Development of *I Control*: Improving self-regulation of students with EBD through executive function skill training

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Advance Organizer

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Project Overview

Funded by: IES Institute of Education Sciences

US Department of Education

3-year funded project

Goal 2 - Development grant

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Project Overview: R&D Goals

Develop a year-long, intensive intervention that is:

- Appropriate for middle school students identified with EBD
- Grounded in current neurocognitive theory
- Designed to enhance self-regulatory processes
- Focused on improving executive functions (EF)

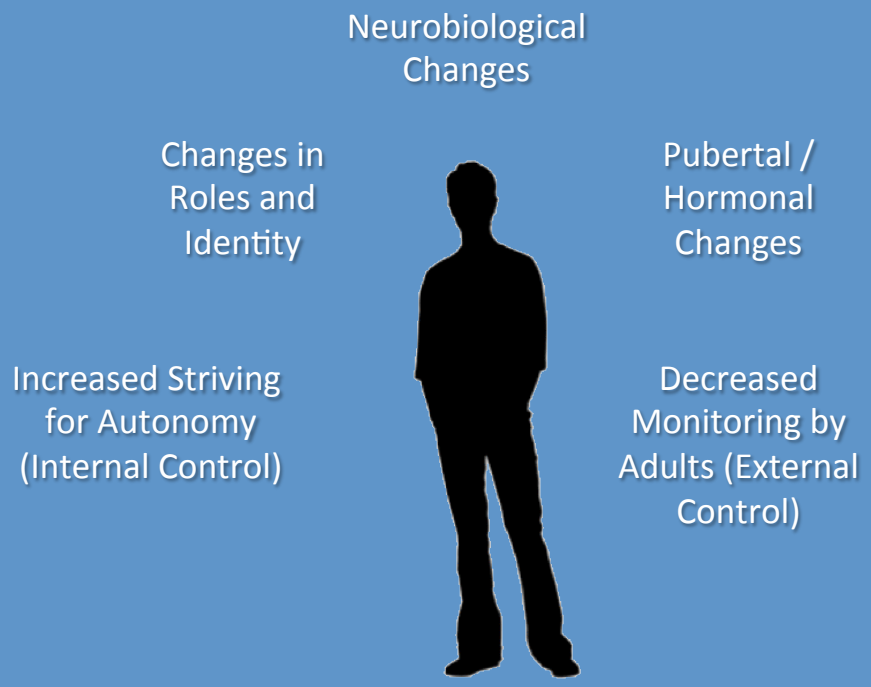
Project Overview: R&D Goals

I Control is a self-contained package that includes instruction in areas related to self-regulation.

- Contextualized content in goal-setting, emotion regulation, & problem solving
- EF skill development via a concurrent, computerized training regimen
- Two-day professional development for teachers

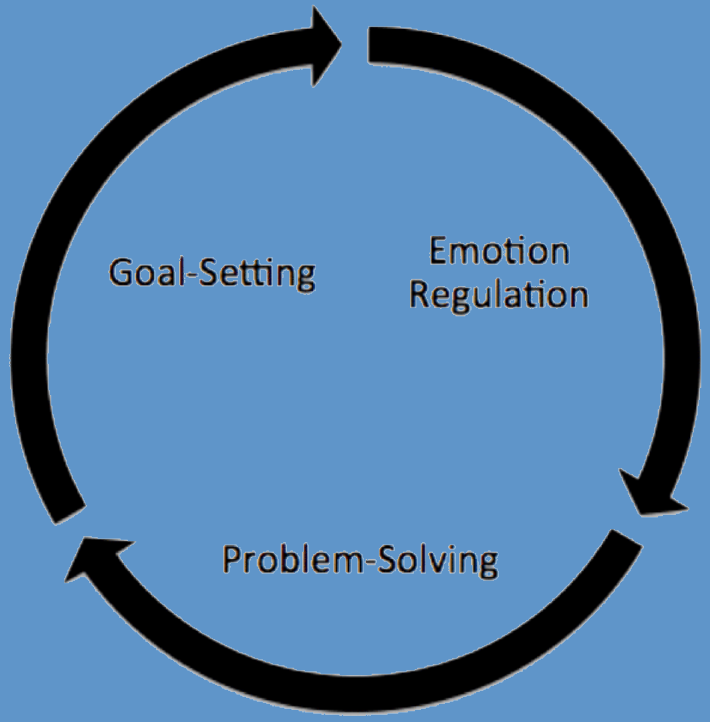
Theoretical Background – SEL Programs

- Successful social-emotional learning (SEL) programs recognize developmental influences at peer, family, school, & community levels.
- Positive social & behavioral development relies on neuro-cognitive & biological factors that aid self-regulation.



Theoretical Background – Self-Regulation

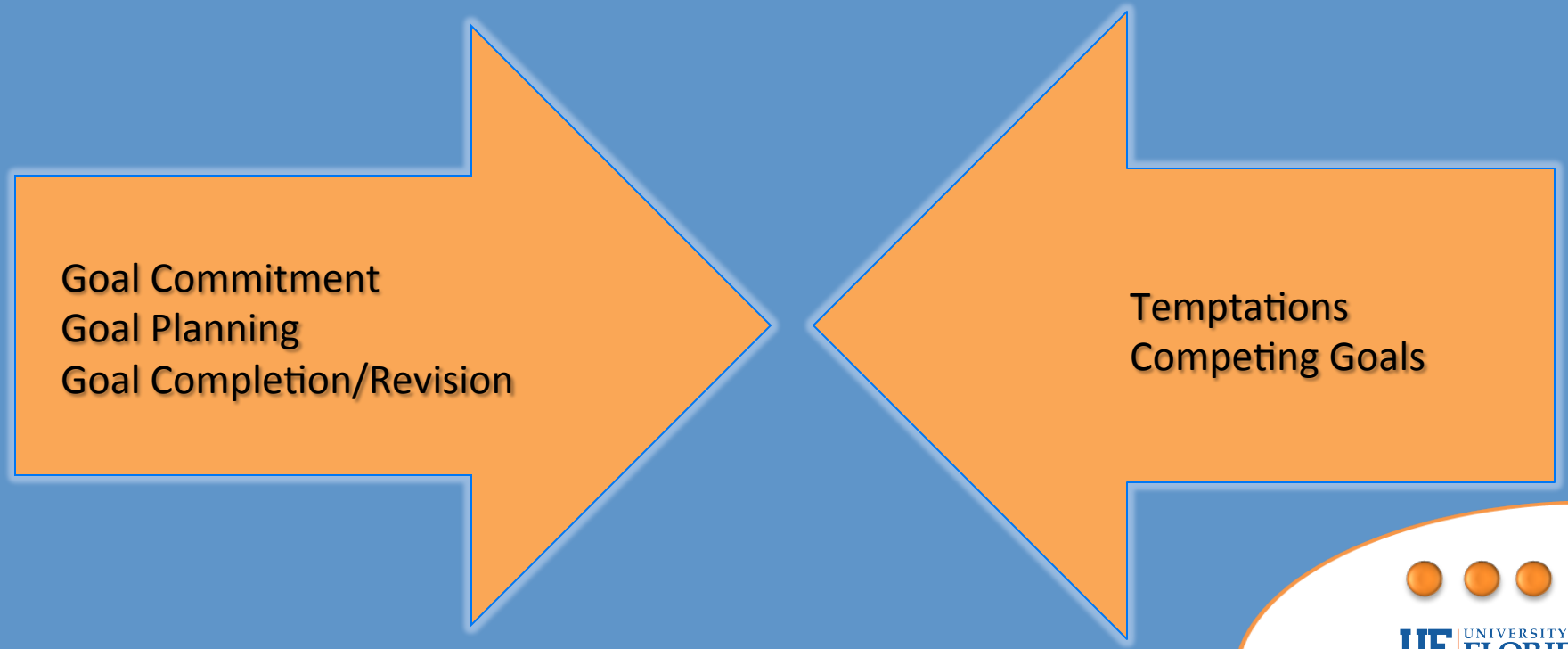
- Self-regulation (SR) refers to capacities involved in regulating motivation, emotion, and cognition.



- SR results in ability to delay gratification & sustain attention & effort.
- *Conflict modulation is* foundational to SR.

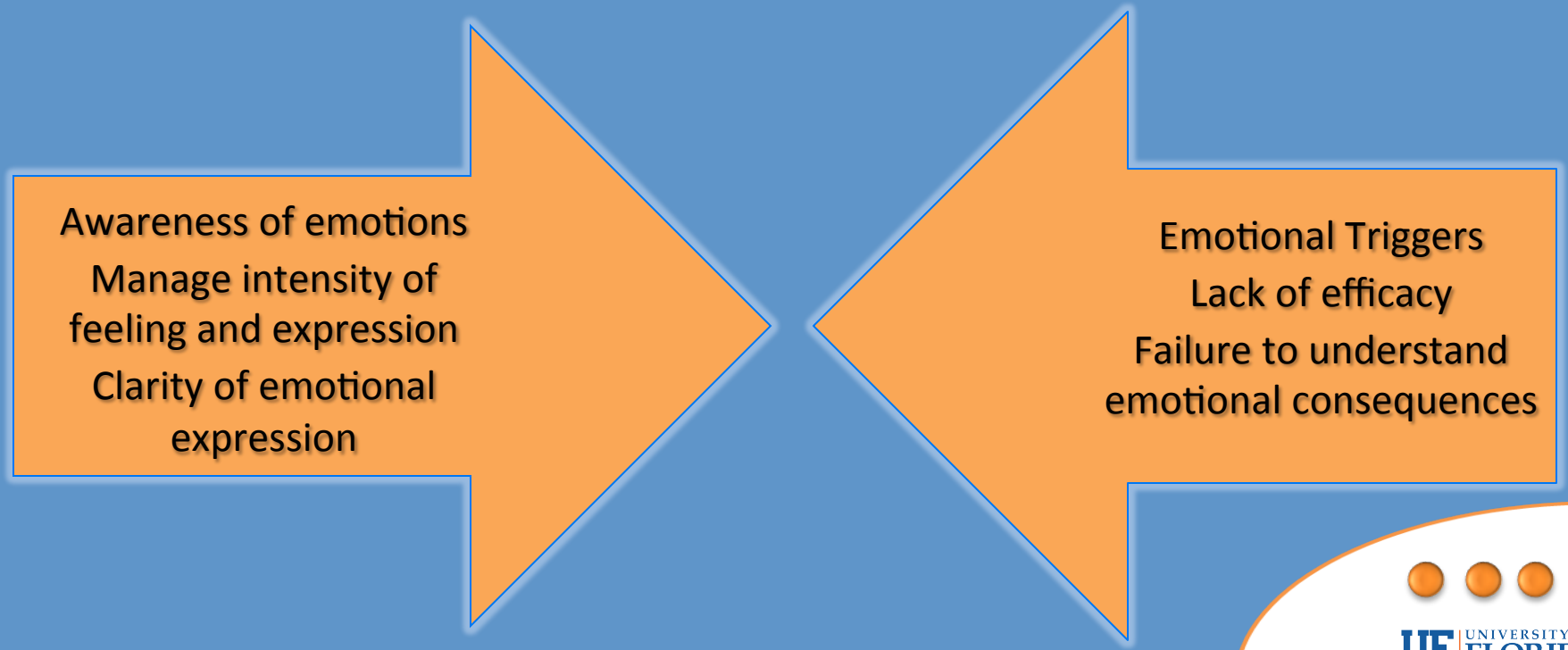
Theoretical Background – Goal-Setting

- Based on Gollwitzer's (1997) Action Phase Model
- Rather than focus on goal *content*, focus on how students can overcome implementation problems.



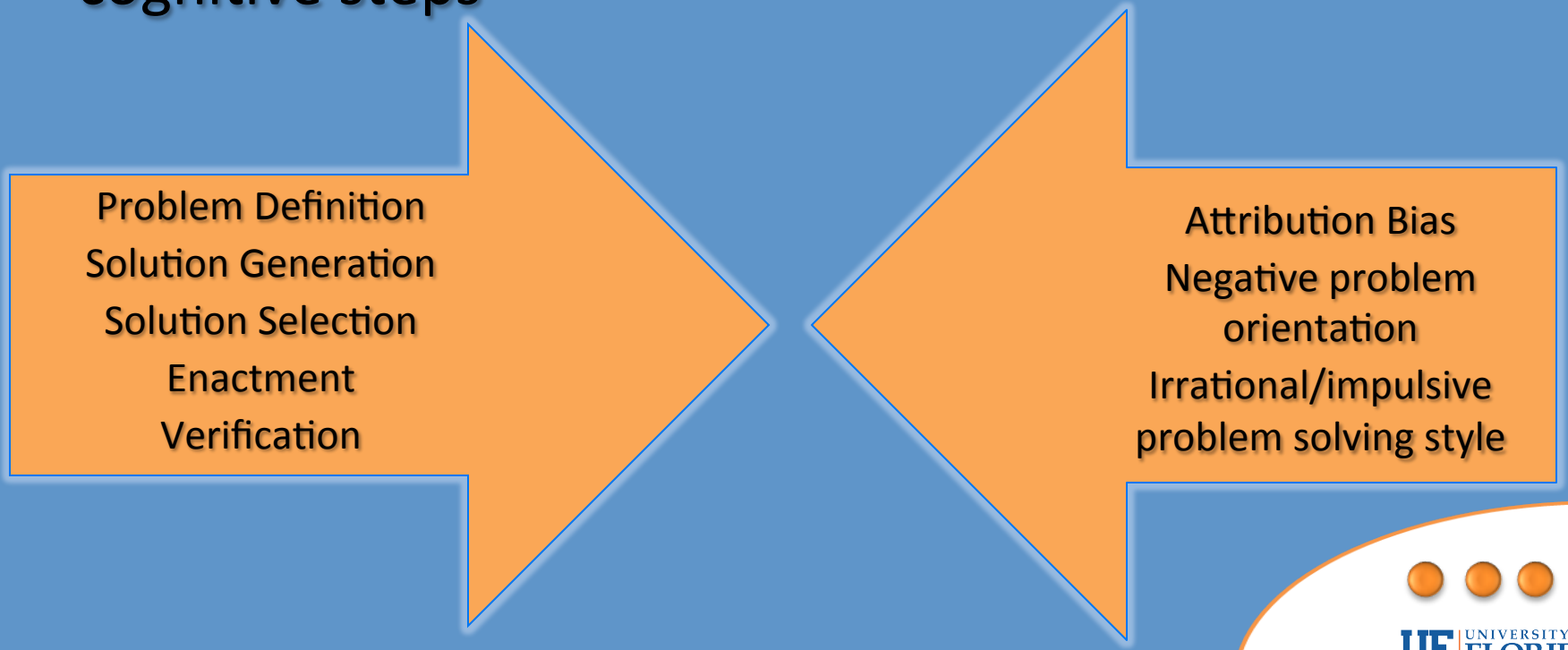
Theoretical Background – Emotion Regulation

- Based on Gross (1998,2006), Barrett, Oschner, & Gross' (2007) transactional model of emotion
- Aligns ER instruction with appraisal of *value* & *ability*



Theoretical Background – Problem Solving

- Based on social problem solving (Change, D'Zurilla & Sanna, 2004; Smith & Daunic, 2006)
- Involves effortful implementation of a series of cognitive steps



Theoretical Background – Classic SR Test

Theoretical Background – SR Failure

Youth with EBD have SR deficits that impair self-control & ability to have successful social interactions

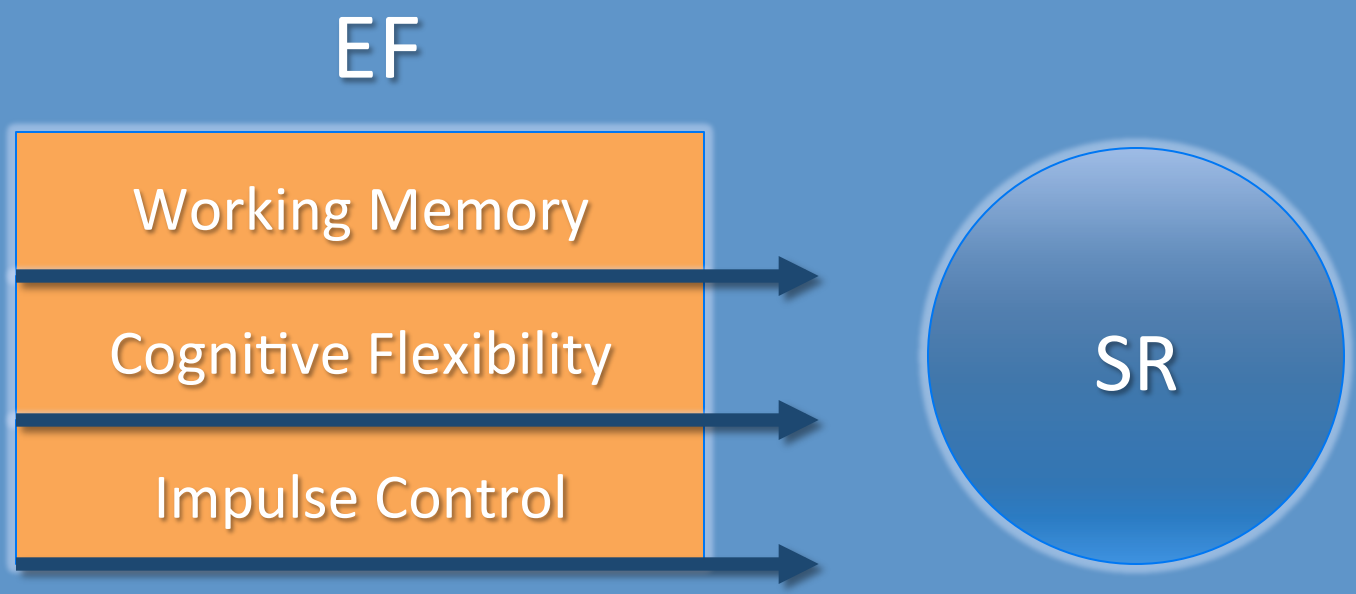
Typical Students	Students with EBD
Compare immediate cues to those with which they are familiar	Difficulties interpreting cues/have existing negative schemas
Accurately infer what others might be thinking or intending	Concentrate more on hostile or negative cues
Generate pro-social solutions	Generate fewer pro-social solutions
Perform selected behavior by recalling task steps and implementing them flexibly	Fail to perform pro-social alternatives because of impulsive choice or persistence

Theoretical Background - SR-EF Connections

- Skills necessary for successful SR & social interactions depend on adequate development of neurocognitive processes known as "executive functions."
- EF development coincides with maturation of connections between specific pre-frontal brain regions & lower limbic and basal systems.
- Research supports "sensitive" periods of substantial growth and/or re-organization of connections that coincide with opportunities for intervention & remediation of EF.

Theoretical Background - Executive Function

Although there is no clear definition of unified EF, recent evidence (e.g., Miyake et al. 2000) confirms three distinct processes:



Theoretical Background – EF at Work

- EF is recruited when situations/stimuli are new or novel.
- As behavior is learned, EF is no longer necessary.

In US,

Green Light = Look Left

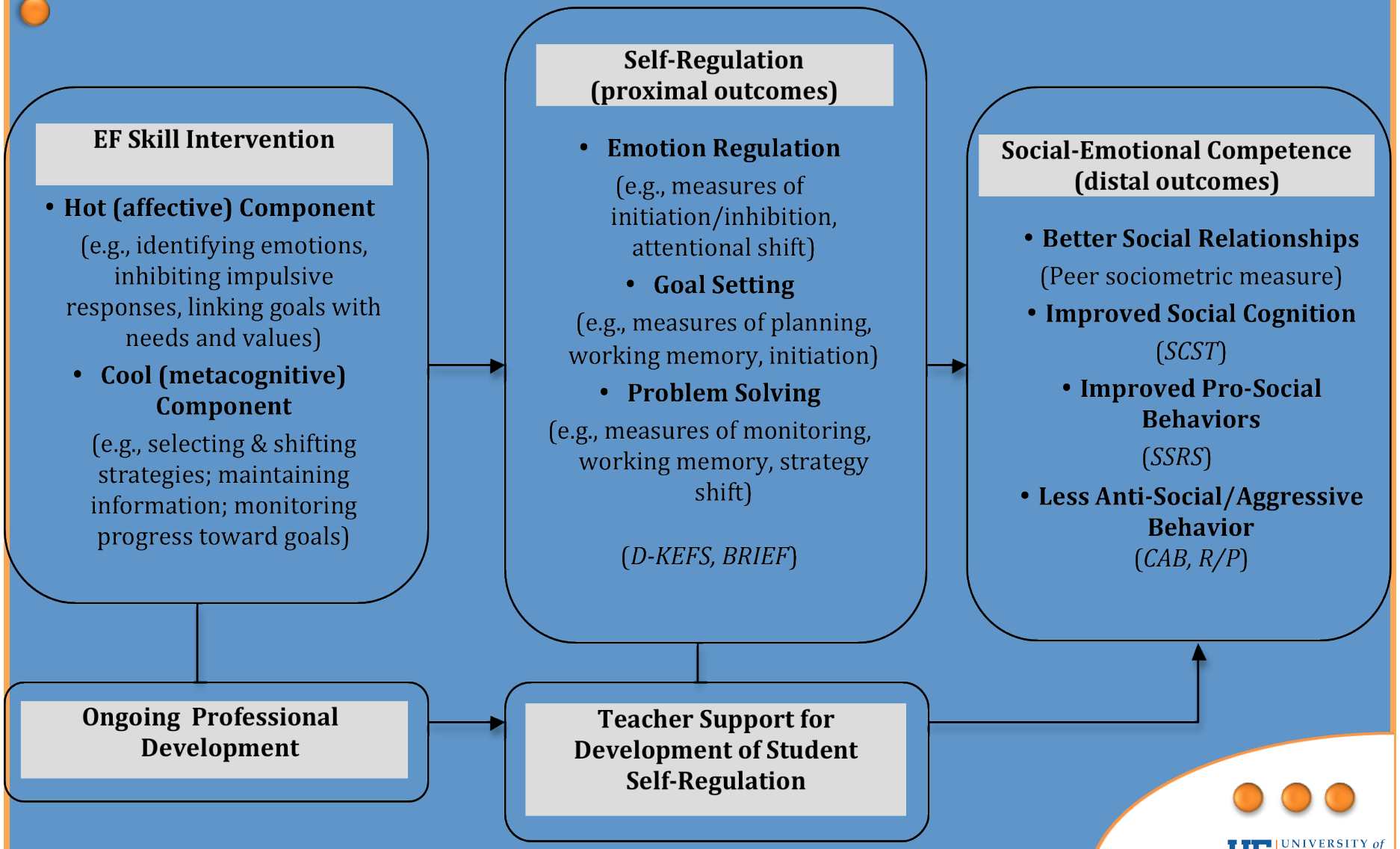
In England,

Green Light = Look Right

Theoretical Background – Rationale for Intervention

- Delayed or insufficient EF maturation is implicated in social/behavioral problems of students with EBD.
- EF is theoretically linked to SR and amenable to intervention, such that positive changes in the social-behavioral trajectories of students with EBD are achievable.

Theoretical Background - Theory of Change



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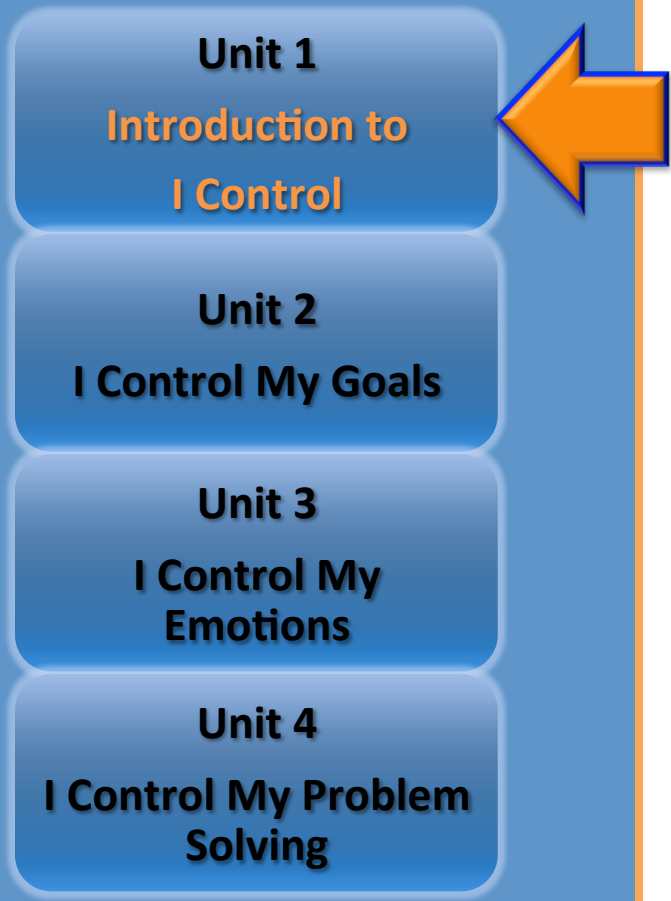
Curriculum Overview

- Year-long intensive program (approx. 80 sessions over 27 weeks)
- 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

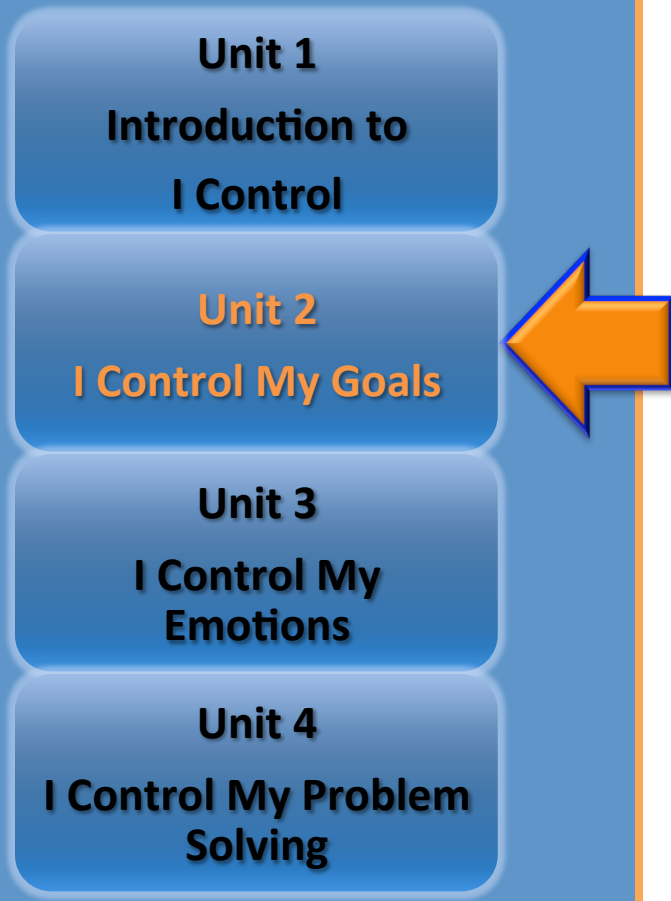
S&S: Intro to *I Control* (Unit 1)

- Basic introduction to *I Control*
- Introduces 3 EF skill areas:
  - Working Memory
  - Shifting
  - Impulse Control
- Provides instruction & guided practice in EF skill areas linked to self-control



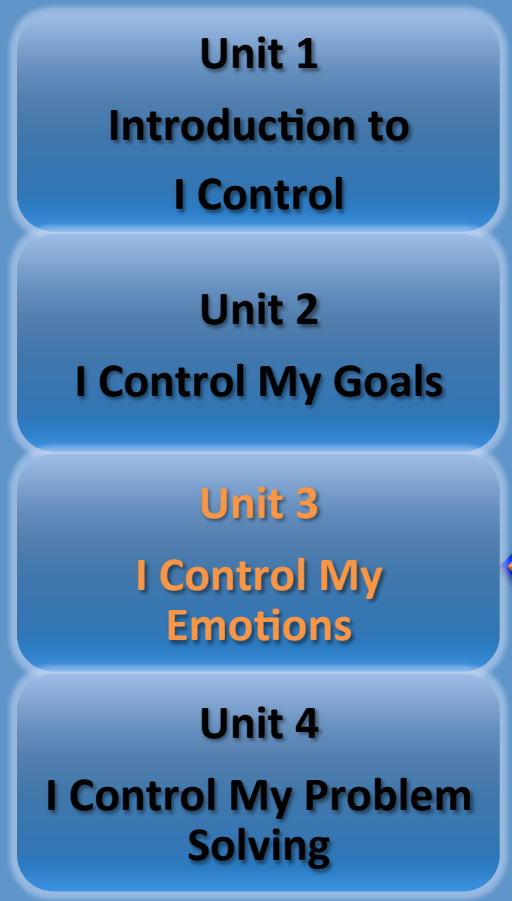
S&S: I Control My Goals (Unit 2)

- Goal Commitment
  - Values
  - Resources & Barriers
  - Goal Commitment
  - Goal Planning
- Goal Completion
  - Revised, Ongoing, or Terminal



S&S: I Control My Emotions (Unit 3)

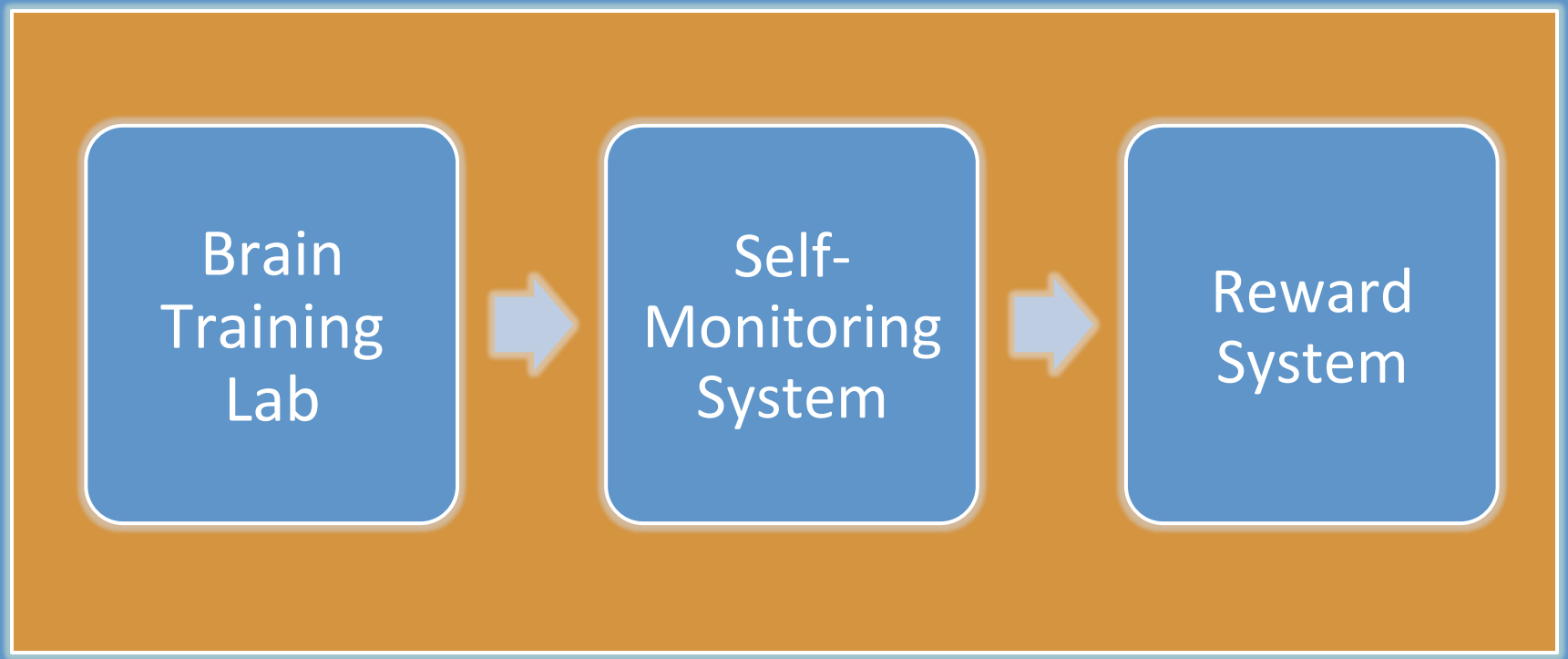
- Identifying Emotions
  - Emotions vs. Feelings
  - Social Emotions
- Characteristics of Emotions
  - Intensity & Triggers
  - Conflicting Emotions
- Strategies for Emotion Control
  - Situational strategies
  - Focusing strategies
  - Thinking strategies
  - Using social feedback



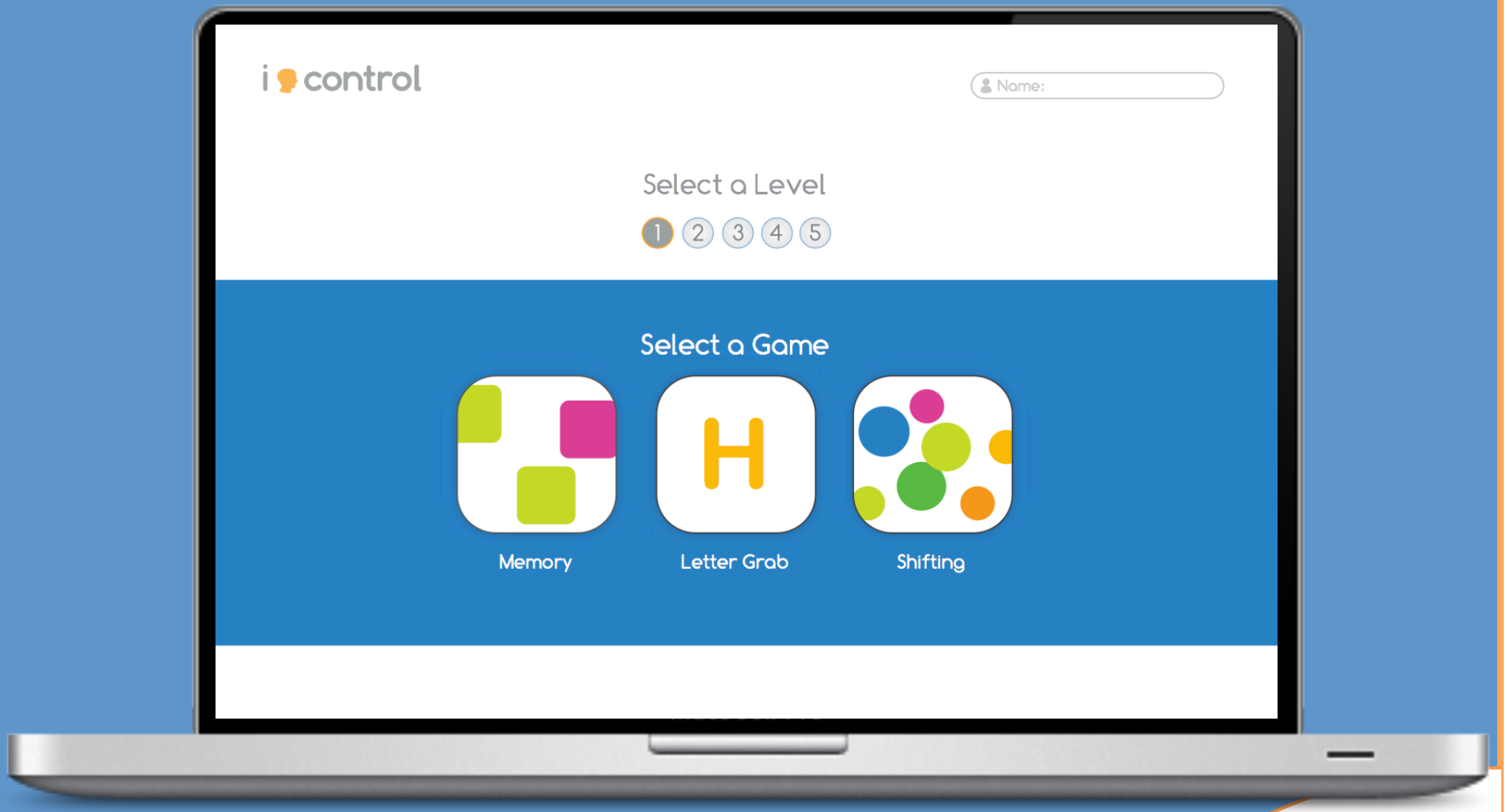
S&S: I Control My Problems (Unit 4)

- Teaches the process of social problem solving
- Relates to goal setting & emotion regulation
- Pulls together all *I Control* topics with a focus on generalization

Brain Training Lab Components



Brain Training Lab



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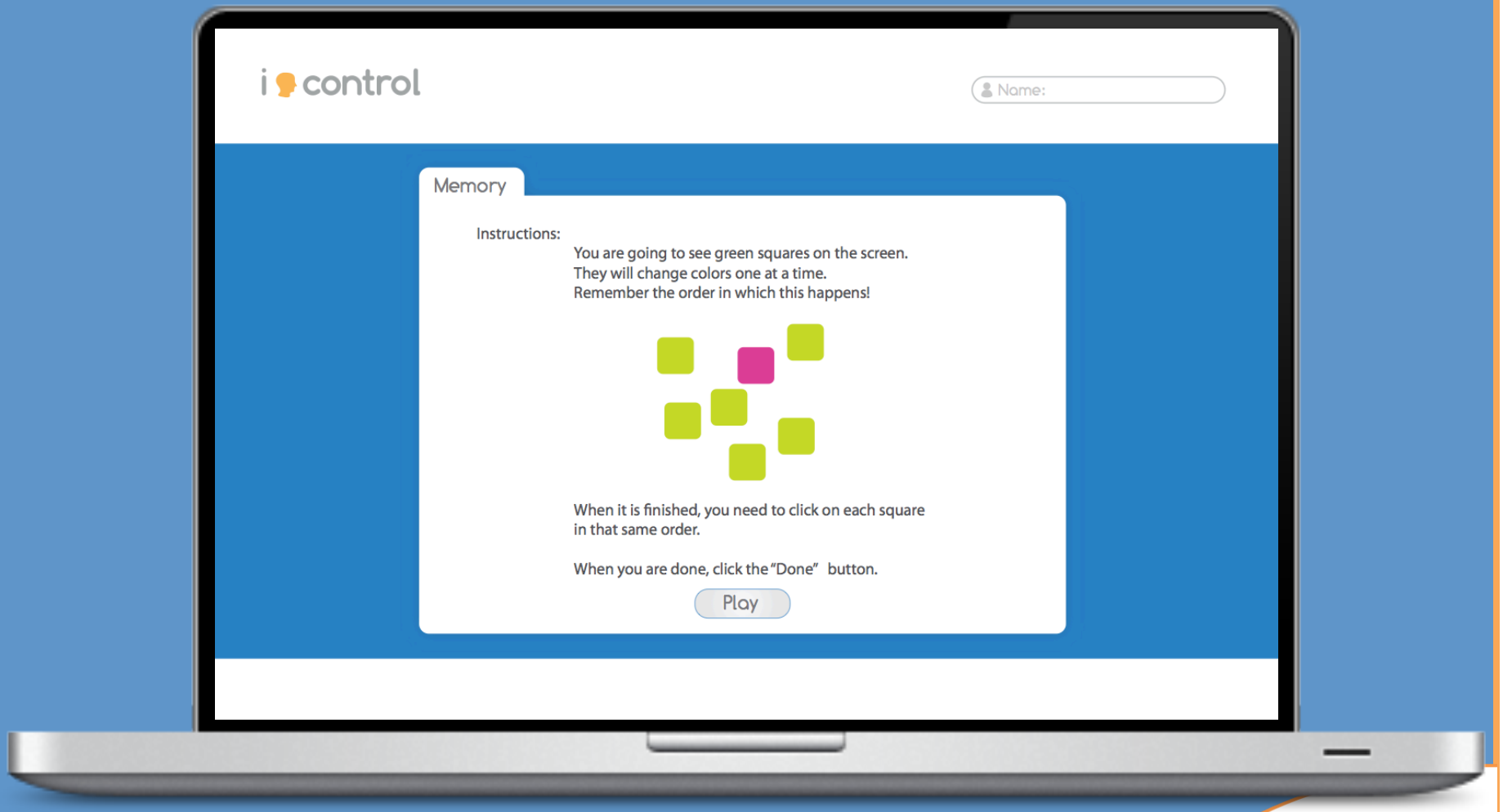
Brain Training Lab



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Brain Training Lab

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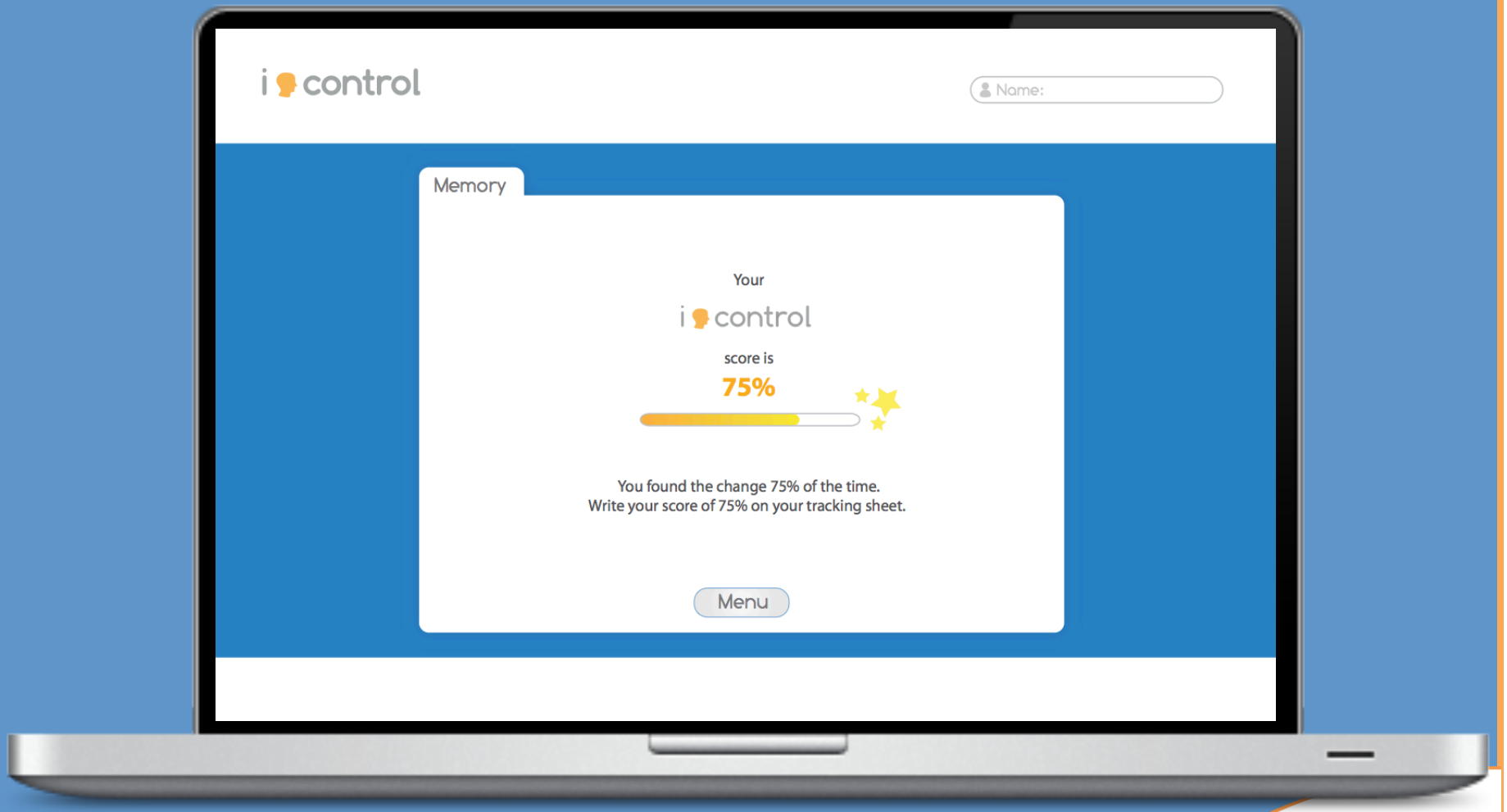

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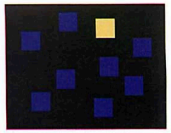
Working Memory

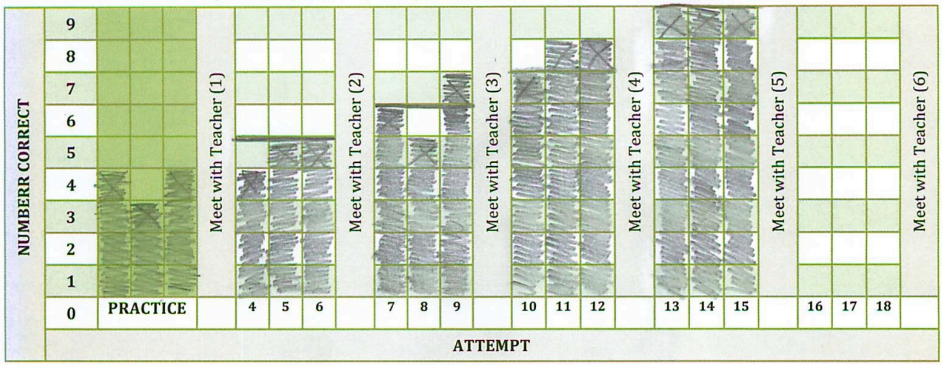
Corsi

LEVEL ONE

Complete: ☑



Complete the following bar graph with your performance of each trial.



Teacher Meeting Notes

Meet with Teacher (1)	Points
Great start! Reach for 5 next time!	+3
Meet with Teacher (2)	
Awesome progress. Keep it up!	+5
Meet with Teacher (3)	
Great focus to hit 7!	+5
Meet with Teacher (4)	
You've added in great strategy, keep it up!	+6
Meet with Teacher (5)	
Awesome! officially done – high as you can go!	+6
Meet with Teacher (6)	

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Level One

Novice

Working Memory

1	2	3	4	5	6	7	8	9

Shifting

1	2	3	4	5	6	7	8	9

Impulse Control

1	2	3	4	5	6	7	8	9

Content

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Rewards

Level One (Novice) Certificate
Access to Level 2 Brain Training Games
Select a Level 1 Reward

Completed on: _____

Certificate (Front)

LEVEL ONE

Novice

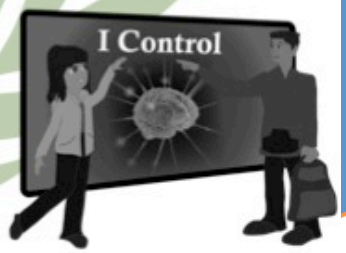
IN RECOGNITION OF COMPLETION OF
LEVEL ONE BRAIN TRAINING GAMES
IN THE I CONTROL PROGRAM

AWARDED TO

_____

_____

TEACHER SIGNATURE / DATE



Rewards

Level 1

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

Levels 2 & 3

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

Level 4

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

Bonus Level

- 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

Questions?