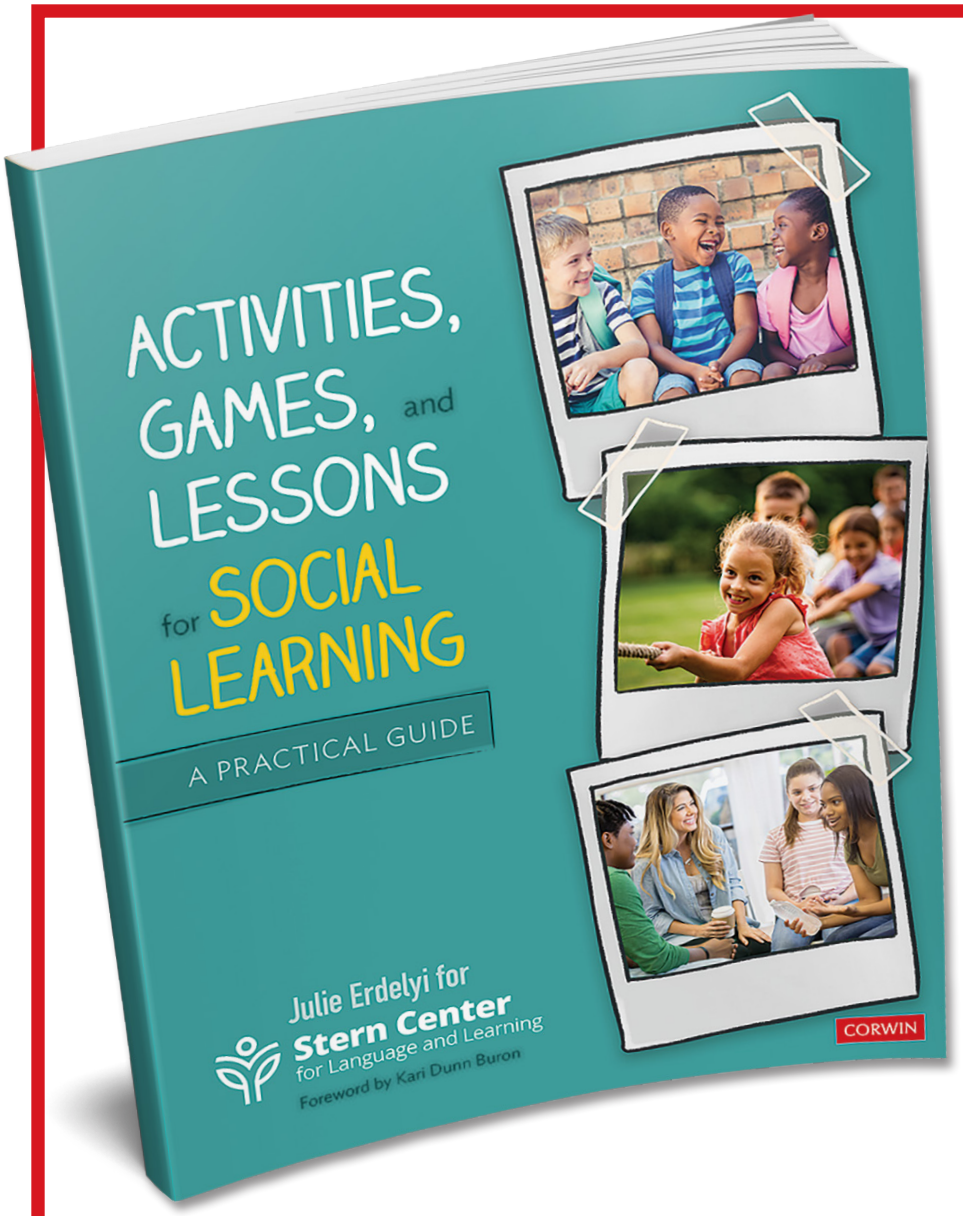

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CORWIN

CHAPTER ONE

Self-Regulation

The Basics

If you are distressed by anything external, the pain is not due to the thing itself, but to your estimate of it; and this you have the power to revoke at any moment.

—Marcus Aurelius, *Meditations*

Gabi: (Gathers several of the game pieces into her hands and quietly disengages from playing.)

Micky: Oh, look at this! I can go! (Moves game piece three spaces.)

Zoli: My turn.

Gabi: (Gathers the neckline of her shirt and sinks her head down inside it.)

Zoli: Hey, Micky, I don't think she likes this.

Micky: Gabi, what's wrong?

Gabi: (Laughing from inside her shirt.) You guys are just making me laugh too much!

Micky: If you're laughing, you must be happy, so why are you hiding in your shirt?

Zoli: I think she's laughing at you!

Micky: Maybe I said something really funny.

(Continued)

(Continued)

Gabi: (Growls from inside her shirt.) Now I'm getting really angry!

Zoli: (Pats Gabi on the shoulder.) It's okay, Gabi.

Gabi: (Roars at Zoli from inside her shirt.)

Micky: Let's put these pieces away and find something else to play.

When Gabi began to disengage from the game, she was beginning to escalate. Hiding inside her shirt, she began quietly escaping the stressful situation. Her friends, meaning well, tried to discover what was bothering her, but the combination of added attention and talking only increased her stress. Typical of many types of escalation, her emotions were not well regulated, and she started with laughter and ended with a roar. She also showed how challenging it can be to communicate with calm words when feeling upset. As Gabi grows and learns to self-regulate, she will gain more control of her communication and emotional responses during stressful events. This chapter provides an in-depth understanding of self-regulation and offers strategies for directly teaching self-regulation skills to students.

WHAT IS SELF-REGULATION?

There are many definitions of self-regulation. According to Nigg (2017), self-regulation is "the intrinsic processes aimed at adjusting mental and physiological state adaptively to context." Or stated simply, self-regulation is our ability to maintain the balance of alertness and calmness needed for a given situation. This involves the brain and the sensory system working together to employ the cognitive and physical strategies needed to understand what this balance should look like and then do what is necessary to either increase the level of alertness or calmness.

On the playground, for example, students can use heightened alertness to move their bodies rapidly and run around and play while maintaining enough calmness to avoid crashing into each other. In the classroom, students need to maintain enough alertness to attend to academic material or the teacher's directions while using enough calmness to fit the expectations for the environment, such as remaining seated at a desk or using a quiet voice.

The cognitive components of self-regulation include executive function skills and coping skills (such as "self-talk") needed to successfully coach oneself through completing a task.

UNDERSTANDING SELF-REGULATION: STRESS AND THE BRAIN

An understanding of self-regulation begins with taking a look at how the brain functions under stress. The amygdala acts as a sort of triage nurse as information comes into the brain. It sorts out the information by levels of threat. If incoming information is perceived

as threatening, the lower part of the brain, the cerebellum becomes more active. This part of the brain is responsible for autonomic functions such as breathing, heart rate, and our survival instincts: fight, flight, or freeze.

When we consider the evolutionary function of a well-developed fight, flight, or freeze response, it seems like a positive aspect of human development. However, when we are around others who are experiencing it, our experience is not only unpleasant, it can be dangerous. Fight responses include punching, hitting, kicking, biting, swearing, and verbal attacks. Flight responses include bolting from the classroom or building and running away or hiding inside clothing or separate spaces. Freeze responses can include refusal or inability to speak as well as ignoring others.

When teachers think about students who are punching, swearing, bolting, and ignoring, they often become concerned about the behaviors and may wonder if the behaviors are deliberate. By definition, "deliberate" means that the student has thought about and planned the behavior. Due to the brain function involved with a fight, flight, or freeze response, this is an impossibility! Granted, people do exhibit deliberate behaviors—and self-regulation can be used to manage those as well. However, it is the unplanned, uncontrolled response that self-regulation is so helpful at preventing.

While the increased activity in the cerebellum is necessary for survival, there are activities that the cerebellum does not control. That part of the brain does not make decisions or solve problems. The frontal lobe of the brain is responsible for the higher level of thought required for problem-solving. The problem is, if the cerebellum is activated due to perceived or real threat, how does a person shift brain activity to make the frontal lobe more active? The answer involves considering how the stressful information was received in the brain in the first place . . . the sensory system!

UNDERSTANDING SELF-REGULATION: ATTENTIONAL CHALLENGES

When students are experiencing difficulty with concentration and an inability to be still, even for brief periods of time, parents and teachers may suspect or seek a diagnosis of attention deficit/hyperactivity disorder (AD/HD). In cases where this condition is present, the student feels an internal sense of exhaustion. Constant attention shifting and movement are the child's efforts to stay alert. Therefore, healthcare providers may prescribe a stimulant medication, such as Ritalin, which increases that internal sense of alertness, diminishing the need for the child to move and constantly shift attention. This treatment is effective for many; however, what happens when symptoms mimic AD/HD, but the cause is actually a heightened stress response?

When a child experiences frequent stress sufficient enough to activate the hypothalamic-pituitary-adrenal (HPA) axis with regularity, that system begins to adapt to frequent activation and can become overactive when any perceived stressor occurs. A loud voice in a classroom, the sound of a door closing, or a stern tone are all stressors that many can manage without needing to fight, flee, or freeze. But when the stress response system is overactive, it activates for experiences that others tolerate without a stress response.

If some students are experiencing a heightened stress response due to trauma history and the response itself causes problems with concentration and elevated heart rate, then a stimulant is likely to make matters worse. Therefore, it is extremely important for teachers and parents who are observing students struggling with regulation to consider all possible origins of the problem. A thorough health assessment, including developmental history conducted by a pediatric health care provider knowledgeable about trauma and AD/HD is the best initial approach when teachers and parents are concerned about attention challenges.

UNDERSTANDING SELF-REGULATION: TRAUMA AND STRESS RESPONSE

In her TEDMED talk, "How Childhood Trauma Affects Health Across a Lifetime" (2014), pediatrician Nadine Burke Harris, MD, discusses the health impacts of childhood trauma, or adverse childhood experiences (ACEs), and toxic stress. Burke Harris describes the central stress response as the "hypothalamic-pituitary-adrenal axis," medical terminology used to identify the pathway of the "fight or flight" stress response system. The hypothalamus sends a signal to the pituitary gland, which signals the release of adrenaline. Adrenaline increases heart and breathing rates, allowing for the faster exchange of oxygen between muscles and the circulatory system, which allows for the person experiencing this response to fight or flee quickly and effectively.

In 1998, the *American Journal of Preventive Medicine* published the study "Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults. The Adverse Childhood Experiences (ACE) Study." Twenty years later, parents, teachers, and healthcare providers are still learning about this seminal study and the health impacts of ACEs.

Burke Harris likens childhood trauma to lead exposure. The greater the exposure, the greater the health risk. Once exposure is discovered, abatement of adversity, as with lead, is necessary for improved health outcomes. More important than the specific types of adversity, teachers, parents, and healthcare professionals need to focus on how much adversity a child has experienced.

Examples of adverse childhood experiences include the following:

- Physical abuse
- Sexual abuse
- Emotional abuse
- Physical neglect
- Emotional neglect
- Exposure to domestic violence
- Household substance abuse
- Household mental illness

- Parental separation or divorce
- Incarcerated household member

In recent years, school systems have worked to become "trauma informed." Teachers and parents increasingly recognize the impact of childhood trauma in today's classrooms and are working to learn more and to provide safe, effective interventions to improve student learning and outcomes. Teaching self-regulation seems, on the surface, a relatively simple task: Demonstrate ways for kids to calm down when they are stressed, and they will automatically repeat these skills as needed. However, below the surface, the process is quite complex.

Effective methods for teaching include using a combination of cognitive and sensory-based strategies and increasing understanding of the origins of dysregulation. Physical therapists, occupational therapists, behavior analysts, mental health counselors, health care providers, educators, and parents can all have valuable input as to appropriate interventions for meeting each child's unique, individual needs.

LEARN MORE ABOUT ACEs

Additional resources on adverse childhood experiences (ACEs) and the hypothalamic-pituitary-adrenal axis include the following:

- *The Deepest Well: Healing the Long-Term Effects of Childhood Adversity*, by Dr. Nadine Burke Harris (Houghton Mifflin Harcourt, 2018)
- "How Childhood Trauma Affects Health Across a Lifetime," Nadine Burke Harris, MD, TEDMED, 2014
- https://www.ted.com/talks/nadine_burke_harris_how_childhood_trauma_affects_health_across_a_lifetime?language=en
- *Resilience: The Biology of Stress and the Science of Hope*, documentary by KPJR Films

Basically, a teacher can consider self-regulation as requiring skill development in two areas: (1) cognitive skills (such as coping skills and executive functions) and (2) sensory regulation strategies developed with knowledge of the sensory system; fight, flight, or freeze; stress responses in the brain and the impacts of adversity and trauma on development. The development of self-regulation skills prevents undesirable behaviors, so a discussion about self-regulation frequently includes discussion of behavior, as well as factors related to behavior. Understanding behavior starts with understanding that behaviors serve a function and understanding that positive behavior supports can increase positive behaviors. This chapter presents explicit, detailed information about each of these areas, beginning with behaviors.

FUNCTIONS OF BEHAVIORS AND INTERVENTIONS

All behaviors serve a function. In other words, every action has a desired outcome, whether the student is cognitively aware of the outcome or not. For the sorts of behaviors teachers see on a daily basis, which may be annoying but not particularly harmful (blurting out answers, excessive movement, grabbing others' belongings), positive behavioral interventions and supports (PBIS) can be the most effective approach.

FINDING THE FUNCTION OF A BEHAVIOR: THE MOTIVATION ASSESSMENT SCALE

Durand and Crimmins (1992) developed an easy to use, readily available manual and questionnaire called the Motivation Assessment Scale, which teachers, parents, and staff can use to make a quick, objective hypothesis about the function of a problematic behavior. The key to using this form successfully is to identify a highly specific behavior and then have three or more individuals (teachers, parents, and staff, who have all observed the target behavior) complete the form for the same behavior. "Crashing body into other students, walls, and tables while standing in the lunch line" is highly specific, whereas "crashing into people and things" is much less specific. This tool produces the best results when the identified behavior is highly specific.

Durand and Crimmins (1992) identified the following four categories to describe the functions of all behaviors: sensory, escape, attention, tangible (SEAT). The basic theory behind dealing with problematic or maladaptive behaviors is to discover which function is being served when the child carries out the behavior.

- **Sensory:** A child who expresses pain or runs from the room when hearing a sudden, loud noise may be exhibiting an auditory sensitivity. Sensory needs are best addressed under the guidance of occupational or physical therapists. (For more information, see The Sensory System, p. 20.)
- **Escape:** A child who crumples up a math worksheet and throws it across the room may be seeking an escape from math. Escape can be a challenging function to address, but if the teacher can guide the child to choose only a couple of problems on the worksheet to complete and then take a break (escape), the child learns that escape can be gained in a more adaptive way. The tricky part is to find the balance of building in an "escape plan" that children can use before they feel the need to create their own.
- **Attention:** Children who constantly follow the teacher around or engage in nonstop bids for conversation may be seeking attention. If they learn that they can receive positive attention for waiting or remaining quiet, they will likely change the behavior to get this need met.
- **Tangible:** The child who is climbing on top of the refrigerator at home to gain access to the cookie jar is seeking a tangible. Climbing on top of the refrigerator is dangerous, so the child needs to be given strategies or taught other methods of gaining the cookie.

The following analogy represents what teachers experience when trying to guess the function of a behavior. Imagine taking a newspaper and holding it up against the end of your nose: The text is impossible to read. Similarly, it may be possible to make out a headline or two on a newspaper sitting on a table across the room, but the text of the article is still impossible to read. Along these lines, guessing the function of a specific behavior is generally a bad idea and frequently unsuccessful.

The teacher may know a student very well and be extremely close to the situation, making it impossible to maintain the objectivity required to accurately determine the function of a behavior. The same teacher may also be aware of a behavior that is occurring in a classroom of thirty kids and not be close enough to the situation to determine the function. Therefore, it is important for teachers to use an objective means of determining the function of a problematic behavior such as the Motivation Assessment Scale (described previously in this section), consultation with a specialist, or a Functional Behavior Assessment.

FINDING THE FUNCTION OF A BEHAVIOR: FUNCTIONAL BEHAVIOR ASSESSMENT

A Functional Behavior Assessment (FBA) is an objective assessment that is conducted by educational teams that may include the school psychologist, classroom teacher, special educator, speech and occupational therapists, parents, behavior analysts, and others. FBAs require extensive information gathering, observations, and trial interventions, leading the team to develop a hypothesis for the function of the behavior, which is then systematically tested, with results observed and analyzed. The team uses the information to develop an effective behavior support plan. Sometimes, conducting a full FBA may feel time- and cost-prohibitive. While there are instances in which a full FBA may be required by law (von Ravensberg & Blakely, 2014), there may be times when a team is seeking information about the function of a behavior and is choosing not to conduct a full FBA. At such times, the team may use other objective means of proactively determining the function of a behavior, such as the Motivation Assessment Scale.

A FRAMEWORK FOR BEHAVIORAL INTERVENTIONS

Established in 1997, PBIS is an evidence-based framework for educators to help students improve behavior (Horner, Sugai, & Anderson, 2010). PBIS emphasizes teaching expectations for positive behavior over punishing undesirable behaviors. Often used classroom-wide and schoolwide, PBIS strategies are also effective for use with individuals. PBIS strategies align with principles of applied behavior analysis (ABA)—increase the desired behaviors, and the undesired behaviors will automatically decrease (Hieneman, 2015). In order to increase a desired behavior, the teacher needs to use rewards that are motivating to the particular students. Following is an example of a classroom-wide positive behavior intervention.

> *Whenever the teacher sees a student performing a desired behavior (such as sitting quietly, working diligently, handing in an assignment, helping a classmate), the student is invited to place a "Terrific Ticket" in a box. A Terrific Ticket is simply a small piece of paper that children write their names on before placing it in the box. With regularity (weekly, for example), the teacher draws names from the box and rewards those students with the option to select an activity or to have free time.*

Classroom management of this strategy is simple, requiring little planning or effort, but the result is highly motivating for students. This is an easy system for a teacher to prepare and manage, requiring only a few small notepads and a box (kept in a designated location in the room) that can be emptied with whatever regularity (monthly, for example) that the teacher prefers. The more times a child's name goes into the box, the higher the likelihood of being selected. Students constantly strive to engage in behaviors that will result in more tickets in the box.

In a schoolwide model of this strategy, teachers might place a marble in a jar while announcing the desired behavior just observed. The marbles are counted regularly (perhaps monthly), and when the school reaches a target number, the entire school earns a fun activity, such as a pizza party or pajama day.

The use of proactive strategies as part of the implementation of positive behavioral interventions and supports are the most effective way to prevent undesired behavior, as students will automatically have to decrease undesired behaviors to increase the desired ones. When more explicit problematic behaviors continue to recur, teachers may need to look more closely at the function of those behaviors to support students in substituting a more adaptive, tolerable way of meeting their needs.

COGNITIVE SKILLS

Cognitive skills for self-regulation can be divided into two areas: coping skills and executive function skills. In essence, these are the thinking strategies students need to either motivate themselves to take action or to calm themselves so they can maintain the necessary communication and actions for the situation. Through guided instruction and practice, students can develop cognitive skills for coping and executive functions to help them self-regulate in situations that cause increased stress, confusion, self-doubt, or emotional dysregulation. It's critically important for students to proactively practice using these skills outside of the stressful situation, such as while playing a game, to help them build these new and useful habits.

COGNITIVE SKILLS: COPING SKILLS

Coping skills can be used by anyone at any time. They require no special equipment or accommodations. Therefore, they can be used as an emergency response to acute stress, or they can be used as part of a daily practice for self-regulation. To ensure that these strategies are accessible to students at any time, the list of strategies must be limited to those that have been proven to work over time and those that do not require specialized space, in-the-moment interactions, or equipment. Examples include the following:

- Breathing exercises
- Meditation/mindfulness
- Taking space
- Self-talk
- Expressing thoughts verbally to available listener or written on paper

Each coping skill should be explicitly taught at a time *other than when the skill is needed*. Many people presume others' competence with breathing, meditation, or self-talk. However, the efficacy of these skills increases when time has been devoted to learning how to do them. One type of breathing technique includes breathing in, holding briefly, then breathing out more slowly than the in-breath. It is important to practice different styles of breathing with students so they can apply the coping skill automatically when under stress.

COGNITIVE SKILLS: EXECUTIVE FUNCTIONS

In "Enhancing and Practicing Executive Function Skills From Infancy to Adolescence," the Harvard Center for the Developing Child (2014) defines executive function and self-regulation as "the mental processes that enable us to plan, focus attention, remember instructions, and juggle multiple tasks successfully." The article compares the brain to an air traffic control system: "Just as an air traffic control system at a busy airport manages the arrivals and departures of many aircraft on multiple runways, the brain needs this skill set to filter distractions, prioritize tasks, set and achieve goals, and control impulses." As with many cognitive capabilities, the executive functions are not present at birth but are developed with time and practice. Understanding the intricacies of executive functions can help teachers design and use activities that supply students with the experiences and practice necessary for their brains to develop these skills.

In *Social Foundations of Thought and Action: A Social Cognitive Theory,* Albert Bandura (1986) identified forethought and self-reflective capabilities as necessary aspects of executive functions in social cognitive development.

Forethought Capability

Forethought capability is a student's ability to plan ahead. This can be as simple as planning to walk around an obstacle in one's path or as complicated as collecting the right book, pencil, paper, folder, worksheet, or other combination of materials needed to start working on an academic assignment. It also applies to everyday life. Turning on the oven to let it preheat for baking prior to collecting and mixing ingredients, organizing a shopping list by categories to make walking through the grocery store more efficient, and turning off the electricity before changing a light switch are all examples of the need for solidly developed forethought capabilities.

Forethought capability requires internal verbal mediation. A person must be able to think through and label what is going to be needed to complete a task. When people experience stress, language capabilities diminish, thereby reducing forethought capability. Having students practice forethought can help them develop increased automaticity in these skills so that when stress arises, the practice is more automatic and requires less verbal mediation.

Consider the act of driving: When people drive, they complete many series of steps to carry out seemingly simple tasks, such as making a turn:

- Step on the brake to slow the vehicle.
- Activate the turn signal to show the intended action to other drivers.
- Look in all directions for possible obstacles or dangers.

- Wait if necessary for other drivers.
- Turn the wheel to the desired angle.
- Gently increase speed to complete the turn.
- Return the steering wheel to straighten out the car.

Learning to drive requires practice, and in the beginning, an instructor verbally mediates each step before it occurs so that the driver learns the sequence. With a little practice, these steps become more automatic. Drivers can think through the steps using self-talk, and with more practice, they often report driving skills as "automatic" or happening without thinking about it.

See SKIP-BO lesson plan (pp. 45–46) to learn more about using this card game to teach self-regulatory skills.

The same is true for learning to read, write, calculate math problems, get dressed, or tie one's shoes. SKIP-BO is an example of a game that provides practice with several levels of forethought practice and impulse control. Playing this card game with students can help increase self-regulatory skills, including forethought and planning, problem-solving, inhibitory control, and self-reflection.

Self-Reflective Capability

Self-reflective capability is the ability to reflect on words or actions recently carried out and ask, "How did that work out for me?" It is an individual's capacity to evaluate the effectiveness of a problem-solving approach in achieving a desired outcome. Therefore, the person must first recognize and label the desired goal, consider the action used to achieve the goal, decide whether or not the goal was achieved, and decide whether the goal could be achieved more efficiently or easily.

In the game Uno, for example, players must choose to play a card that matches the pile by either color or number. They make a choice, and the next player may benefit from that choice or even win the game based on the card played. While there is luck involved as well as attention to others' cards, the process of recognizing how one's actions achieved an outcome is helpful in shaping future decision-making. Teachers and parents can help to prompt this self-reflection during game play. "Look at the card you decided to play. Now I cannot play my card! That means you are closer to winning. Do you think you made a good decision? Yes, you did!"

See Uno lesson plan (pp. 41–42) to learn more about using this card game to teach self-regulatory skills.

Similarly, when a student recognizes an error of any kind and says, "Oh no! I meant to . . . ," this is an opportunity for a teacher or parent to respond, "You are using self-reflection, and that is a skill that will help you to avoid mistakes or make better decisions next time."

Impulse Control

Impulse control is required when, despite solid forethought capabilities, internal and external distractions occur along the way. For example, cell phones are a common distraction for older students. Direct instruction and practice for managing distractions is necessary. Having students recognize and list things that commonly distract them and then develop strategies for managing these distractions as an explicit lesson outside of the situations in which these distractions occur can raise student awareness of the distractors

as they occur in life. This can help students more readily access the strategies they need to maintain focus on a goal. Going back to the cell phone distraction, for example, students have to (1) recognize the cell phone as a distraction and (2) use a replacement thought each time they feel an impulse to look at the phone, such as "I can wait to look at my phone. If there's an emergency, a teacher will tell me about it."

To promote impulse control, such as with rushing to line up for lunch, engage students briefly in energetic movement (while being safe)—tapping their hands and feet or even running in place. Then announce, "Change your thinking!" as a prompt for students to change from showing what their bodies look like when they have too much energy, to showing what they look like when they are regulated (such as standing or sitting quietly). Praise the shift in thinking and movement, encouraging students to feel empowered that they can control impulses.

The Reaction Energy Cycles visuals provided in this book are a valuable tool for teaching impulse control. They can be used to help kids understand the comparison between what their bodies feel like when they slow down an angry reaction versus what they feel like when they have a fast, impulsive, angry reaction. Full-sized versions of these visuals are available on pp. 125–126.

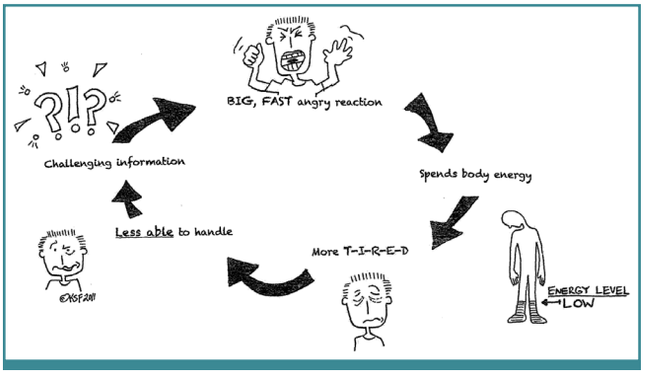

Figure 1.1 Reaction Energy Cycles Visual 1

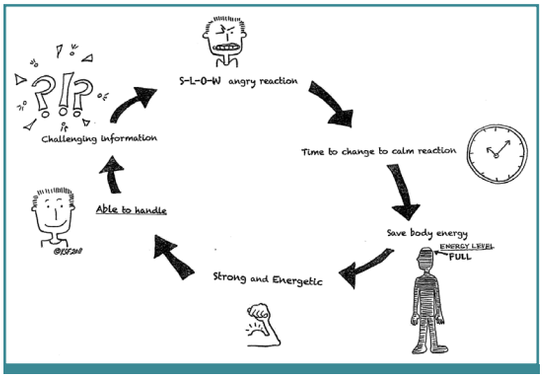

Figure 1.2 Reaction Energy Cycles Visual 2

Figure 1.1 and Figure 1.2 created by Kathleen Fechter. Used with permission.

Several classic childhood games are helpful for improving impulse control as well. Mother May I?, Simon Says, and Red Light, Green Light all require players to attend to a stimulus and follow it, regardless of the internal impulse to carry out an action. Players need to attend to the impulse and then modify their actions based on the stimulus provided. Once students have had multiple opportunities to practice impulse control in fun ways, teachers and parents can identify and label when this skill is needed in other areas. Students can then apply the well-practiced and easily recognized skill to the new task. The following example is a familiar one in classrooms:

> *When the teacher announces, "time to line up for lunch," several students get up and rush to be the first in line, without considering their belongings, the designated line leader, or other predetermined organization of this event. The impulse to "be first" is often so strong that kids cannot resist it. If students have previously practiced a game*

such as Mother May I?, the teacher can announce, "Using your best Mother May I? skills, let's line up for lunch." Following the cue, students respond by asking, "Mother, may I _____ [put away books, stand up, push in my chair, etc.]?" The teacher can respond by giving students "permission" to carry out each step of the process in order, redirecting students as needed by replying, "No, but you may ___."

For older students, simply include impulse control in the prompt. For example, say, "I am going to ask you to exchange your paper with another student, and while you do so, I would like you to suppress the impulse to talk." A few students will typically say a couple of words, but they have a much easier time resisting the urge when given the reminder before the direction.

THE SENSORY SYSTEM

Are we rewarding undesirable behaviors whenever we teach self-regulation strategies? This is a common question. Most teachers want to avoid the practice of giving students "breaks" for misbehaving. This is a wise approach and supports the need to have the sensory aspects of self-regulation guided by an occupational or physical therapist. If we think about sensory input that is perceived as threatening as the cause of a "fight, flight, or freeze" protective response, it is logical to think about sensory input that is pleasurable as causing a release of dopamine and increasing frontal lobe activity in the brain.

The challenge occurs when we see students exhibiting protective responses and we need them to seek pleasurable sensory input to shift the brain activity. In the case of physical or verbal aggression, such as one student hitting another, or in the case of self-harm, it may be necessary to teach students the difference between "in the moment" (anywhere, at any time) emergency coping strategies and sensory regulation strategies that they can use proactively to balance the needs of the sensory system.

There continues to be controversy over the evidence base behind sensory integration and the role of school professionals in teaching it. So without addressing sensory integration programs or teaching, it is important to recognize that the sensory system is responsible for getting information into the brain. Information comes into the brain through eight senses: taste, touch, smell, hearing, vision, proprioception, vestibular sensation, and interoception. Most people are familiar with the first five senses, so the remaining three—proprioception, vestibular sensation, and interoception—deserve some attention:

- **Proprioception:** Proprioception is the sensation of pressure in the joints. It can be achieved by squeezing, chewing, carrying heavy objects, doing push-ups, and many other activities. Proprioception has the effect on the sensory system of alerting it or calming it—whichever is needed in the moment.
- **Vestibular Sensation:** Vestibular sensation is the sensation of movement, such as with walking, running, spinning, and rocking. Vestibular input to the sensory system has the effect of alerting the sensory system. Even without knowing about vestibular input, teachers are quite intuitive about using movement to help students stay alert.

- **Interoception:** Interoception is the sensory input from sensations that arise from inside the body, such as hunger, headache, or even the need to urinate.

When the sensory system is functioning well, the sensations people experience can be well-tolerated. Sometimes a part or parts of the sensory system can under-receive or over-receive information. So many people experience irritation at the sensation of a tag inside a shirt against their skin, for example, that many clothing companies now print the information that used to be on a tag directly on the fabric inside the shirt.

At times, the sensory experience may interfere with a student's ability to function well in a classroom. A student who experiences tactile defensiveness, such as described with the clothing tag, may also seek out touching people and may push or crash into people or things. A student who experiences auditory defensiveness may try to drown out the sound of others who are talking by making repetitive noises. Ironically, these behaviors are disruptive to the classroom environment, although the student is desperately trying to self-regulate.

When problematic behaviors are the result of sensory input, an occupational or physical therapist can design a "sensory diet," a sequence of activities that provides balancing input into the sensory system, thereby reducing the student's need to use problematic behaviors to self-regulate. Simple accommodations, such as the availability of noise canceling headphones, can eliminate irritating auditory input and reduce the resulting extraneous noise-making.

SENSORY REGULATION STRATEGIES

Sensory regulation strategies should be used proactively to help balance the sensory system when a specific sensory difference has been identified. Standardized assessments, such as the Sensory Profile (Dunn, 1999), and consultation with trained professionals, such as physical and occupational therapists, are helpful tools to identify specific sensory differences. The goal, when a sensory difference is identified, is to create a sensory diet that will fulfill the sensory needs in an adaptive and functional way.

For example, individuals with auditory sensitivity may have such an adverse reaction to certain sounds (such as buzzing lights or whirring ventilation) that they create their own "white noise" by constantly humming to block out those sounds. This can be annoying to others. Proactively using hearing protection when the offensive auditory input is likely to occur can prevent the humming from occurring in the first place and protect the individual from the painful auditory stimuli. Similarly, students who constantly mouth items may be alerting their sensory system as a result of feeling internally tired. Alerting the system through planned, regularly scheduled movement or pressure-inducing activities can thereby reduce students' need to alert themselves through gustatory input.

Sensory regulation strategies can certainly be used in response to aversive stimuli. However, a proactive approach with known sensory differences will be most effective in reducing problematic behaviors. This also avoids the impression that the desirable sensory input is immediately available when those behaviors increase.

The following suggestions, based on recommendations that have worked for my many students over the last 20 years, are intended for informational purposes only. They are not intended to be prescriptive. Professional treatment and consultation from a physical or occupational therapist is recommended for individual needs.

Table 1.1 Sensory Regulation Strategies

Sensory Area	Suggested Strategies
Auditory (hearing)	• Music or white noise on headphones: classical, new age, nature sounds (instrumental/no lyrics) • Noise canceling headphones
Gustatory (taste)	• Foods that are "alerting" (for example, sour, minty, crunchy, or chewy foods)
Olfactory (smell)	• Aromatherapy, such as through a diffuser or stuffed animal • Smells or odors that have associations with pleasure or calmness
Visual (sight)	• Dim lighting • Reduced clutter; reduced visual stimulation • Sunglasses for bright lighting • Self-guided movement of head or body to add visual stimuli
Tactile (touch)	• Reduce or eliminate tactile stimuli, such as clothing tags and seams • Use firm touch, which can be less aversive than light touch • Ask to touch; make sure person is prepared for touch; avoid sudden surprise by touching
Interoception (sensations arising internally, such as hunger or headache)	• Explicit teaching and regular check-ins to raise awareness of sensations
Vestibular (sensation of movement)	• Swinging, spinning, rocking, walking, running, jumping
Proprioception (sensation of pressure in the joints)	• Hand squeezes, push-ups, most yoga positions, hugs/handholding • Weighted vests, ankle weights, weighted blanket

The chapter that follows, "Lesson Plans for Teaching Self-Regulation," offers ten lesson plans for activities and games to teach self-regulation skills, providing for the "in the moment" learning and practice children need to generalize skills in new situations. As you use these activities and games with students, keep the following tips in mind:

- Start with the positives! When kids are struggling with self-regulation, they can be very sensitive and self-critical. Keeping an upbeat, positive, "we can do this" attitude throughout the teaching and learning keeps kids engaged and motivated.
- The games and activities can be presented in any order. Feel free to use the ones that might be most appealing to the learner first.
- Stick with it. Self-regulation is learned with repetition and practice. While significant progress may happen quickly, time is necessary for sustained progress.
- Refer to What Does the Research Say? in each lesson to learn more about how the games and activities support the development of self-regulation skills, such as positive self-talk, self-control, and attention shifting.