

# Calm & Strong: Building Self-Regulation Via Tech-enabled Classroom Service Dog

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## Abstract

Children who display chronic, disruptive behavior in early childhood classrooms are at higher risk of negative school and social outcomes. The ability of the early childhood educator to effectively provide social and emotional skill-training, as well as positive behavior supports when a child is in a stress reactive state can be the difference between school failure and school connectedness and learning. Educators report being stressed and ill-equipped to meet the increase in dysregulation in our youngest, most vulnerable learners. Built around the classroom adoption of a fictional service dog, *Bouncy's Ready to Learn Resilience* program's methodology delivers evidence-based, multi-tiered social and emotional skill instruction and supports directly to young learners, while simultaneously providing job-embedded professional development (support and coaching) for educators. Initial outcomes show development of self-regulation skills, with reduction in chronic, disruptive behaviors among identified students. Educators report Bouncy helps them manage their own stress and strengthens their professional capacity and expertise.

## Background

Early childhood classrooms are often understaffed and taught by educators who have less experience and training in addressing the increasing number of students dealing with chronic stress and social emotional needs. Educators need to provide both explicit skill instruction, as well as respond in real-time to students' emotional dysregulation. Chronic, disruptive behaviors decrease available instruction for the entire class, and often result in removing the disruptive child from the classroom. This further decreases the student's available instruction time. When more than one student is dysregulated, a teacher's capacity to provide a differentiated, personalized response in real-time is even more challenged.

*Bouncy's Ready to Learn Resilience* program's character-driven approach helps children build core social and emotional skills, specifically self-regulation. The program is anchored by an animatronic service dog, *Bouncy*, who enables learning by providing students the security of a positive, safe relationship; as well as teaching and coaching a pediatric breath rate optimal for learning. The classroom-based, multi-sensory program is used as part of whole class and small group instruction, as well as a "just-in-time," evidence-based response to support individual children who experience dysregulation. Could a methodology that centers a tech-enabled service dog as a source of emotional support and a teacher of self-regulation skills, increase the capacity and expertise of educators to deliver evidence-based, multi-tiered social emotional learning instruction with fidelity? Would an expert "teacher's assistant" embedded in the classroom to provide emotional support benefit students identified as having the most chronic, disruptive behaviors?

## Methods

Sixteen pre-K to grade 1 classrooms, in 6 schools in urban, suburban and rural settings, across 4 states adopted *Bouncy's Ready to Learn Resilience* for a minimum of 12 weeks. Learners and their teacher engaged in relationship-building activities with *Bouncy the Service Dog* and practiced "Bouncy Breathing" daily. Use of storytelling, music, games and activities reinforced the relationship and provided play-based skill practice. Opportunities were available for students personal use of the animatronic service dog for breath practice or self-soothing when stressed.

Single-subject design, with mixed method, involved 25 students identified within the 16 classrooms as exhibiting chronic disruptive behaviors. 15 had a special education classification, 2 were multi-language learners, several experienced adverse childhood experiences. Before, during and after exposure to *Bouncy*, teachers completed observational surveys about their students' self-regulation skills and disruptive behavior (intensity, frequency and duration). Teacher self-report surveys and researcher interviews captured how the program supported teachers' self-regulation and affected their instructional practices.

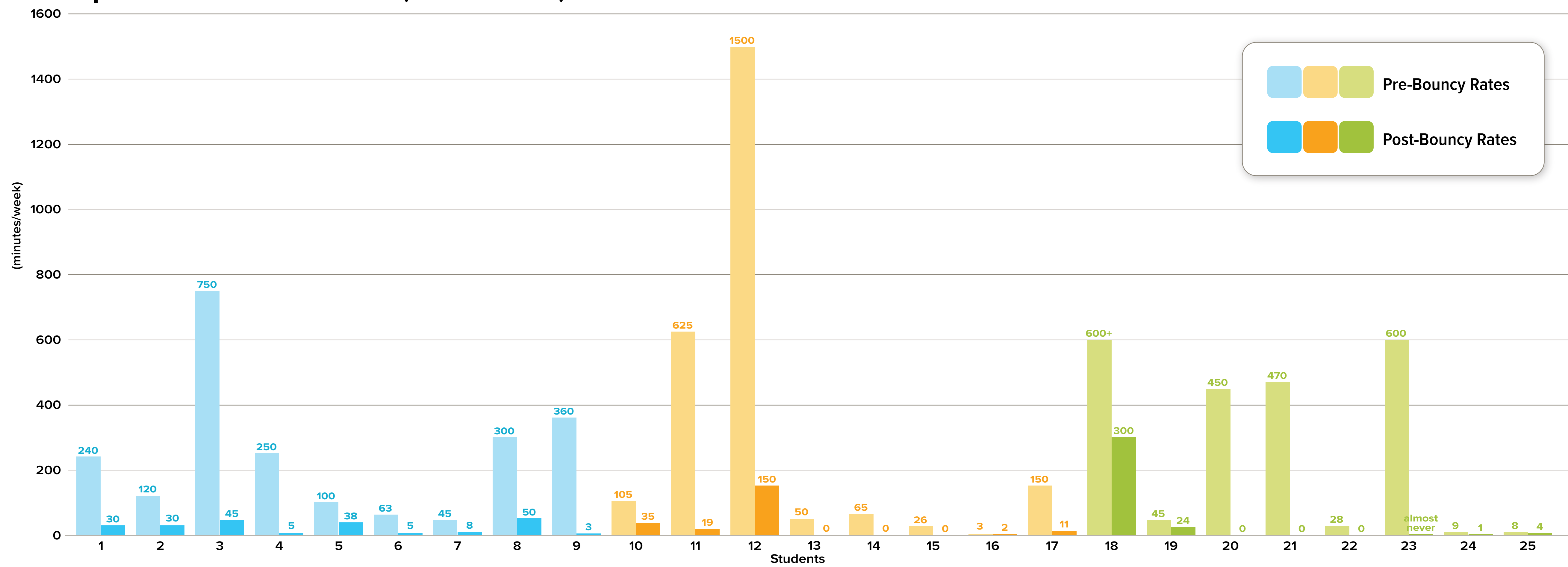
## Results

### Student Impact

#### 1. Increased independent use of self-regulation skills

#### 2. Substantial reductions in chronic disruptive behavior

#### Disruptive Behavior Amount (minutes/week)



### Pre-K

**#1 - Female, White, Attachment Disorder**  
Target Behavior: Behaviors related to social anxiety and parent separation  
Teacher Comment: "Child had separation anxiety when separating from her mom and brother. Child would ask for Bouncy and then calmed down as soon as we would sing and do breathing techniques with her."

**#2 - Male, White, Apraxia and Social Anxiety**  
Target Behavior: Behaviors related to social anxiety  
Teacher Comment: "When he starts feeling anxious he will grab Bouncy to calm down...has even told others that had not met Bouncy what he does. This is from a child who has severe social anxiety."

**#3 - Male, White, ASD and Marfan Syndrome**  
Target Behavior: Tantrum behaviors  
Teacher Comment: "We used Bouncy to encourage (Student 3) to engage in pretend play with others, a difficult skill for a child on the spectrum." "He would not hold Bouncy but if you watch he is mimicking the breathing..."

**#4 - Female, Black, Developmental Delay**  
Target Behavior: Disruptive behaviors  
Teacher Comment: "Intensity of behavior dropped from 5 (highest) to 1...She also was able to stay engaged without the need to turn Bouncy on. Just his presence and being able to have him in her lap was enough support."

**#5 - Female, Hispanic, Developmental Delay, ASD**  
Target Behavior: Emotional outbursts, crying, running away  
Teacher Comment: At end of intervention period, teacher reports, "In 3 out of 5 monitored attempts, (Student 5) has been able to self calm with the use of Bouncy without adult prompting or the use of a visual."

**#6 - Female, Latina, ELL**  
Target Behavior: Defiant behaviors associated with classroom rules and transitions  
Teacher Comment: "Used breathing techniques with Bouncy. Held Bouncy and cared for him. When student would be upset she would ask for Bouncy and hold him."

**#7 - Female, Asian, Other Health Impaired/ Developmental Delay**  
Target Behavior: Disruptive behaviors (crying and whining) when upset  
Teacher Comment: "Use as a reward to earn time to take care of Bouncy. Motivated by indiv. grooming time... Sometimes child upset - remind her of "Bouncy Breathing."

**#8 - Female, Hispanic**  
Target Behavior: Peer interactions - bullying, arguing, not sharing  
Teacher Comment: "Now using more calm down strategies to talk with teachers on how to have more positive interactions with friends...Taking calm down breaks with breathing techniques."

**#9 - Female, African-American**  
Target Behavior: Meltdowns (crying, screaming, kicking, yelling)  
Teacher Comment: "We had child hold Bouncy and calm down and breathe."

### Kindergarten

**#10 - Male, White**  
Target Behavior: Crying due to disappointment  
Teacher Comment: "...would you like bouncy to help calm"; about 3wks later when upset student would say "I want bouncy!" needed bouncy everytime to calm down. Now, student will independently ask or access Bouncy to calm down but doesn't need Bouncy every time!"

**#11 - Male, White**  
Target Behavior: Sensory dysregulation when faced with unexpected/undesired events  
Teacher Comment: "Bouncy provided motivational, supportive friend for this student. He was able to access Bouncy's support even when I was not available. Other staff found it easy to implement as part of the BIP. Tapped the student's imagination and met several of his sensory needs as well."

**#13 - Male, Hispanic, ADHD**  
Target Behavior: Impulsive actions while increasing concentration and focus  
Teacher Comment: "(Student 13) most enjoyed utilizing his Bouncy stuffed animal during art therapy activities. He also enjoyed brain breaks with his Bouncy."

**#14 - Male, White, ASD, ADHD, Disruptive Mood Dysregulation Disorder**  
Target Behavior: Tantrum behaviors, transitioning  
Teacher Comment: "(Student 14) enjoyed the plush Bouncy. He liked incorporating it in daily activities. He would greet his Bouncy each morning. He was responsive to the Bouncy breathing activities to learn effective ways to calm his body and mind."

**#12 - Female, Latinx, ELL**  
Target Behavior: Self-regulate when anxious or confused  
Teacher Comment: "... Bouncy was a safe, calm friend for her when she was adjusting to a new school and new country. She listened to the songs in English and Spanish. She would often sing them to herself. As she became more comfortable her language acquisition and social/academic development took off."

**#13 - Male, Hispanic, ADHD**  
Target Behavior: Impulsive actions while increasing concentration and focus  
Teacher Comment: "(Student 13) most enjoyed utilizing his Bouncy stuffed animal during art therapy activities. He also enjoyed brain breaks with his Bouncy."

**#14 - Male, White, ASD, ADHD, Disruptive Mood Dysregulation Disorder**  
Target Behavior: Tantrum behaviors, transitioning  
Teacher Comment: "(Student 14) enjoyed the plush Bouncy. He liked incorporating it in daily activities. He would greet his Bouncy each morning. He was responsive to the Bouncy breathing activities to learn effective ways to calm his body and mind."

**#15 - Female, White**  
Target Behavior: Managing emotions, crying  
Teacher Comment: "The student had difficulty managing emotions when taking turns and accepting loss during games and activities. Bouncy really helped her learn to remain calm and breath when she lost a game or didn't get the first turn."

**#16 - Female**  
Target Behavior: Reduce frequency of shut down behavior and length of episodes  
Teacher Comment: "This student goes to the calm corner when upset. Previous to Bouncy it took much longer for her to reset. Now she self regulates more frequently and more quickly."

**#17 - Male**  
Target Behavior: Outbursts and increase independent calm down  
Teacher Comment: "...he has been a support to students when I am not available in the moment..." "would you like to take a couple breaths with Bouncy now?"

### 1st Grade

**#18 - Female, White, ASD, SLD**  
Target Behavior: Stay regulated  
Teacher Comment: "She carried Bouncy (baby Bouncy) w/ her, used as a soothing presence/ comfort object. Having Bouncy kept her calmer."

**#19 - Female, White**  
Target Behavior: Conflict with peers, throwing items, crying, yelling  
Teacher Comment: Teacher reported at the end of intervention, student used Little Bouncy plush 3-4x/week for personalized support.

**#20 - Male, Multiracial, ADHD, ODD**  
Target Behavior: Impulsive actions while increasing concentration and focus on low-interest activities  
Teacher Comment: "(Student 20) especially benefited from Unit 3 Lesson 6 "Choose your moves". He learned ways to cope with his hyperactivity when feeling overstimulated, and implementing appropriate strategies to cope with decrease in structure and change in settings."

**#21 - Male, EBD**  
Target Behavior: Reduce aggression and temper tantrums. Increase focus.  
Teacher Comment: "(Student 2) learned coping strategies to utilize when feeling overstimulated, and breathing strategies when feeling frustrated."

**#22 - Male, Hispanic, Disruptive Mood Dysregulation Disorder**  
Target Behavior: Tantruming behavior  
Teacher Comment: "Teacher reported at the end of intervention, student used Little Bouncy plush 3-4x/week for personalized support."

**#23 - Male, White, ADHD**  
Target Behavior: Frequency and severity of outbursts  
Teacher Comment: "I would repeat phrases from Bouncy with him."

**#24 - Male, White, ADHD**  
Target Behavior: Outbursts (yelling, screaming, crying)  
Teacher Comment: "Embedding 'calm & strong' descriptions into subjects & routines (ex. how will you "choose your moves" for independent reading/walking down the hall)."

**#25 - Male, White**  
Target Behavior: Conflicts when playing/working with peers (stealing, knocking down others creations)  
Teacher Comment: "Bouncy watched student movement/choices and shared what he noticed."

## Conclusions

The ability of the early educator to provide effective skill-training and a "just-in-time" response when children are in a stress reactive state can be the difference between school failure, and school connectedness and learning. Early evidence is promising that this new type of methodology, designed to simultaneously support both educator and student, has the possibility of changing life trajectories for some of our most behaviorally challenged students. Replication studies are underway to further substantiate a causal link between the intervention and outcomes.