

Self-Regulation in Early Childhood

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View of Children, Families, and Educators

The importance of the early years has been recognized by the U.N. Convention on the Rights of the Child and UNESCO has dedicated a research division to the early childhood years. Challenges plaguing early years education and services are now at the forefront of political and research agendas worldwide. As a result of the international spotlight on early childhood, numerous research and project contributions have surfaced, adding to our understanding of evidence-based practice. Our view of the child, family, and educators is interrelated, with each one influencing the other through reciprocal relationships that are nurturing and engaging. Early learning, development, and care need to be:

- Child-centered: focused on each child's unique personal qualities;
- Holistic: recognizing factors contributing to children's early learning /development as interconnected;
- Ecological: situating the child amid spheres of influential environmental systems (family, peers, school, community, neighbours, social services, mass media, cultural ideologies, etc.); and
- Developmentally appropriate: grounded in research on how children optimally develop and learn.

Bronfenbrenner (1979) espoused an ecological model of human development, in which children are embedded in layered systems of influence, beginning with families and moving outwardly to include schools, peers, neighbours, community, mass media, social services, and cultural ideologies and attitudes. The work of educators on the frontlines is critical to improving outcomes for young children, particularly for those who have or are at risk for developmental delays or disabilities. Educators do not operate in a vacuum and their ability to implement evidence-based pedagogical practices must be supported through their respective organizations and agencies.

Early childhood is defined as the period from birth to eight years old and quality early childhood care and education helps all children, especially the poorest and

most disadvantaged, develop their potential and promotes their social, emotional, physical, and cognitive development (UNESCO, 2024). Research on long-term outcomes of quality early childhood care and education also demonstrates health and economic benefits on a societal level (Heckman & Mosso, 2014). Progress in improving access to quality early childhood care and education has been strong in the last decade. While around 650 million children were enrolled in primary school in 2000, the number reached close to 740 million children in 2020 (Dyvik, 2024). Pre-pandemic data from UNICEF and UNESCO in 2020 and 2021 showed that 54% of children worldwide, aged 3 to primary school entry, were enrolled in pre-primary education, with enrollment rates ranging from 21% in low-income countries to 79% in high-income countries (McCoy et al., 2021). In Latin America and the Caribbean, early childhood education attendance between 2013 and 2021 was recorded at 68% (UNICEF, 2024).

Stress and Early Childhood

Stress in the early years has been primarily underresearched. For the purpose of this article, we define stress as a non-specific response of the body to any demand placed upon it. This response can manifest as both emotional and physical strain or tension associated with various demands or adverse circumstances (Shanker & Hopkins, 2022). For young children, the stress response is crucial for survival, helping them navigate daily demands like hunger, thirst, sleep, changes in routine, social acceptance, and cognitive tasks. The biology of the stress response system is regulated by the *HPA axis* (*Hypothalamic-Pituitary-Adrenal axis*), which reacts to stress by increasing alertness through the hormone cortisol and strives to self-regulate, bringing cortisol levels back to baseline.

The functioning of the HPA axis can be significantly affected during early life, particularly in the prenatal period and early childhood years, by experiences of abuse, violence, and neglect, especially when accompanied by prolonged high cortisol levels. Such experiences can lead to improper programming of the axis, resulting in either hypo-reactivity or hyper-reactivity (Ellis, Jackson, & Boyce, 2006). In a hypersensitive state, the system may overreact to any stimulus, regardless of whether it poses a real threat. Conversely, in a hyposensitive state, it may not respond at all. Extended activation of the HPA axis can affect memory receptors in the hippocampus (Jeansok Kim, Young Song, & Kosten, 2006), cause heightened immune system activity (Bick et al., 2012), and increase the risk of developing various health conditions, including coronary heart disease, hypertension, obesity, type 2 diabetes, mental health disorders, premature aging, and memory loss (McCain, Mustard, & Shanker, 2007). Elevated stress also has epigenetic effects (Shonkoff, 2012; Berretta, Guida, Forni, & Provenzi, 2021).

To counterbalance the negative effects of stress, secure attachment plays a key role in regulating the stress response. This experience activates the hormone

oxytocin, known for its ability to reduce cortisol levels and help restore balance in the system. Despite its crucial role in early development, stress levels in young children and pregnant mothers are poorly tracked at the population level (Tinajero, 2021). International agencies like UNICEF and the WHO do not provide direct country-specific data on stress levels in the early years. Instead, they rely on indirect indicators such as socioemotional well-being, physical punishment, and parental involvement and statistics are drawn from population surveys like the Demographic and Health Surveys (DHS) and the Multiple Indicator Cluster Surveys (MICS). Another approach to gauge stress levels indirectly is by using adverse early experiences—such as abuse, neglect, and household dysfunction—as proxies for elevated stress (Bucci et al., 2016).

In Figure 1, developmental health and social determinants are depicted as proxies for increased stress levels in unborn and young children in Canada, Latin America, and the Caribbean (LAC), based on an approach established by Tinajero (2021). The statistical data encompasses indicators from the prenatal stage, the first five years of life, and the age range of 6 to 18 years. There are instances where data may be lacking, either because it is not collected in Canada or because regional information for Latin America and the Caribbean is unavailable.

Figure 1. Proxies of Stress-Related Factors in Unborn and Young Children – Canada and Latin America & the Caribbean (LAC)



1Public Health Agency of Canada (2009); 2OECD/The World Bank (2020); 3Statistics Canada (2024); 4Ohuma, et.al. (2023); 5Statistics Canada (2020); 6UNICEF (2022); 7UNICEF (2024); 8WHO (2023); 9ECLAC (2024); 10UNICEF Canada (2023); 11FAO, FIDA, OPS, PMA & UNICEF (2023).

The use of the above determinants as proxies is supported by scientific evidence linking them to increased stress levels during pregnancy and early childhood. Key determinants included are: lack of social and emotional support for pregnant women (Kenner & Lubbe, 2007; O’Sullivan & Monk, 2020), postpartum depression (Kenner & Lubbe, 2007), child neglect or exposure to physical and emotional abuse (Shonkoff et al., 2009; Shonkoff, 2012; Shonkoff & Garner, 2012), being born to an adolescent mother (Hodgkinson et al., 2014), poor-quality early childhood care and education settings (Hatfield, 2019), lack of affectionate and responsive caregiving (Feldman, 2015; Reilly & Gunnar, 2019; Berretta et al., 2021; Gunnar, 2003), violence against women (Jeong, Adhia, Bhatia, McCoy, & Yousafzai, 2020), and poverty and food insecurity (Ellis & Dietz, 2017). Furthermore, low birth weight and prematurity, recognized as determinants of developmental health, were included because these conditions can lead to stress in newborns and young children (Browne, 2003; Nocker-Ribaupierre, 2013).

An analysis of Figure 1 shows that Latin America and the Caribbean (LAC) have less favorable outcomes compared to Canada in key developmental health and social determinants. These include higher rates of low-birth weight (10% in LAC vs. 6% in Canada), prematurity (9.5% in LAC vs. 8.3% in Canada), having an adolescent mother (15% in LAC vs. 5.6% in Canada), child poverty (43% in LAC vs. 17.2% in Canada), and food insecurity (60.5% in LAC vs. 24.3% in Canada). Furthermore, data specific to LAC reveals high levels of physical and emotional violence against children aged 2 to 3 (40% to 60%), justification of wife-beating among adolescent girls (8%), and sexual violence against women (ranging from 1% to 25%). In contrast, data specific to Canada provides data that is not available for the LAC region, such as perceived social support during pregnancy (13%) and postpartum depression (23%). Finally, no data was found in either LAC or Canada on early stimulation and responsive care and stress levels in early care and education settings. In summary, the analyzed statistics suggest that in Canada, the determinants of postpartum depression, food insecurity, and poverty show a high prevalence that may contribute to children’s stress. Meanwhile, in Latin America and the Caribbean (LAC), all the determinants analyzed have a high incidence that could contribute to elevated stress levels in children. The unmeasured indicators are also of interest, as a public policy maxim tells us: ‘no data, no problem, no action.’”

What is Self-Regulation?

There is a growing awareness among developmental scientists that the better a child can self-regulate, the better they can rise to the challenge of mastering more complex skills and concepts (Vohs & Baumeister, 2011). Self regulation (SR) is defined as, “the ability to manage your own energy states, emotions, behavior and attention, in ways that are socially acceptable and help achieve positive goals, such as maintaining good

relationships, learning and maintaining well-being” (Shanker, 2012). The better a child can stay calmly focused and alert, the better they integrate the diverse information coming in from the different senses, assimilate it, and sequence thoughts and actions. Self-regulation nurtures the ability to cope with greater and greater challenges because it involves arousal states, emotions, behavior, and, as the child grows older, thinking skills (Burman, Green, & Shanker, 2015). Research over the last ten years has begun to look at the foundational aspects of SR, including the ability to adjust one’s energy level to match a situation, shift attention appropriately, understand and engage socially, empathize with others, and monitor and adjust one’s emotions, (Vohs & Baumeister, 2011). Difficulties developing these foundations may affect educational outcomes, and be implicated in cognitive problems, internalizing problems such as depression and anxiety, externalizing problems such as aggression, risky behaviours, and even physical health problems like obesity, cardiovascular disease, autoimmune diseases, and cancer (Shanker, 2010). Shanker Self-Reg™ is a universal platform (not a targeted intervention or a behaviour management program) that is anchored in the following tenets:

- Self-regulation is a process, not a program.
- Young children are capable of self-regulation.
- Each individual, family, culture, and community hold unique self-regulation expertise.
- There is no single set way to practice self-regulation.
- Self-regulation is a continual and reflective process.
- The well-being of children is inseparable from the well-being of the critical adults in their lives.

Neuroscience is giving us new understandings about the self-regulation wisdom naturally embedded in Indigenous cultures. Shanker (2014) states that “instead of seeing reason and emotion as belonging to separate and independent faculties (the former controlling the latter), researchers have argued that social, emotional, and cognitive processes are all bound together in a seamless web” (p. 1). This recognition of interconnectedness as a primary concept in learning and emotional development runs parallel to Indigenous worldviews (Iseke, 2010). Elders and knowledge keepers in First Nations, Métis, and Inuit communities have been relaying these teachings for many years. Traditional education in Indigenous communities values holism in learning; embedded in this approach is the equity between applied scholarship and emotional intelligence (Lee, 2015). Shanker (2014) reflects these Indigenous concepts by revealing the interconnectedness of the 5 domains of self-regulation: biological, emotional, social, pro-social, and cognitive, and alerts us to the fact that stress can have a domino effect across the domains causing a multiplier effect.

Why is Self-Regulation Important in Early Childhood?

Young children learn to self-regulate by the calm and regulated adults in their lives within the context of caring relationships. The process of co-regulation means helping young children with their stress, energy, and tension rather than managing their behaviour. Early childhood educators who provide calm, reciprocal, and engaging interactions with students, create a continuous loop of shared attention between adult and child. The relationship continues to strengthen over time and is based on mutual respect, trust, safety, and security, all while supporting the child to develop self-regulatory capacities so that they can effectively cope with the stressors they face throughout the day.

Domains of Stressors in Early Childhood

Shanker Self-Reg[®] provides a lens for considering the stressors that impact children across five domains: biological, emotional, cognitive, social, and prosocial. In early childhood settings, understanding these domains is essential for creating an environment that fosters a feeling of safety and a place for taking risks within a nurturing milieu. For instance, within the **biological domain**, stressors such as excessive noise, poor lighting, or lack of physical activity can disrupt a child's physiological functioning, leading to heightened anxiety or irritability (Shanker, 2016). Providing a well-organized classroom with minimal distractions, regular opportunities for physical movement, and ensuring that children get adequate sleep can help mitigate these biological stressors. In the **emotion domain**, children must learn to identify and navigate positive and negative emotions (Shanker, 2012). Stressors like grief, disappointment, or changes in routine can feel overwhelming for young children. Emotional development in children begins early and they learn to understand and share their feelings by becoming more aware of themselves and reflecting on their emotions (Greenspan, 2007). Educators can create safe spaces for emotional expression and implement regular check-ins to encourage children to share their feelings, thus promoting emotional literacy in a supportive environment. Recognizing the importance of emotions is essential because they are closely linked to our thoughts and actions. Our feelings can influence the way we think and understand things, and at the same time, our thoughts can shape our emotions (Greenspan, 2007).

Within the **cognitive domain**, stress can interfere with a child's ability to process information effectively. Young children may struggle with organizing their thoughts or adapting to new learning experiences, possibly leading to frustration or disengagement (Shanker, 2016). Educators can support cognitive development by incorporating hands-on learning experiences and breaking tasks into manageable steps, ensuring children feel capable and confident (Shanker, 2016). In the **social domain**, navigating



social interactions can be challenging, especially when faced with stressors like peer pressure or bullying. Creating a culture of kindness in the classroom, through activities that promote collaboration and empathy (such as drama), can help children develop critical social skills while feeling secure in their relationships (Shanker and Hopkins, 2019). Finally, in the **prosocial domain**, children often grapple with understanding how to relate to others' emotions, impacting their ability to share and cooperate. Incorporating role-playing and group discussions about fairness and empathy can foster a deeper understanding of social interactions (Shanker and Hopkins, 2019). By addressing these domains, educators can cultivate a holistic learning environment that promotes safety and well-being, leading to improved self-regulation and a stronger sense of community (Shanker, 2016).

5 Steps of Shanker Self-Reg™

Dr. Shanker defines Self-Reg™ as the body's ability to respond to and recover from stress (Shanker, 2016). Shanker provides a five-step approach to enhancing self-regulation in children and can be particularly effective within early learning environments where children are first learning to self-regulate through the relationships they develop with caring adults and other children. Shanker emphasizes the importance of reframing behaviours, identifying and reducing stressors, reflecting on one's stress response process, and restoring the energy spent managing these stressors (Shanker, 2016). The approach emphasizes the importance of feeling safe and managing energy and tension through co-regulatory experiences, which are vital to ensuring overall well-being in children, allowing them to thrive in their interactions with others.

In early childhood, the initial step of "reading the signs of stress and **reframing** the behavior" is critical in helping educators recognize that behaviours such as tantrums or withdrawal may stem from underlying stress rather than defiance (Shanker, 2016). Consequently, chronic, unaddressed stress may manifest itself through behavioural changes such as tantrums, social withdrawal, or hyperactivity. For instance, a child who suddenly refuses to participate in group activities might be feeling overwhelmed by the noise and chaos in the classroom (Shanker and Burgess, 2017). By reframing such behaviour as a signal of discomfort, teachers can respond with empathy, offering the child a regulating space or a comforting presence to decrease their stress, thereby promoting a safe learning environment (Shanker and Burgess, 2017). Following this, the steps progress through **recognizing** stressors and **reducing** them. Identifying stressors is a highly personalized process since what is perceived as stressful by one individual may be calming for another. This underscores the significance of understanding that self-regulation is a unique journey for each person and cannot be effectively taught using a generic, pre-packaged program designed for a group setting (Shanker, 2016). When children develop greater awareness of the

stressors that affect them, they can take steps to reduce these stressors. Although completely eliminating stressors may not always be realistic, recognizing them allows individuals to lessen their impact on their functioning. For instance, educators can implement targeted strategies to help alleviate feelings of being overwhelmed by excessive stimuli.

The final steps of **reflecting** and **restoring energy** encourage emotional awareness and physical well-being. Reflection is a vital component of the self-regulation process. Children develop strategies in real-time to replenish their energy in response to stressors (Shanker and Burgess, 2017). They react to stressors based on immediate experiences and often choose strategies that may be effective in certain situations but not others. Through Shanker Self-Reg™, young children can develop their ability to think about their own feelings and understand that their emotions and reactions can differ from those of their peers (Shanker, 2016). When children recognize their personal stressors, they become more capable of responding effectively and replenishing the energy needed to sustain a calm and focused state (Shanker, 2016).

Conclusion/Considerations

Despite the lack of research investigating the effects of stress in the prenatal and early years, there are ways to move forward and empower educators to help even the most disadvantaged children cope with the myriad of multiplying stressors they may face across the lifespan. As key co-regulators, educators can use the 5 Domains of Shanker Self-Reg™ to lower stressors in the classroom environments making learning possible. A calm classroom creates opportunities for students to explore their personal self-regulation needs, a process that educators can develop with their students by modeling and instructing students to manage their energy and tension levels using the five steps of Shanker Self-Reg. More research is needed to illuminate how to best bring self-regulation training to educators and how Shanker Self-Reg can best support students during these crucial years.

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