From Paper to Practice: Understanding and Embodiment of Self-Regulation in

Ontario’s Kindergarten Classrooms

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Abstract

Self-regulation is known to be a critical developmental aspect of well-being throughout the lifespan, contributing to prevention of challenges in educational outcomes, cognitive problems, internalizing problems such as depression and anxiety, externalizing problems such as aggression, and physical health problems as well. There is an increasingly large body of literature focused on self-regulation including a wide spectrum of perspectives on its definition and valid measurement. This article reviews the categories of definitional interpretations and describes key Ontario educational documents which outline the framework for self-regulation adopted by the Ontario Ministry of Education; namely, self-regulation as the ability to manage energy and tension and to respond to and recover from stress. Shanker Self-Reg© is described as the framework illustrated throughout these documents, and emerging research gaps are discussed.

*Keywords:* Self-regulation, self-reg, kindergarten, Ontario, child development, early learning, mental health, resilience,

Society’s Challenges in Self-Regulation and Lifespan Development

Difficulties with self-regulation as part of human development are implicated in educational outcomes, cognitive problems, internalizing problems such as depression and anxiety, externalizing problems such as aggression, and physical health problems like cardiovascular diseases, autoimmune diseases, and cancer (McCain, Mustard, & Shanker, 2007; Shanker, 2010; McCain, M., Mustard, J.F., & Shanker, S., 2007; Shanker, 2010). Self-regulation is known to be a critical developmental aspect of well-being throughout the lifespan, and targeting it in the early years may be of key importance to preventing many of these challenges and improving physical and mental health and well-being.

There is an increasingly large body of literature focused on self-regulation including a wide spectrum of perspectives on its definition and valid measurement. Burman, Green, & Shanker (2015) found there to be 447 interpretations of the term, across 6 clusters of meaning, including the following:

1) Learning/Learning Strategies

2) Self-Monitoring/Self-Management (including Self-Evaluation and Behavior Modification

3) Agency/Self Determination/Internal External Locus of Control/Helplessness

4) Self-Control (including Emotional Regulation and Control)

5) Social Behavior

6) Self-Monitoring

With multiple meanings being acted upon as if they were each the sole definition, assumptions based on studies of self-regulation result in conflicting findings across the literature regarding appropriate educational methods or interventions to support self-regulation. This presents a challenge for educators’ selection of appropriate classroom frameworks or strategies to this effect, suggesting that an important area of focus for future research is on the educational implications of self-regulation implementation in the classroom. To be able to study self-regulation effectively, a consensus is needed within the literature on an appropriate definition and measurement of the construct. The following section outlines the Ontario context by reviewing Ontario Ministry of Education documentation on its adopted self-regulation framework which is based on advances in neuroscience.

The Ontario Context

Table 1 shows the progression of the published Ontario education documents leading up to the Ontario Kindergarten program, which includes self-regulation as one of the four frames of the new curriculum. The following section summarizes key ideas of each of these documents.

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| Table 1 | |
| Ontario documents foundational to the development of Ontario’s kindergarten program | |
| Date | Publication |
| 1999 | Reversing the Real Brain Drain: Early Years Study 1 (McCain & Mustard, 1999) |
| 2007 | The Early Years Study 2 (McCain et al., 2007) |
| 2007 | Early Learning for Every Child Today (Best Start Expert Panel on Early Learning, 2007) |
| 2008 | Full-Day Kindergarten: Moving Ontario Forward (Elementary Teachers’ Federation of Ontario, 2008) |
| 2011 | The Early Years Study 3 (McCain, McCuaig, & Mustard, 2011) |
| 2016 | The Kindergarten Program (Ontario Ministry of Education, 2016) |

Reversing the Real Brain Drain: Early Years Study 1

In 1999, Ontario’s Minister Responsible for Children began to examine evidence from developmental psychology and neuroscience among other disciplines for relationships among brain development, learning, behaviour, and health across the lifespan, highlighting the critical importance of early childhood development and outlining recommendations towards better long term outcomes, including the need for neuroscience-focused early child development (McCain & Mustard, 1999). It indicated that studies in neuroscience and epidemiology have continued to demonstrate the connection between the neurological stress pathway and behaviour, physical and mental health, anxiety, substance abuse and other mental and behavioural characteristics later in life. It discussed that educators, not for a lack of trying, had been unsuccessful at treating the resulting behavioural, psychological, and physical s*ymptoms* and should perhaps be focusing on the foundational neurological stress pathway. The Early Years Study showed teachers that they could affect positive developmental change through an upstream neuroscientific approach to child development (looking at the causes and risk factors) rather than focusing on the much more expensive and less efficient downstream effects (looking at the consequences or symptoms) of behaviour challenges in the classroom (McCain & Mustard, 1999).

The Early Years Study 2

The Early Years Study 2 (McCain et al., 2007) promoted the recommendations of the Early Years Study and made the neural and biological evidence for lifespan development accessible to communities and important for educators because it allowed for a framing of what self-regulation means within kindergarten classrooms. This study explained the science behind creating a classroom environment leading to experiences in which a child could explore his/her own individual ways of seeking calm, since reducing stress through high-quality early childhood outcomes is important to successful outcomes of mental health and learning (McCain et al., 2007). Data from the National Longitudinal Survey of Children and Youth (NLSCY) by Statistics Canada were summarized in the Early Years 2 report, defining vulnerable children as those who had a developmental difficulty like obesity, poor language skills, social problems, emotional regulation difficulties, attention problems, or learning difficulties. McCain et al. (2007) highlighted from the NLSCY data that about 25% of Canadian children under six were considered vulnerable, and presumed to be likely to experience problems later in life. Data from the population-based Early Development Instrument (EDI; Janus & Offord, 2007) matched those of the NLSCY, with both demonstrating that 25% of the population entering grade one are vulnerable.

Early Learning for Every Child Today (ELECT)

Early Learning for Every Child Today (Best Start Expert Panel on Early Learning, 2007) was written based on an extensive review of early childhood curriculum and pedagogy in Canada and internationally and on research findings and professional expertise. It described how young children develop, and provided a guide for curriculum in Ontario’s ECE settings (child care, kindergarten, Ontario Early Years Centres, family and parenting resource centres, and other child development programs). It was a document intended to complement the Ontario Day Nurseries Act, Early Years Centre guidelines, and the Kindergarten Program, thus bringing together the different early childhood practitioners towards a common understanding and practice. It came to be recognized as a foundational document for early years’ contexts as it provided a shared language and common understanding of early child development for early years’ professionals. The document was intended to provide a practical resource for ECE professionals to align the framework with the revised Kindergarten program, Guidelines for Ontario Early Years Centres, Guidelines for Preschool Speech and Language Pathologists, and the 18-month well-baby visit.

Full-Day Kindergarten: Moving Ontario Forward

In 2008, the Elementary Teachers’ Federation of Ontario (ETFO) followed up on this shared understanding described in ELECT and released *Full-Day Kindergarten: Moving Ontario Forward* (Elementary Teachers’ Federation of Ontario, 2008), detailing the recommendations of ETFO in the upcoming implementation of full-day kindergarten using a play-based curriculum which aligns with the recommendations provided to the Ontario government with specific recommendations for class sizes and other logistics necessary to implement the program. This document would later inform the development of the coming Kindergarten Program (a more detailed description of this can be found below), and illustrated that the Ontario Teachers’ Federation of Ontario was on board with these advances in neuroscience and the need for a new framework and approach to early learning. A third version of the Early Years Study (see next section) summarized these advances in neuroscience to move Ontario forward.

The Early Years Study 3

The report, *With Our Best Future in Mind* (Pascal, 2009), showed not just *why* we need to focus on early childhood development for economic and social reasons, but *how* to do so, and formed the foundation of Ontario’s expansion of kindergarten programs into a full day program for 4 and 5-year-olds. It showed that educational research continued to publish documentation which summarized research on the importance of a neuroscientific approach to child development (Government of Ontario, 2014) in terms of economics, a need for change in an evolving landscape of child development, and the impact it may have on mental health, Aboriginal Education, etc. (Ontario Ministry of Education, 2013). The universal foundational conditions essential to children thriving were common themes, including belonging (connectedness to others); well-being (physical and mental health and wellness, including self-regulation); engagement (involvement and focus), and expression (communication) (Government of Ontario, 2014).

The Neuroscientific Definition of Self-Regulation for Ontario’s Kindergarten Program

Each of the documents cited in this section described how our knowledge of the early years has evolved to include neuroscience, developmental and social psychology, economics, medical research, and education to create warm, supportive relationships for children who are happier, less anxious, and more motivated to learn.

Using this definition, self-regulation has been identified in these Ontario documents as a prerequisite to students’ being better able to modulate emotions, understand and connect with others, and remain calmly focused and alert for learning. Educators can support this by providing environments which reduce stressors and support children’s abilities to self-regulate, as well as by being responsive and attuned to students’ individualized cues, states, and responses, and helping children to do so for themselves (Government of Ontario, 2014). From *How Does Learning Happen*, and building on *ELECT* and *The Ontario Early Years Policy Framework* came Ontario’s Kindergarten Program 2016 (Ontario Ministry of Education, 2016b) which will be summarized in the following section.

The Kindergarten Program

The Kindergarten Program (Ontario Ministry of Education, 2016) is the culmination of extensive research on child development. Centering on a pedagogy where children are viewed as competent and capable, approaches mandated to be adopted included responsive relationships, learning through exploration, play and inquiry, educators as co-learners, the environment as the third teacher, pedagogical documentation, and reflective practice and collaborative inquiry (Ontario Ministry of Education, 2016). The Kindergarten Program identifies the importance of the role that educators play in creating a safe, caring, inclusive and accepting learning environment to support cognitive, emotional, social, and physical development as well as mental health, resilience, and well-being. Well-being is of critical importance to this pedagogy and is woven into all aspects of the kindergarten program, in particular within the ‘Self-Regulation and Well-Being’ frame, which serves as one of the four frames of focus in the program. The document defines self-regulation from a neuroscientific perspective as our response to stressors rather than as behavioural self-control, which aligns with recent advances in neuroscience, and indicates an important foundation for well-being ideally targeted in the early years, including kindergarten. What is important, though, is how early learning educators implement self-regulation within the classroom; cognitively-based curriculum or programs don’t necessarily align with this neuroscientific understanding of self-regulation. Do educators understand that self-regulation is a process, and not a program?

Programs and Process

With self-regulation being such an important construct in the education system, there are some programs which have emerged with the goal of helping educators to ‘teach’ self-regulation skills to their students through specific lessons and classroom activities. However, while pre-packaged programs may seem like a quick solution for educators, the actual self-regulation process is much more dynamic and complex, and goes well beyond the cognitive nature of most of these packaged programs, and it is important for educators to understand self-regulation as a process, and not something that can be targeted through a cognitively based program. Our nervous systems are influenced by more than our cognitions alone. Shanker Self-Reg, however, is a framework cited throughout Ontario educational documents, which accounts for a comprehensive, 5-step process for developing self-regulation across five domains, as described below.

Shanker Self-Reg™

Shanker Self-Reg™ (Shanker, 2016) has an exceptionally comprehensive and scientific foundation and which accounts for much of the discrepancy in definitions across the literature. The Shanker Self-Reg™ framework is a neuroscientific, dynamic, systems-based approach which highlights the importance of self-regulation in early and lifespan development. It is part of the scientific revolution in thinking about child development in a field which Post, Boyer, & Brett (2006) have shown to have evolved over the last century from behavioural to cognitive to neuroscientific in focus.

Shanker’s process involves five steps but the steps are not linear, which makes sense, given that child development is not a linear process either. The five steps are co-occurring and form an iterative developmental process of reframing, recognizing stressors, reducing stressors, reflecting on one’s individual experience with stressors, and responding to stressors in order to recover (Shanker, 2016). The following sections expand on these co-occurring steps.

Reframing

Reframing refers to looking at something in a new way to understand the meaning of behaviours in a new way, such as reframing misbehaviour as stress behaviour (Shanker & Barker, 2016). In the kindergarten context, misbehaviour is connected to purposeful actions (intentionality, choice, etc.) so we tend to respond by using consequences specific to behaviours. However, if we reframe to consider misbehaviour as stress behaviour, it becomes non-purposeful and caused by unconscious processes rather than conscious choice. Using this frame, our automatic response shifts to understanding and self-regulation (Shanker & Burgess, 2017).

Recognizing

We also need to work on recognizing, or identifying the stressors, both overt and hidden. Hidden stressors might include bright lights or other visual stimulation, smells, thoughts, social experiences, and more. Identifying stressors is a very individual process because what is stressful for one person may be calming for another, which reiterates why self-regulation is an individual process, that educators support students through initially throughout the day, that cannot be taught through a pre-packaged program. Once we are more aware of stressors, we can *reduce* them to the best of our ability. Certainly, we cannot eliminate stressors, but our recognition of them allows us to minimize their impact on our own functioning.

Reflecting

Reflection is a critical aspect of the self-regulation process. It involves awareness of one’s own inner state to become more aware of where our own individual stressors come from, not just the simple fact that we ARE stressed. Again, this needs to be an individualized process that happens in reflective moments throughout the day (again, often with support from an educator) and not at a scheduled time during a class lesson. Through Shanker Self-Reg, we learn to be more reflective throughout the day of our own experience and acknowledge that our own experience is different from that of everyone else’s (Shanker, 2016). Reflection encourages us to think about our own stressors as well as on things that calm us.

Responding

Lastly, we learn to *respond* to the stressors we are becoming aware of. We learn strategies which replenish our energy and which happen in the moment. We respond to stressors as they affect us and select strategies that might work in that moment, but not in others. When we are better able to recognize our own stressors, and reflect on how stimuli in the environment stress or relax us, we are better able to respond and restore the energy required to continue in a calm and alert state; mindfulness about what works for each individual child might be supported by an educator throughout the day.

The process of responding to stress is individualized and will look different for each student. Self-regulation is something that happens throughout the day, in the moment, through interactions and experiences that arise, which mirrors how child development occurs, rather than through a series of parenting steps taught once per week. Where packaged programs can provide easy to follow, step by step lessons on identifying emotions and even common stress reduction strategies, it has been shown that self-regulation is much more than this. Furthermore, everyone will not necessarily respond to commonly taught strategies (i.e. yoga or meditation) in the same way.

Emerging Research Gaps: Improving Ontario’s Kindergarten Pedagogy

What has been shown is that there is currently in process a revolution in thinking from traditional pedagogy to a more developmental approach. The Ontario educational documentation described above illustrated this shift in thinking across the last century, from an initial behavioural approach, to human development, to a more cognitive-based approach, to now looking at human development from a neuroscientific developmental perspective. With each shift came a tremendous challenge in disseminating information to implement it in applied settings. In the case of Ontario’s Kindergarten Program, despite the existence of educational documentation illustrating this neuroscientific developmental perspective, it is not known how this information is being disseminated among school administrators and educators (both kindergarten teachers and early childhood educators), as well as how it may be understood and implemented in practice in kindergarten classrooms across Ontario.

The educational literature aimed at the professional development of educators points to Shanker’s model of Self-Reg, with multiple citations of his work throughout the educator documentation (Best Start Expert Panel on Early Learning, 2007; McCain et al., 2011; Ontario Ministry of Education, 2016) and the use of his videos for educator professional development in their readily available educator resources (“Edugains Kindergarten Home,” 2017; “EduGains Viewing Guide,” 2012). However, while early childhood educators and teachers may share the same goals for children, legislated training requirements, professional organizations, teaching methods, philosophy, service location, and curriculum differ (McCain et al., 2007). Just as there are 447 different uses of the term self-regulation in the literature (Burman et al., 2015), there is also the opportunity for many different interpretations of this literature within the classroom.

Of interest is the experience of educators’ understanding, facilitation, and reporting of kindergarten student progress in the self-regulation frame, and how educators are learning about these contemporary, neuroscientific approaches. To support educators in designing appropriate environments and practices in the classroom, it is important to research what kindergarten educators currently understand self-regulation to be, as their understanding will guide their implementation of self-reg strategies in the classroom and suggest possibilities for future professional development that could very much change the physical and cultural landscape of the classroom.

Emerging from this literature review are the following questions:

1. What do kindergarten educators understand self-regulation to mean? Are kindergarten teachers consistently using the definition of self-regulation as outlined in educational documents (namely, the ability to recognize and respond effectively to stressors and then recover; Shanker, 2016)
2. How are Kindergarten teachers implementing self-regulation in their classrooms (including their process, relationships, and optimal learning environments)? Does it align with the documentation?

My current research will look at these questions through a variety of methods intended to uncover what kindergarten teachers understand self-regulation to be, and what potential support is needed to provide kindergarten students with optimal environments to support their self-regulation, a critical aspect of their long term developmental trajectories, including academic outcomes, physical and mental health, and overall well-being.

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