, 2016). By understanding the behaviour through this lens, staff can engage with the youth to identify triggers and provide appropriate support.

Recognize the Stressors: Our youth hub creates an ideal environment for adolescents to identify personal stressors effectively. For example, we recognize that a young person might feel stressed by high noise levels during peak activity times. Staff work one-on-one with individuals to help them pinpoint these stressors, enabling them to understand and anticipate the conditions that cause discomfort. This proactive approach empowers youth to manage their sensory experiences more effectively, fostering a sense of control.

Reduce the Stress: Once stressors are identified, our youth hub is committed to offering strategies that effectively reduce them. We have created designated quiet zones where participants can retreat when overwhelmed. Furthermore, we provide noise-cancelling headphones for those sensitive to sound. By structuring activities to accommodate varying levels of participation and comfort zones, we ensure that each person can engage in ways that suit their individual needs, enhancing their overall experience.

Reflect: Enhance Stress Awareness: Facilitators lead reflection sessions in our hub, encouraging youth to explore how specific stressors affect their mood and energy

levels. Through guided journaling and group discussions, participants deepen their self-awareness and learn to recognize patterns in their emotional responses. This reflective practice fosters a greater understanding of their experiences, promoting emotional growth and resilience.

Restore Energy: Our youth hub offers various activities to restore energy and promote well-being. These include mindfulness sessions and yoga classes, which allow participants to engage in physical movement and relaxation techniques. We also incorporate creative outlets like art projects and baking sessions, providing a space for self-expression as well as emotional release. Youth can replenish their mental and physical energy by participating in these restorative activities while returning to a calm and centred state. Ultimately, these offerings help cultivate a positive and nurturing environment conducive to personal and social development.

Self-Reg® is designed to deal with all the ups and downs and variations and fluctuations of daily life. Dr. Shanker (2022) explains that a person's response to stress continually evolves, as do the stressors themselves. But once we immerse ourselves in Self-Reg® and live it, our understanding of stress and our ability to manage energy flow transforms. We become increasingly sensitive to the signs of being over-stressed and better equipped to turn negative situations into positive growth experiences (Shanker, 2022).

Integrating The Five Domains of Self-Reg®: Transformative Practices in Our Youth Hubs

Shanker Self-Reg® emphasizes the connection between self-regulation and stress across five domains: Biological, Emotional, Cognitive, Social, and Prosocial. Understanding these domains is essential for creating an environment that fosters emotional, cultural, relational, and physical safety. Shanker (2016) notes, “When we look at the five domains of self-regulation, we begin to see how stress affects every aspect of our lives and how managing these stresses is key to fostering a safe and supportive environment” (Shanker, 2016, p. 34).

Research demonstrates that stressors can arise from multiple sources, including sensory overload, inadequate support systems, and emotional distress, which can hinder an individual’s ability to self-regulate (Shanker, 2016). Consequently, adopting a holistic approach to self-regulation enables educators and community practitioners to create supportive frameworks tailored to individuals’ unique needs. By fostering open dialogue and implementing relaxation and attentiveness strategies, we can enhance overall well-being (Shanker, 2016).

Incorporating principles of Self-Reg® in community services like youth hubs allows young individuals to strengthen their self-regulation skills, ultimately contributing to their academic and personal development. Shanker (2016) asserts that “the goal is not only to improve behaviour but to help individuals develop the capacity to self-regulate” (Shanker, 2016, p. 45). By promoting resilience and empathy, we empower youth to navigate the challenges of their environments effectively.

Biological Domain. Stressors in the biological domain impact our physiological systems, disrupting optimal bodily function. These stressors include environmental factors such as loud noises, strong smells, visual overstimulation, insufficient physical

activity, and lack of sleep (Shanker, 2016). Recognizing this, in our youth hub, we have established a quiet, sensory-friendly room designed to help individuals manage sensory overload. This dedicated space features soft lighting, calming scents, and comfortable seating arrangements, creating a relaxing environment. Participants can retreat to this area whenever they feel overwhelmed by noise or visual stimuli, promoting a sense of calm and enabling them to regain focus. This approach aligns with Shanker's assertion that managing biological stressors is essential for self-regulation and overall well-being.

Emotion Domain. The emotional domain pertains to recognizing, understanding, and expressing positive and negative emotions. Stressors in this domain often intersect with challenges in the other four domains, exacerbating overall stress (Shanker, 2016). To support emotional development within our youth hub, we offer regular Emotional Literacy workshops, providing participants of all ages with tools to articulate their feelings. Activities within these workshops include journaling, art projects, and role-playing exercises designed to facilitate discussions about emotions. By fostering an environment where participants feel safe to express their emotions, we help them develop healthy coping mechanisms. As Shanker (2016) notes, promoting emotional awareness is critical for building resilience and improving mental health outcomes.

Cognitive Domain. Stress in the cognitive domain primarily arises from difficulties in processing information and organizing thoughts. Stressors such as learning new concepts, making decisions, and dealing with boredom significantly impact cognitive functioning (Shanker, 2016). Within our hub, we provide tutoring and resume-building sessions, which assist youth in organizing their academic work and focusing on tasks more effectively. These resources also include the development of efficient study strategies and guidance for preparing for future opportunities. By offering support that addresses cognitive stressors, we enable youth to feel more confident and equipped to handle academic demands, ultimately fostering a greater sense of self-efficacy. This aligns with Shanker's emphasis on the necessity of a multi-faceted approach to stress management.

*Social Domain.*The social domain encompasses the challenges of interpreting social cues and understanding the impact of one's behaviour on others. Stressors in this domain—such as peer pressure, bullying, public speaking anxiety, and social exclusion—can significantly affect a young person's experience (Shanker, 2016). Our youth hub functions as a safe space where individuals can express their authentic selves, offering numerous opportunities to connect with peers in a fun, supportive environment. Through designed activities and group interactions, participants can practice social skills and build meaningful relationships, which enhance their emotional intelligence. Indeed, Shanker (2016) highlights the importance of nurturing social connections, as they play a critical role in the overall well-being of youth.

Prosocial Domain. Stress in the prosocial domain relates to a child's difficulty in managing the stress associated with other people's emotions and behaviours. Signs of prosocial stress can manifest as challenges in sharing, honesty, and understanding ethical concepts (Shanker, 2016). Our hub organizes various community service projects that encourage participants to volunteer and forge connections within the broader community. These initiatives provide valuable lessons in empathy, collaboration, and shared responsibility. By engaging in these activities, participants not only contribute to community well-being but also learn to manage the stress that can arise from teamwork

and different perspectives. Likewise, Shanker (2016) emphasized that fostering prosocial behaviour contributes to developing a compassionate and interconnected community.

The youth hub creates a comprehensive framework for developing Self-Reg® skills through strategies that address each of these domains. This holistic approach not only supports the individual growth of participants but also cultivates a positive community environment where all youth are encouraged to thrive socially, emotionally, and academically. As Shanker (2016) emphasizes, "The more we understand our stressors and the way they affect our energy, the better equipped we will be to help ourselves and others" (Shanker , 2016, p. 45). This insight explains the importance of a well-rounded Self-Reg® framework that addresses individual needs and strengthens community connections.

Self-Reg® in Action: Transforming Challenges into Opportunities At Youth Hubs

Running the youth hub has been one of the most rewarding ventures I've undertaken, and it wouldn't be possible without the incredible support from volunteers, local professionals, and our dedicated student ambassadors. We operate two days a week, providing a range of engaging activities for school-age children and young adults. For the younger group, aged 10 to 17, we focus on fostering creativity and personal growth through the arts. We host dance sessions, painting classes, music lessons, and baking workshops. These activities aren't just about developing skills; they're about giving kids a creative outlet and a space to express themselves freely and reduce stress. We emphasize career and personal development for young adults aged 18 to 24, offering resume-building sessions and job-finding workshops. Our hub is more than just a service provider; it's a welcoming space where young adults can hang out, connect with others, and access resources like free Wi-Fi and computers to work on personal projects. Our team is committed to making our space inclusive and accessible to everyone, ensuring that all young people feel supported on their personal journeys.

I'm also excited about our journey to become certified by Youth Wellness Hubs Ontario (YWHO). With this certification, we'll be able to provide immediate mental health support and physical care to those in need. YWHO's Integrated Youth Services initiative fills service gaps in youth mental health and substance use sectors across Ontario, and being part of this network would mean expanding our offerings even further. Their model pushes for increased access to rapid, low-barrier services, reducing the need for youth to navigate complicated systems. By co-developing programs with youth, YWHO ensures that services meet their direct needs. The core components of YWHO align with the Self-Reg® framework by creating a reduced stress environment that offers a safe space for youth. Both approaches emphasize the importance of reducing stressors to foster well-being and provide comprehensive support tailored to individual needs, thus promoting overall mental health and resilience in a nurturing setting.

The Six Core Components of YWHO are…

Youth & Family Engagement:
Engagement empowers youth and families to make decisions about their care by embedding their voices at all levels.

Integrated Governance & Partner Collaboration:

Strategic collaboration between youth and service provider networks to manage resources and organize service delivery.

Accessible:
A comprehensive array of services accessible to youth under one roof to meet their individual needs.

Inclusive & Culturally Diverse Services:
Services that respond to the health, belief, practice, cultural, and linguistic needs of diverse youth.

YWHO Integrated Service Delivery (IYS) Model:
Co-located and integrated service across a continuum of care, accessible through a single, youth-friendly access point.

Measurement-based Care (MBC):
Standardized screening tools, equity data use, and clinical outcome monitoring to improve care for youth.

Equitable and culturally responsive programming is essential to how we deliver services locally. By doing so, we aim to implement more accessible and innovative methods of meeting the needs of young people and their families. Personally, I am committed to integrating Self-Reg® strategies into our approach, ensuring that we create environments where negative stress is recognized and reduced allowing for youth to thrive. Together, we strive to make a positive impact on the lives of those we serve by focusing on individualized and inclusive support.

Beyond the Classroom: The Influence of Self-Reg on Youth Development

The Self-Reg® framework within our youth hub has led to significant positive changes and outcomes, notably enhancing our participants' overall happiness and well-being. Our students consistently express genuine enjoyment in attending the hub, evidenced by the overflowing feedback check-in box filled with positive weekly comments. For instance, one individual shared, "I am usually bullied at school, and this place helps me forget about my troubles and make new friends" (Participant 1, 2024). Another participant remarked, "I feel more relaxed at home and school after learning some new strategies here" (Participant 2, 2024). These testimonials underscore the profound impact our approach has on their lives.

The welcoming environment at our youth hub, characterized by an open-door policy and a commitment to provide support without the pressure of attendance or expectations, creates a unique space where individuals can de-stress. The fact that new individuals join us each week, seeking a safe and supportive environment, suggests that our approach is meeting a critical need in the community. By harnessing the principles of self-regulation, as outlined by Shanker, we facilitate a space where young people can "restore their energy and find calm" (Shanker, 2016). As such, this foundation not only promotes emotional regulation but also empowers participants to develop resilience and coping strategies that benefit them both within and beyond the hub.

Comments From our Feedback Check-in Form.

To protect the identities of the individuals, we will share their comments anonymously. These reflections highlight the transformative impact of our youth hub and underscore the effectiveness of our self-regulation approach:

- "I am now thinking about what makes me upset instead of just reacting."
- "I'm making lots of friends here and putting myself out there, something I don't do at school."
- "My family could not afford extracurricular activities, so this hub is the most exciting part of my week."
- "I'm learning how to focus better, even when I'm overwhelmed."
- "I've become more patient with myself."
- "I enjoy painting here; it's a great way to express myself and relax."
- "The food here is amazing."
- "The strategies I'm learning here are helping me manage my stress at home."
- "I've gained confidence in speaking up and sharing my thoughts."
- "I feel understood here, which makes me more comfortable expressing my feelings."
- "I really appreciate the homework support; it helps me understand the material better and feel more confident in school."
- "Coming to the hub is like pressing a reset button on my bad days."
- "I find it easier to calm down now when I'm anxious or upset."

These comments illustrate our youth hub's profound impact on fostering self-awareness, emotional intelligence, and resilience among participants, validating the effectiveness of our Self-Reg framework in a community setting.

Breaking Through Overpowering Barriers: Empowering Youth Against Persistent Obstacles

At Youth2Youth Global, we are deeply aware of the barriers and challenges that youth wellness hubs in Ontario face in providing practical support to young individuals. Accessing our services can be difficult for many youths due to geographic limitations, transportation issues, and a lack of awareness about the resources available to them. As a non-profit organization, we also grapple with funding limitations that hinder our ability to offer a full range of programs and maintain adequate staffing, both of which are essential for building meaningful connections with the youth we serve. The stigma surrounding mental health remains a significant obstacle; many young people are hesitant to seek help because of the fear of judgment. Moreover, fostering collaboration between various agencies can be challenging due to differing goals and communication barriers. Recognizing that our participants come from diverse backgrounds, we must provide culturally responsive services that meet their unique needs. Alongside these hurdles, we strive to engage families in our initiatives, understanding that their involvement is vital for success. For example, parent support groups that facilitate peer interaction, resource distribution to provide essential information, and feedback surveys to gather family insights. Additionally, mentorship programs featuring certified life coaches offer guidance, while family learning activities, such as game nights, foster bonding and collaboration. While these initiatives

are designed to foster meaningful family engagement, we continue to struggle with achieving full participation due to transportation issues and work conflicts. Many families face logistical barriers that prevent them from attending events or accessing resources, which limits their involvement in the youth hub. Despite these challenges, our commitment to empowering youth remains unwavering, and we continuously seek innovative solutions to create a more inclusive and supportive environment.

Summing Up: The Significance of Self-Reg® in Building Supportive Communities

Youth hubs are critical in addressing the multifaceted mental health needs of young people by fostering community involvement, positive relationships, inclusion, and equity. These community-based centres offer essential services beyond conventional mental health support, providing integrated programs catering to the social, emotional, and educational needs of all youth. By embedding Dr. Stuart Shanker's Self-Reg framework into their strategies, youth hubs can more effectively create environments where self-regulation is prioritized and stressors are managed constructively. Shanker asserts that self-regulation is not a matter of exerting more willpower but rather understanding stress and how it affects the brain and body, illustrating the importance of a supportive framework that acknowledges and addresses the underlying causes of stress and mental health challenges (Hopkins, Shanker, & Leslie, (2017).

Youth hubs that implement Self-Reg® initiatives can promote increased resilience by teaching young individuals how to recognize and respond to their stress patterns, which is a crucial aspect of maintaining mental well-being. Within these hubs, young people learn to form meaningful relationships with mentors and peers, an approach that Shanker highlights as essential, stating that relationships play a vital role in human development, essential for building resilience and promoting growth (Hopkins, Shanker, & Leslie, (2017). The structured yet flexible atmosphere provided by youth hubs empowers young people to explore their identities, build self-esteem, and engage in community life, all while developing critical coping strategies.

As communities increasingly confront the realities of youth mental health issues, the role of youth hubs becomes more vital. These centers address immediate concerns and establish a foundation for long-term well-being among young people. By employing the Self-Reg® approach, youth hubs can cultivate an environment where adolescents develop the skills needed to navigate modern life's complexities with confidence and empathy. Dr. Stuart Shanker (2016) articulates that “self-regulation is the ability to manage stress and recover from it,” which fosters resilience. Additionally, he states, “The goal of education is to develop self-regulating students,” highlighting the importance of preparing young individuals for future success. By actively contributing to the holistic development of youth, these hubs ensure that they are equipped to face challenges and thrive in their communities. Ultimately, youth hubs serve as essential pillars of community support, providing comprehensive care and nurturing engaged, compassionate citizens ready to contribute positively to society. Shanker (2016) further emphasizes that “it takes a village to raise a child,” reinforcing the need for collective efforts in supporting the mental health of young individuals.

Acknowledgments

I would like to acknowledge the remarkable individuals who have supported our Youth Hub initiative and contributed in meaningful ways.

Ida-Maria Carriero: Founder of Youth 2 Youth Global
Cathy Carriero: Executive Director of Youth 2 Youth Global
Michael Tibollo: Associate Minister of Mental Health and Addictions, ON
Stephen Lecce: Former Minister of Education & Member of Provincial Parliament Steven Del Duca: City of Vaughan Mayor
Anna Roberts: Member of Parliament King-Vaughan
Dr. Jo Henderson: Executive Director of Youth Wellness Hubs, ON
Dr. Sonia Mastrangelo: Assistant Dean & Associate Professor Lakehead University Roselyn Gishen: PhD Student Brock University
Vaughan Con Foundation Board of Directors: Angelo Bilotta, Krystyn Bilotta & Jessica Bilotta

Location: Youth 2 Youth Global Hub
Top Row: (Left) Michael Tibollo- Associate Minister of Mental Health and Addictions, ON (Right) Dr. Jo Henderson- Executive Director of Youth Wellness Hubs, ON
Bottom Row: (Left) Bruno Bilotta- Chair of the Board of Directors for Youth 2 Youth Global and Founder of the Vaughan Con Foundation (Middle) Ida-Maria Carriero- Founder of Youth 2 Youth Global (Bottom Right) Cathy Carriero: Executive Director of Youth 2 Youth Global

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