

Executive Function Related Interventions to Improve Self-Regulation for Students with Behavior Problems

Donna Pitts, Doctoral Candidate

Stephen W. Smith, Ph.D. & Ann P. Daunic, Ph.D.

Michelle Cumming & Kristen Merrill, Doctoral Students

University of Florida

Brian R. Barber, Ph.D.

Kent State University

CEC 2014 Convention & Expo, Philadelphia, PA

Advance Organizer

- Self-regulation (SR) & executive function conceptual framework
- SR curricular examples
 - *Tools for Getting Along* (grades 4-5)
 - *Social-Emotional Learning Foundations* (K-1)
 - *I Control & I Control Brain Training Lab* (middle school)
- Discussion

Students with Behavior Problems: Self-Regulation Failure

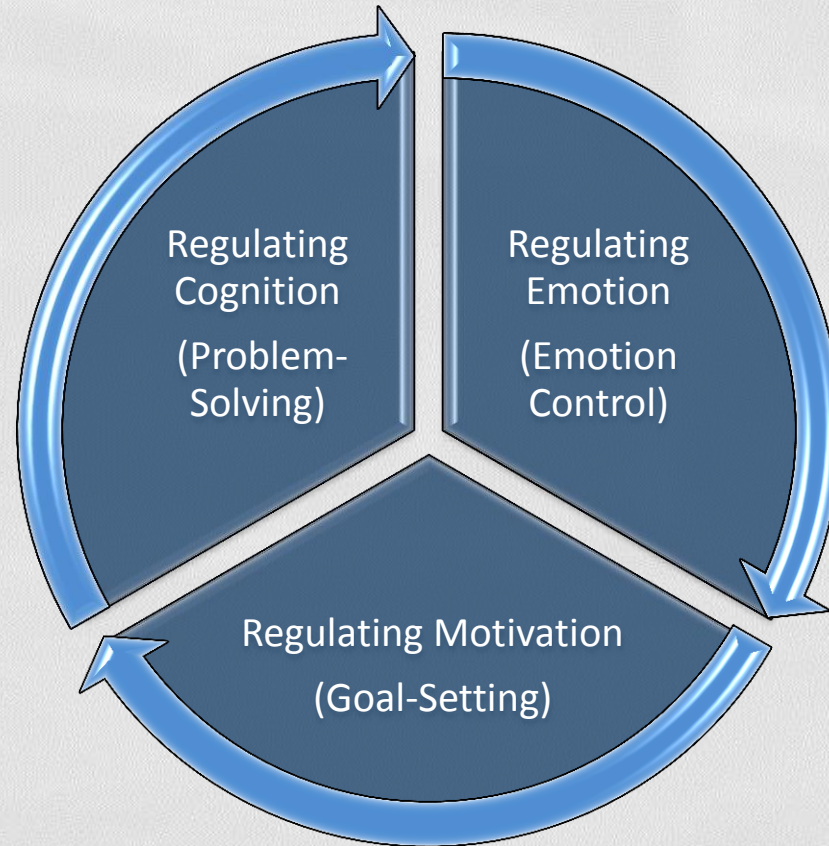
- Successful accomplishment of developmental tasks requires SR
- Many students develop patterns of serious and chronic failure to regulate cognition & emotion
- Poor SR has even been called the “hallmark” of psychopathology!

Self-Regulation Skills

Learning to

- manage thoughts & emotions
- inhibit impulsive reactions & use self-talk to guide behavior (Stop & Think!)
- act responsibly, even when parents or teachers aren't around

Interconnected Domains of Self-Regulation



Self-Regulation & Social-Emotional Learning

By teaching SR skills, social-emotional learning (SEL) can be strengthened to help students:

- Achieve success in learning
- Form positive relationships
- Solve everyday problems
- Adapt to changing social & emotional demands

Basis of Self-Regulation: Executive Function

Ability to regulate emotion, motivation, & cognition based on neurocognitive capacities -

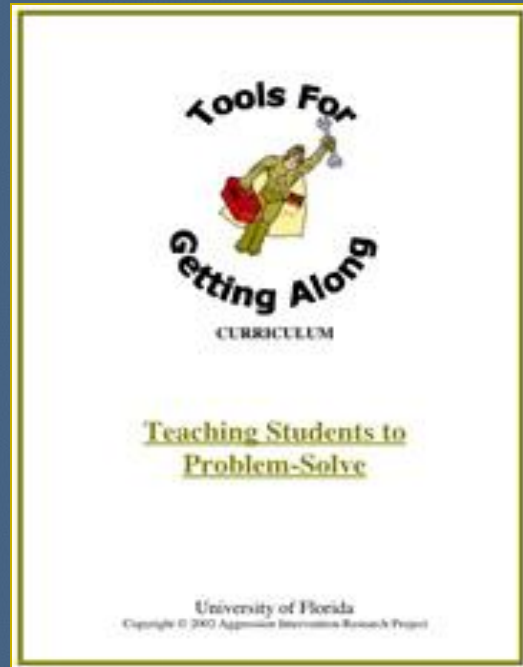
- *Holding and using* information (Working Memory)
- *Shifting thinking* (Cognitive Flexibility)
- *Stopping* automatic responses (Inhibition)

Collectively referred to as “Executive Functions”
(EF)

Teaching Self-Regulation: Cognitive-Behavioral Interventions (CBI)

- The child is the primary change agent
- Verbalization (self-talk) is the primary component
- Modeling is a key instructional procedure
- Self-regulation is the focus

Tools for Getting Along: A tier 1 (Universal) CBI for students in grades 4-5



An Efficacy & Replication
(Goal 3) study funded by
the National Center for
Special Education
Research, Institute of
Education Sciences, U.S.
Department of Education
R324B06029

Tools for Getting Along

To prevent or reduce students' aggressive responses to anger provoking situations using:

- 6-step social problem-solving framework
- 21-lesson core curriculum with 6 booster lessons
- Integrated review, modeling, rehearsal (role-play)

Features

- Paired or small group instructional options
- Tool Kit as a self-monitoring device
- On-the-Spot Assessment to promote generalization

The Problem-Solving Steps in TFGA

I . . .

1. ... know I'm angry or frustrated.
2. ... calm down.
3. ... think about the cause.
4. ... think about what I could do.
5. ... try a solution.
6. ... think about how it turned out.

Findings to Date

(Daunic, Smith, Brank, & Penfield, 2006)

HLM analysis of multiple measures on 165 at risk for EBD students in general education classrooms

- Increase in curriculum related problem solving knowledge ($g = 6.842, p = .000$)
- Decrease in teacher rated reactive and proactive aggression ($t = 3.441, p = 0.002$); $t = 3.490, p = 0.002$)

Findings to Date

(Daunic, Smith, Garvin, Barber et al., 2012)

- HLM analysis of multiple measures on 1,296 students in general education classrooms:
 - More curriculum related problem solving knowledge ($F = 8.35, p < .01$)
 - More positive approach to problem solving ($F = 2.77, p < .05$)
 - More rational problem-solving style ($F = 2.77, p < .05$)
- For students with relatively higher baseline risk:
 - Better teacher-rated behavior regulation & metacognition ($F = 0.12, p < .01$)
 - Lower teacher-rated proactive aggression ($F = 0.11, p < .05$)
 - Lower self-reported trait anger and outward expression of anger ($F = 0.17, p < .01$; $F = 0.17, p < .01$)

Findings to Date

*(Smith, Daunic, Barber, Aydin, Van Loan,
& Taylor, in press)*

- HLM analysis on 720 students in general education classrooms one year post treatment:
 - More curriculum related problem solving knowledge
($F = 1.50, p < .05$)
 - Lower self-reported trait anger & anger control
($F = 0.665, p < .05$; $F = 0.447, p < .05$)
- For students with relatively higher baseline risk:
 - Better teacher-rated behavior regulation ($F = 0.11, p < .05$)
 - Lower teacher-rated proactive aggression ($F = 0.106, p < .10$)
 - Lower teacher-rated externalizing & internalizing behavior
($F = .092, p < .05$; $F = .102, p < .05$)

Social-Emotional Learning Foundations (SELF): A tier ½ intervention for students in grades K-1



A Development Research
(Goal 2) study funded by the
National Center for Special
Education Research, Institute
of Education Sciences, U.S.
Department of Education
R324A100020

SELF Curriculum Structure

- Teaches **self-regulation** through literacy instruction within a social-emotional learning framework
- Instructional units parallel 5 social-emotional learning competencies.
- 3 lesson types for each selected storybook:
 - Whole group interactive storybook reading
 - Small group dialogic reading & targeted vocabulary development
 - Small group application activities

Dialogic Reading

Based on 3 principles:

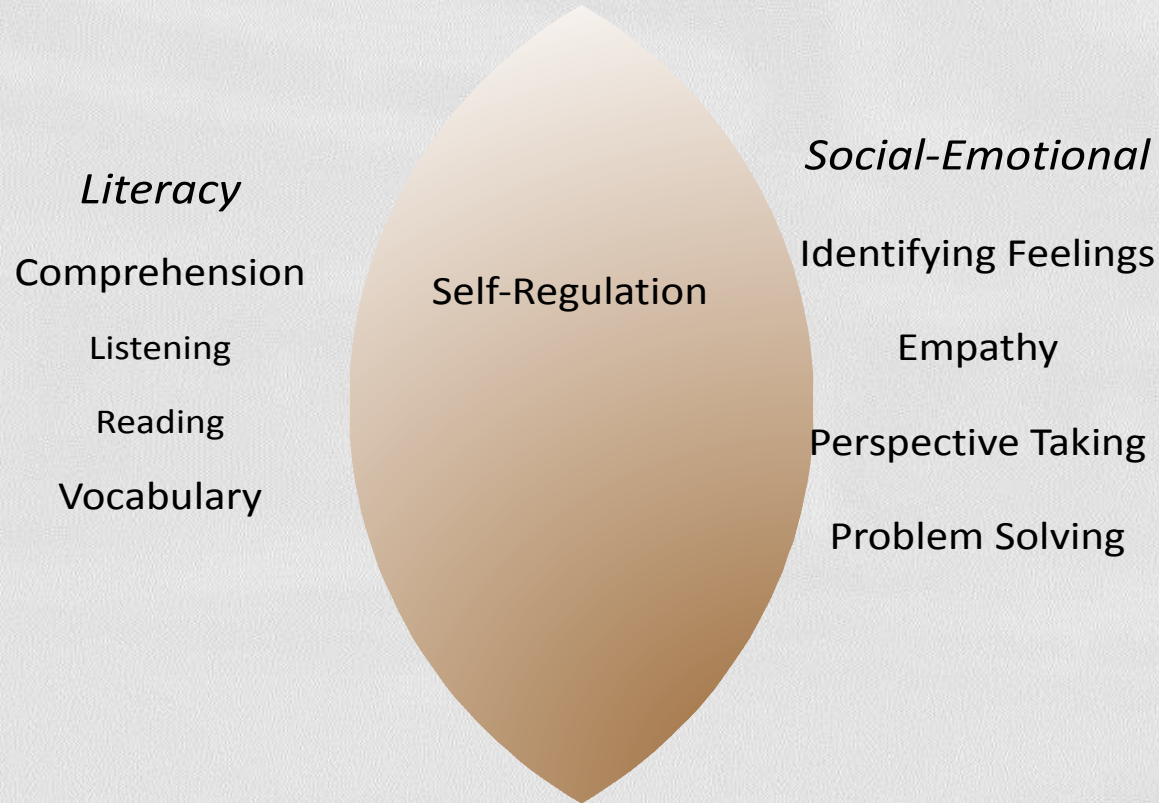
1. Encouraging the child to become an active learner during shared book reading
1. Providing feedback that models sophisticated language (using targeted vocabulary)
1. Challenging child's knowledge and skills by raising conversation to a level just above current ability

Self-Regulation Skill Focus

Helps students at risk for emotional & behavioral problems use language to:

- manage thoughts and emotions
- inhibit impulsive reactions and use self-talk to guide behavior (Stop & Think!)
- act responsibly (self-regulate), when parents or teachers aren't around.

SELF Links Social-Emotional Learning & Literacy



Preliminary Pilot Data

- 24 K-1 classrooms in 2 large, ethnically diverse elementary schools in N. Central Florida
- Target students selected with SSBD gates 1 & 2
- Pre-post assessments of self-regulation & behavior
 - SELF Vocabulary Assessment (researcher developed)
 - Behavior Rating Inventory of Executive Function (BRIEF)
 - Clinical Assessment of Behavior (CAB)
 - Standardized measures of language (CELF) and reading comprehension (WRMT-R)
- Data collected over 2 years

Preliminary Findings

- Positive effects on social-emotional learning related vocabulary (Kindergarten: $F[91] = 21.72, 21.20, \& 15.49$ for definition, use, & receptive, respectively, $p < .01$; First grade ($F[91] = 6.81 \& 26.80$ for definition & use, $p < .01$)
- Positive effects on overall self-regulation (BRIEF) and specifically, metacognition (MI), for **internalizing** kids in SELF vs. controls ($t[121] = 2.16, p = .033$; ($t[121] = 1.67, p = .097$)
- Positive effects on overall self-regulation and on metacognition for children in SELF with relatively poor pretest scores vs. controls ($t[121] = 1.80, p = .074$; $t(121) = 1.691, p = .093$)
- Positive effects on social skills (CAB) for 1st graders in treatment compared to controls ($t(76) = -1.978, p = .052$)
- No significant effects on standardized reading/language measures

I Control: A tier 3 (selected) CBI for students in grades 6-8



A Development & Innovation
(Goal 2) study funded by the
National Center for Special
Education Research, *Institute
of Education Sciences*, U.S.
Department of Education
R324A110182

I Control

- To develop an intervention focused on building EF and self-regulatory skills for middle school students with EBD
- Combines direct instruction of EF skills (working memory, inhibition, cognitive flexibility) & instruction in contextualized self-regulation (goal setting, emotion regulation, problem solving)

I Control Curriculum Overview

- Year-long intensive program
 - 46-core curriculum lessons & 4 boosters
 - Uses modeling, rehearsals, activities
- Implemented 3x per week
 - 2:1 ratio of lessons to computerized training
- Lessons progress through skill development in:
 - Goal-Setting
 - Emotion Regulation
 - Problem Solving
- Knowledge & skill instruction integrated with direct EF practice using computerized “gaming” regimen

Unit 1: Introduction to I Control

- I Control curriculum introduction
- 3 EF Skills areas
 - Working memory
 - Shifting
 - Impulse control
- Instruction & guided practice in EF skill areas linked to self-control

Unit 1
Introduction to
I Control

Unit 2
I Control My Goals

Unit 3
I Control My Emotions

Unit 4
I Control My Problem
Solving



Unit 2: I Control My Goals

- **Goal Commitment**
 - Values
 - Value based goals
- **Goal planning**
 - Resources & Barriers
 - If-then plans
 - Prioritizing
- **Goal Completion**
 - Revised, ongoing, or terminal goals



Unit 3: I Control My Emotions

- **Understanding Emotions**

- Why we have emotions
- Emotions and feelings
- Labeling emotions
- Identifying emotion triggers
- Emotion intensity

- **Strategies for Emotion Control**

- Situation Strategies
- Focus Strategies
- Think strategies
- Act strategies



Unit 4: I Control My Problem Solving

- **Recognizing and Defining Problems**
 - Identifying a problem exists
 - Being positive & realistic
- **Generating and Evaluating Solutions**
 - Think of solutions
 - Evaluate solutions
 - Respond with a plan
- **Carrying out and evaluating plans**
 - Communication
 - Evaluating the results



Mnemonic

Check for a Problem



Name the Problem and the Goal


Think of Solutions

Respond with a Plan




Look at How You Did

Brain Training Lab (BTL): A Direct Training Component of the I Control Curriculum

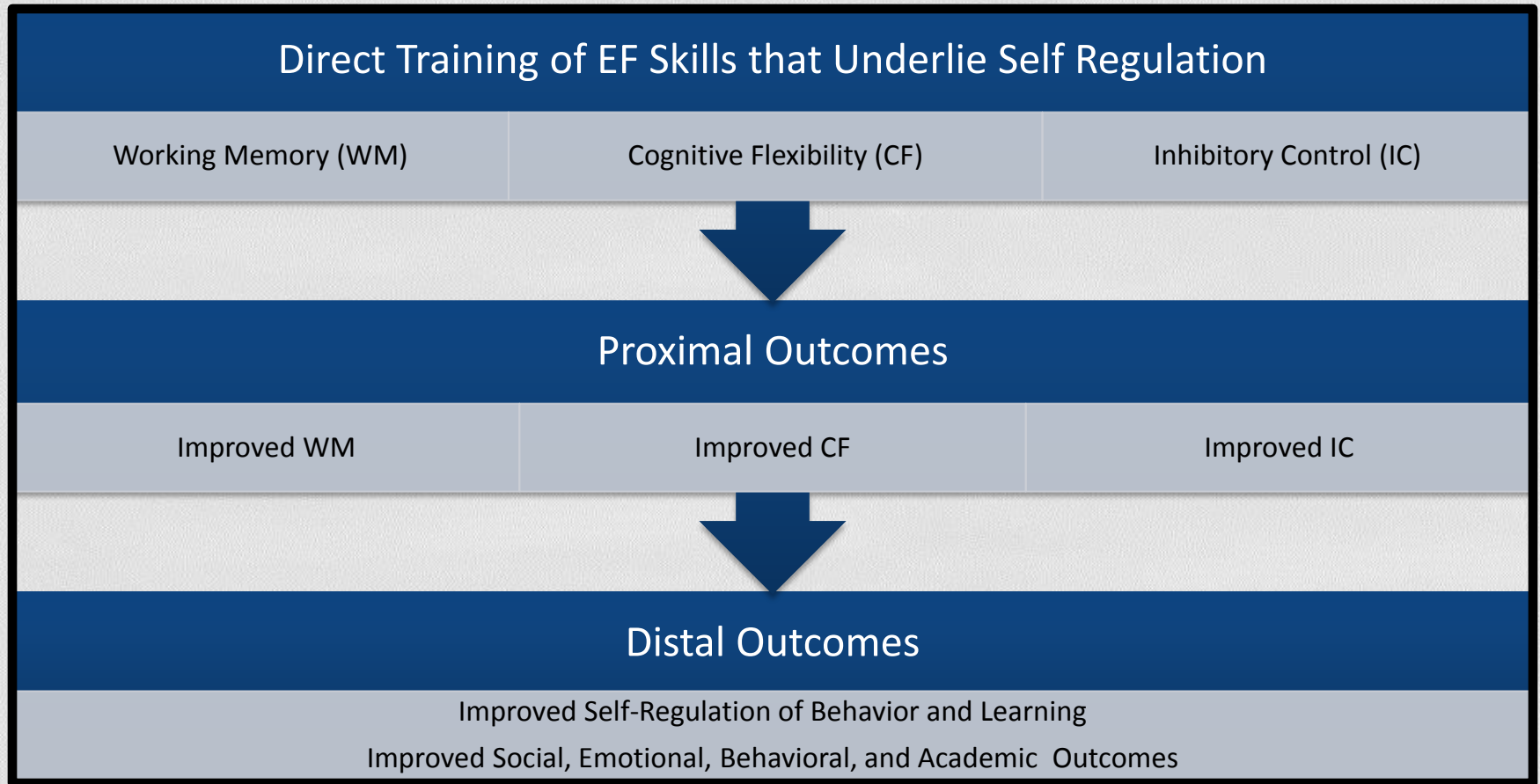


Welcome to your
Brain Training Lab

Please enter your student ID and password to log in and play the games



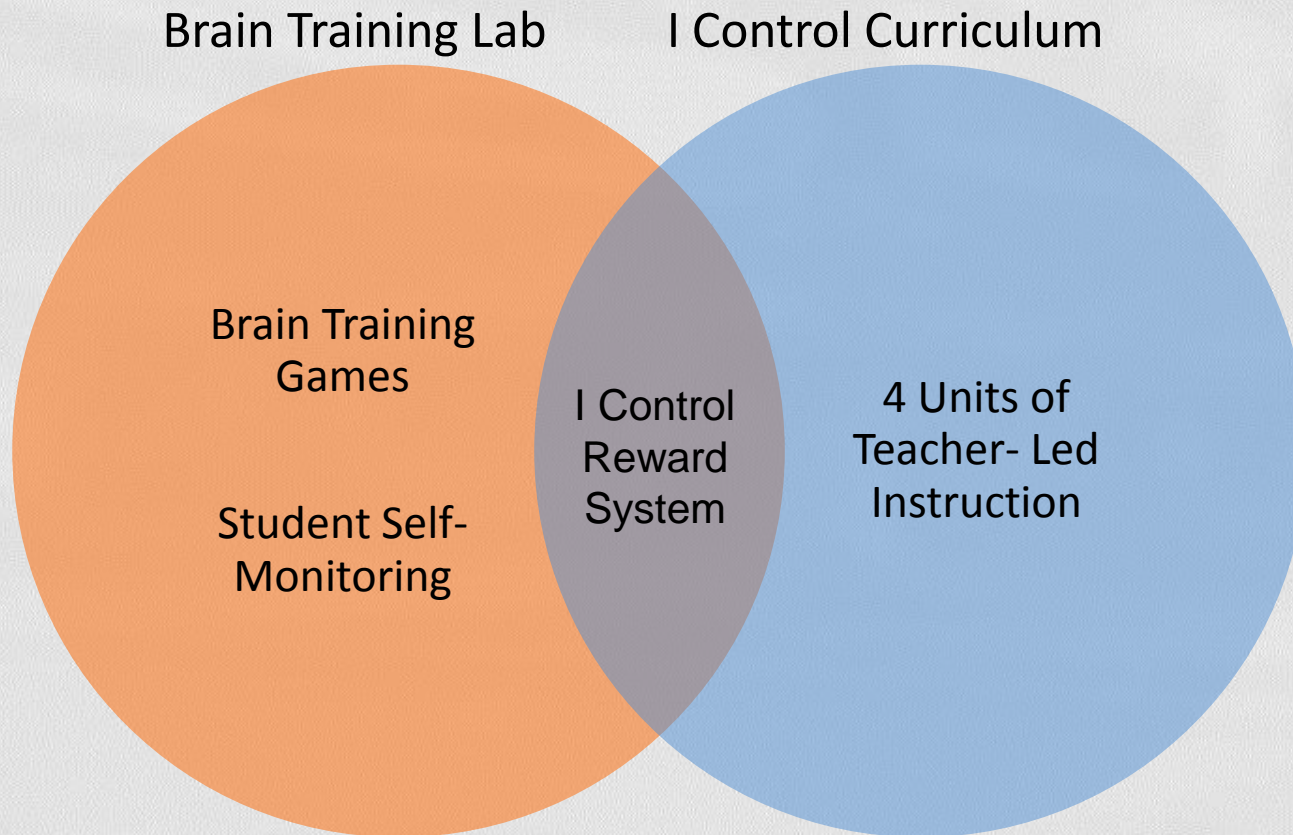
Direct Training of Executive Function Skills: A Conceptual Framework



BTL Overview

- Computerized tasks designed to strengthen EF skills required for deliberate SR:
 - Working Memory
 - Cognitive Flexibility (Shift)
 - Impulse Control
- Improvements in underlying EF mechanisms should improve students' ability to:
 - Control Emotions
 - Set and Achieve Goals
 - Solve Problems
- Partner with direct instruction component of I Control to directly train EF skills

BTL Components



Self-Monitoring

Self-monitoring:



- Students record their scores immediately after playing a game.
- Students meet with teachers periodically to review progress, record level points and set new goals.
- Teachers help students determine when they have mastered a task and can move on to a new challenge.



Reward System

Built on a leveling design based on gaming theory that motivates students to engage by increasing task difficulty and choice.

- ▶ Students earn points until they complete a level.
- ▶ Students receive a reward (based on existing classroom reward system) for completing a level.
- ▶ Students continue through progressively more difficult levels.

I Control		I Control	
<p>Level One <i>Novice</i></p> <p> Working Memory</p> <p>1 2 3 4 5 6 7 8 9</p> <p> Shifting</p> <p>1 2 3 4 5 6 7 8 9</p>	<p>Level Three <i>Master</i></p> <p> Working Memory</p> <p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20</p> <p> Shifting</p> <p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20</p>		
<p>Level Two <i>Apprentice</i></p> <p> Working Memory</p> <p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20</p> <p> Shifting</p> <p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20</p> <p> Impulse Control</p> <p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20</p> <p> Control</p> <p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20</p> <p>Rewards: Level Two (Apprentice) Certificate Access to Level Three Brain Training Games Select a Level Two Reward</p> <p>Completed on: _____</p>	<p>Level Four <i>Grand Master</i></p> <p> Working Memory</p> <p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20</p> <p> Shifting</p> <p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20</p> <p> Impulse Control</p> <p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20</p> <p> Control</p> <p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20</p> <p>Rewards: Level Four (Grand Master) Certificate Access to Bonus Level Brain Training Games Select a Level Four Reward</p> <p>Completed on: _____</p>		

Reward System

When students complete a level they receive 3 rewards:

- ▶ Certificate/note sent home
- ▶ Access to new games
- ▶ Reinforcer from teacher

Certificate/note:

- ▶ Updates parent on what I Control is teaching
- ▶ Explains ways parents can help
- ▶ Provides opportunities for positive parent communication and encouragement for students

LEVEL ONE
Novice
IN RECOGNITION OF COMPLETION OF
LEVEL ONE BRAIN TRAINING GAMES
IN THE I CONTROL PROGRAM
AWARDED TO _____
TEACHER SIGNATURE / DATE _____

REWARDS

LEVEL 1

15 minutes free time 1 item from Prize Bin 15 minutes computer time Listen to music while working for 1 activity	Skip to front of lunch line Restroom pass Snack from teacher 1 pencil or pen
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LEVEL 2

Colored pencils 2 items from Prize Bin 30 min computer time 30 min free time Challenge someone to board game Mystery Reward	5 points extra credit on quiz Use teacher's desk during 1 lesson Listen to music while working for 1 day Positive phone call home Extra gym time with another class Eat lunch with a friend in classroom
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LEVEL 3

20 min reading outdoors 3 items from Prize Bin 45 min computer time 45 min free time Select fun activity for class Bigger Mystery Reward	30 points extra credit on quiz Read morning announcements Listen to music while working for 1 day Design class bulletin board Class outdoors for 1 lesson Teach a lesson with the teacher
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LEVEL 4

1 hour computer time 1 hour free time Select fun activity for class Bonus Mystery Reward	Free quiz grade Class has lunch outdoors 30 minutes reading outdoors Any Level 4 Reward
---	--

I Control

Hi, student [Log Out](#)

Select a Level
1 2 3 4 5

Select a Task

Working Memory	Impulse Control	Shifting
2153... Digit Span	Balloon Pump	Picture Parallels
KCHEAFD Letter Order	Time Wall	Simon

Behavior Management Resource Guide

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University of Florida

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COE

Behavior Management Resource Guide

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- Our Published Work
- Order Form

Behavior Management Resource Guide

For over 15 years we have been funded by the U.S. Department of Education Office of Special Education Programs & the Institute of Education Sciences to develop and evaluate curricula to help students manage their anger, solve social problems, and manage conflicts.

Conflict Resolution & Peer Mediation



Working Together to Resolve Conflict is a school-wide program that has been used in over 100 school districts in the United States and world-wide.

Affiliated Links

<https://education.ufl.edu/behavior-management-resource-guide/>

For further information:
swsmith@coe.ufl.edu
adaunic@coe.ufl.edu