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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