

Disparities in School Readiness: The Dallas Preschool Readiness Project

Margaret O'Brien Caughy, Sc.D.

University of Texas School of Public Health



Southern Methodist University

Department of Psychology

November 1, 2013

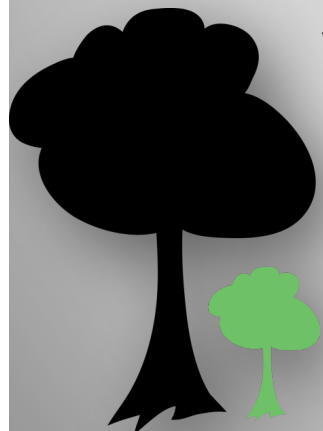
Disparities in School Readiness

- 34% of African American and 42% of Latino kindergarteners are in the lowest quartile of reading skills
- Early academic achievement is a strong predictor of graduation rates
- Achievement disparities a strong predictor of health disparities in adulthood



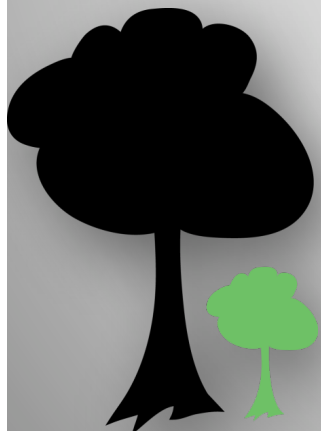
Self Regulation and School Readiness

- Greater capacity for self-regulation at school entry associated with better academic performance and behavioral adjustment in kindergarten and early elementary school (Cameron et al., 2012; Denham et al., 2012; Dilworth-Bart, 2012; Lan et al., 2011; McClelland, et al., 2007; Ponitz et al., 2009; Rimm-Kaufman, et al., 2009; Sektnan et al., 2010; Valiente et al., 2010)
- Associations hold after controlling for verbal IQ, temperament, and family SES (Ponitz et al., 2009; Valiente, et al., 2010)



What is self regulation?

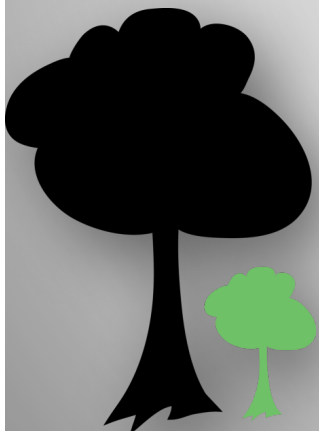
“Primarily volitional cognitive and behavioral processes through which an individual maintains levels of emotional, motivational, and cognitive arousal that are conducive to positive adjustment and adaptation, as reflected in positive social relationships, productivity, achievement, and a positive sense of self.”



Blair, C. B., & Diamond, A. (2008). Biological processes in prevention and intervention: The promotion of self-regulation as a means of preventing school failure. *Development and Psychopathology*, 20, 899-911.

Table 2. Percentage of Teachers (Means and Standard Errors) Who Said that About Half of the Class or More Enter Kindergarten with Specific Problems (N = 3,595)

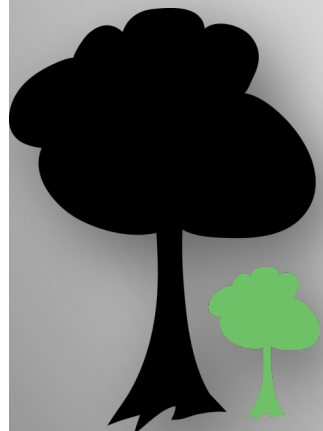
Type of Problem	Percentage of Teachers (SE)
Difficulty following directions	46.16 (1.07)
Lack of academic skills	36.26 (0.98)
Disorganized home environment	34.54 (1.00)
Difficulty working independently	34.39 (1.02)
Lack of any formal preschool experience	30.79 (0.99)
Difficulty working as part of a group	30.45 (0.99)
Problems with social skills	20.39 (0.88)
Immaturity	19.87 (0.87)
Difficulty communicating/language problems	13.50 (0.72)



Rimm-Kaufman, S. E., Pianta, R. C., & Cox, M. J. (2000). Teachers' judgments of problems in the transition to kindergarten. *Early Childhood Research Quarterly, 15*, 147-166.

Another definition of self regulation

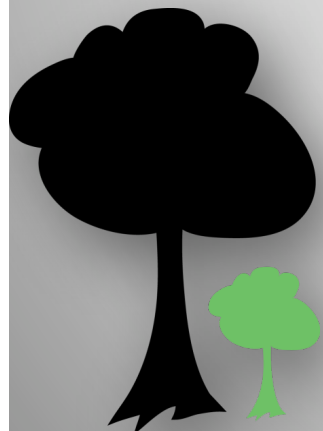
“Emotion regulation and executive function are both control processes that are linked in fundamental ways to more basic physiological and attentional processes and have consequences for later-developing and more sophisticated social and cognitive skills”



Calkins, S. D., & Marcovitch, S. (2010). Emotion regulation and executive functioning in early development: Integrated mechanisms of control supporting adaptive functioning. In S. D. Calkins & M. A. Bell (Eds.), *Child development at the intersection of emotion and cognition*. Washington, D.C.: American Psychological Association.

Another definition of self regulation

“We ... embed these processes within the larger construct of self regulation. So, one way to conceptualize the self-regulatory system is to describe it as adaptive control that may be observed at the level of physiological, attentional, emotional, behavioral, cognitive, and interpersonal or social processes.”



Calkins, S. D., & Marcovitch, S. (2010). Emotion regulation and executive functioning in early development: Integrated mechanisms of control supporting adaptive functioning. In S. D. Calkins & M. A. Bell (Eds.), *Child development at the intersection of emotion and cognition*. Washington, D.C.: American Psychological Association.

Inhibition

= *The ability to ignore distraction and stay focused, and to resist making one response and instead make another*

The ability to hold information in mind and manipulate it

=

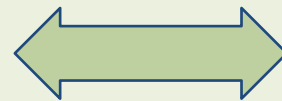


EF

The ability to flexibility switch perspectives or focus of attention

=

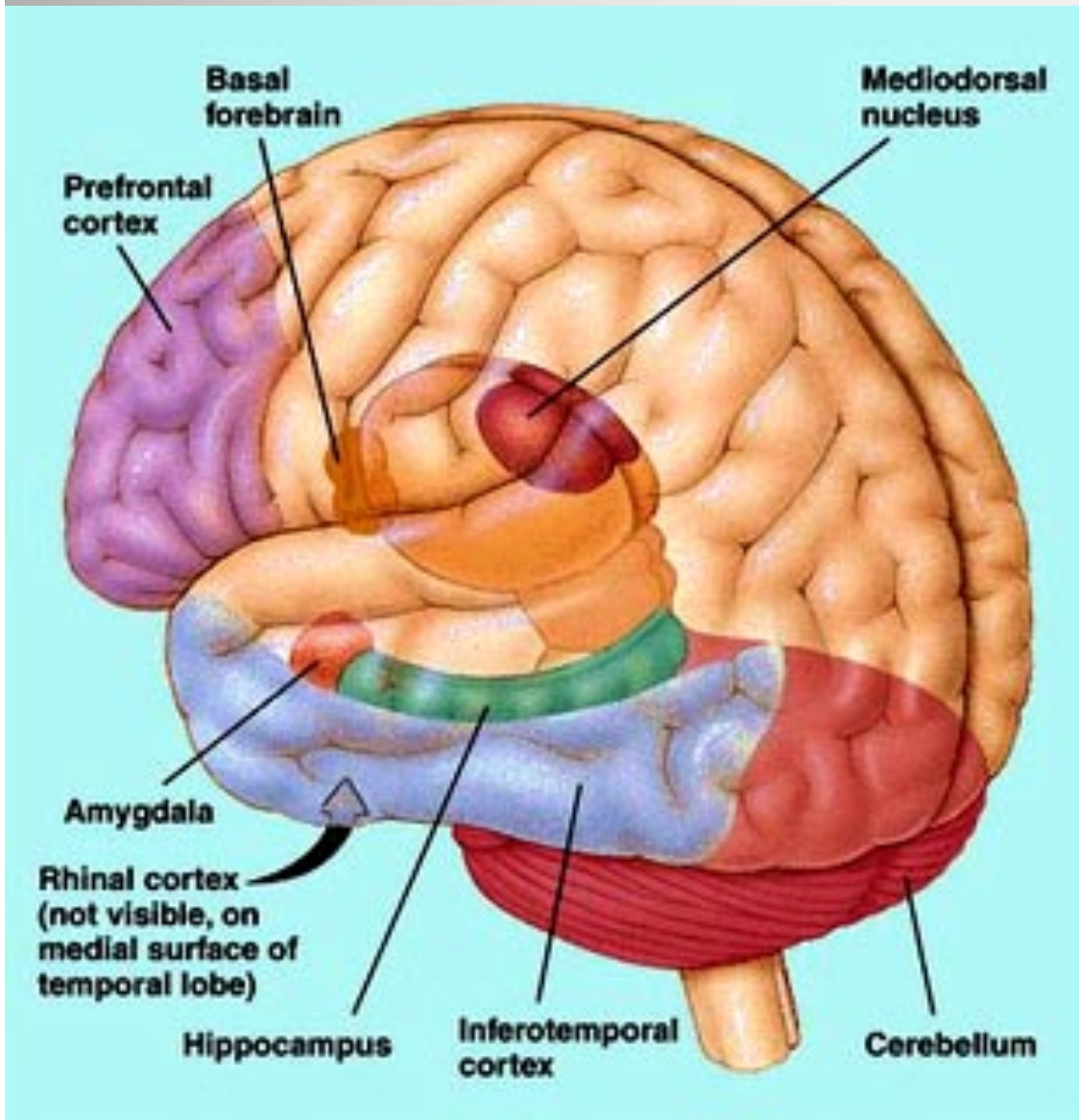
Working
memory



Cognitive
flexibility

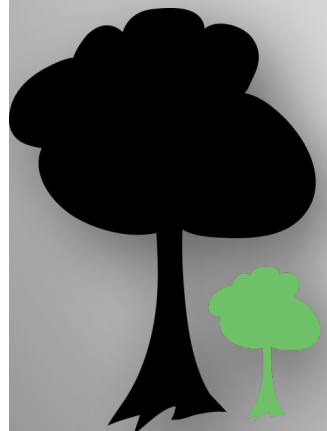
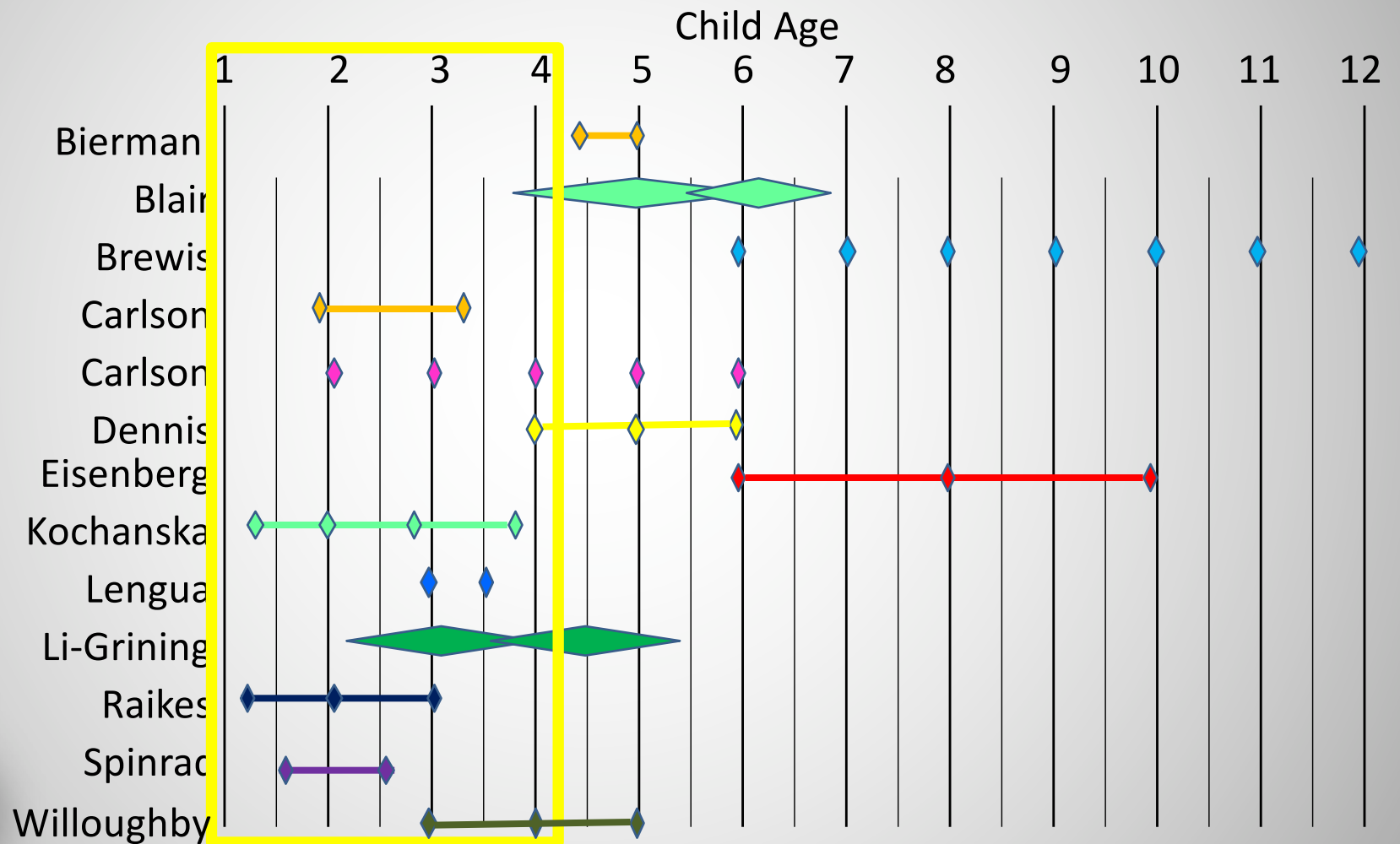
Diamond, A. (2006). The early development of executive functions. In E. Bialystok & F. I. M. Craik (Eds.), *Lifespan cognition: Mechanisms of change* (pp. 70-95). New York: Oxford University Press.

Developmental course of self regulation



- PFC and ACC - control higher order processes including planning, monitoring and goal setting; effortful
- Amygdala, hypothalamus - responsive to emotional cues; more automatic
- Connected in a feedback loop

What do we know about development trajectories for EF?



Dallas Preschool Readiness Project

Funded by the *Eunice Kennedy Shriver* National Institute of Child Health and Development

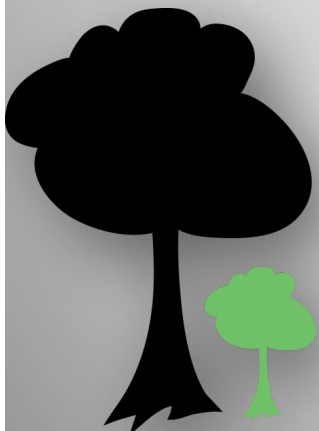
- 407 preschoolers enrolled at age 2½ years
 - 183 African American, 224 Latino
 - Average family income: 82% FPL (54.5% of African American and 14.8% of Latino families < 50% FPL)
 - 14.8% of African American and 42.8% of Latino caregivers had less than a high school education
 - 73% of Latino caregivers foreign-born; 75% Spanish-speaking
- 366 followed up at age 3½ years (90% follow up rate)
 - 86% follow up rate for African American families
 - 93% follow up rate for Latino families



Dallas Preschool Readiness Project

Funded by the *Eunice Kennedy Shriver* National Institute of Child Health and Development

- Two home visits
- Measures
 - Self regulation/executive function
 - Parent-child interaction (mother-child and father-child)
 - Family/household characteristics
 - School readiness
 - Child behavior problems (T1 and T2)
 - Child language (T2)
 - Pre-academic skills (T2)

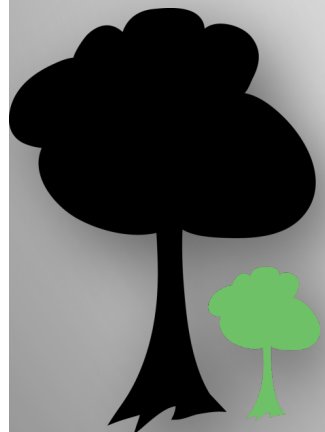


Self Regulation & Executive Function Tasks at 2 Ages

Time 1 – 2½ years	Time 2 – 3½ years
Snack Delay	Snack Delay
Wrapped Gift	Wrapped Gift
Forbidden Toy	Mommy & Me
Mommy & Me	Heads & Toes
Shape Stroop	Dimensional Change Card Sort
	Memory Task

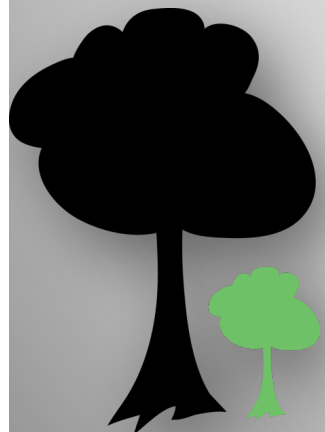


Snack Delay

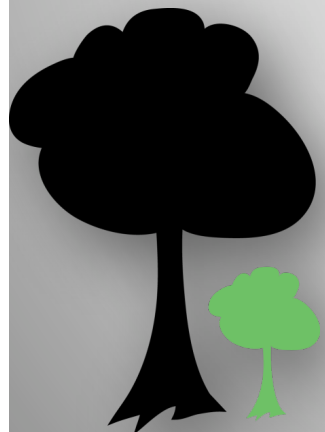


Wrapped Gift

Wrapped Gift



Forbidden Toy

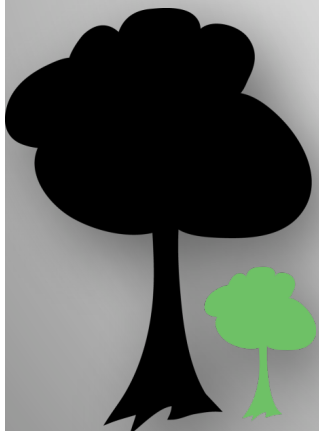


Shape Stroop and Mommy & Me

"Show me the baby grapes"



Mommy & Me



**Dallas Preschool
Readiness Project**

Heads, Toes, Knees & Shoulders

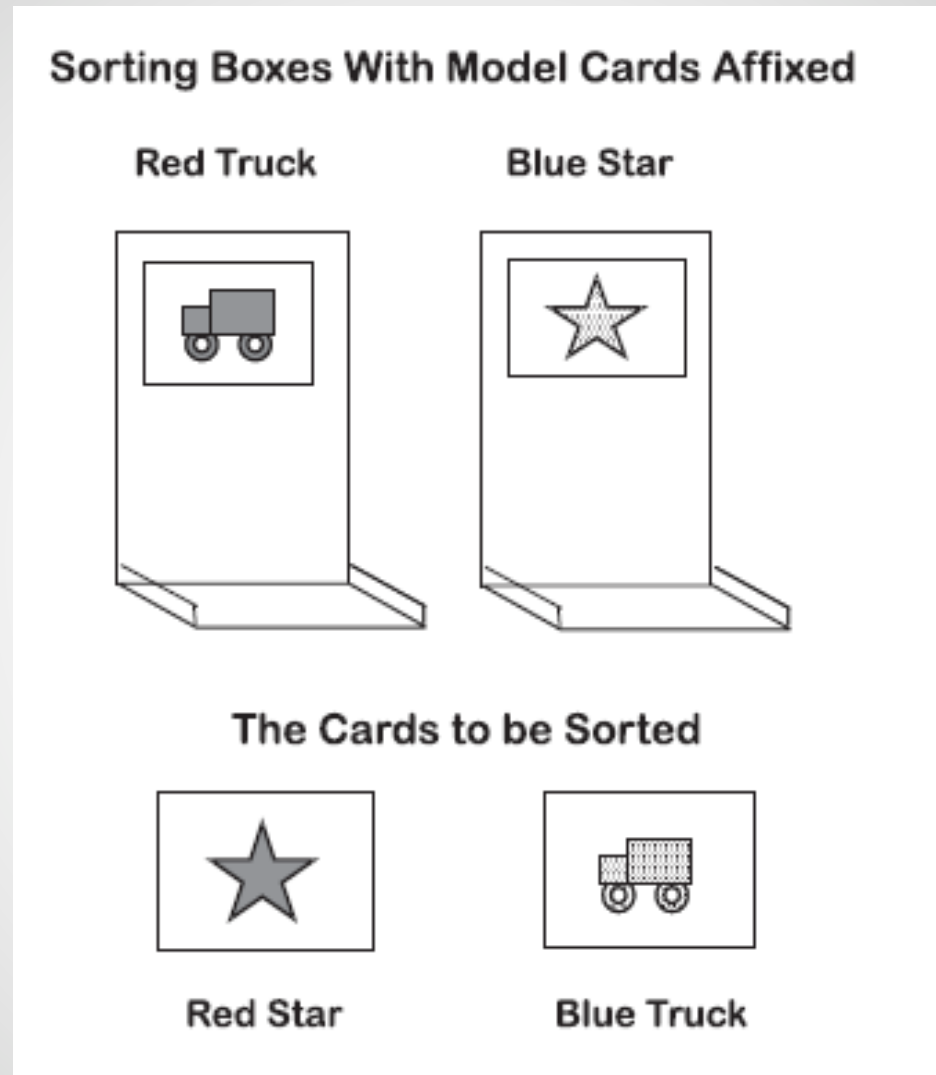


Ponitz et al., (2008). Touch your toes! Developing a direct measure of behavioral regulation in early childhood. *Early Childhood Research Quarterly*, 23, 141-158.

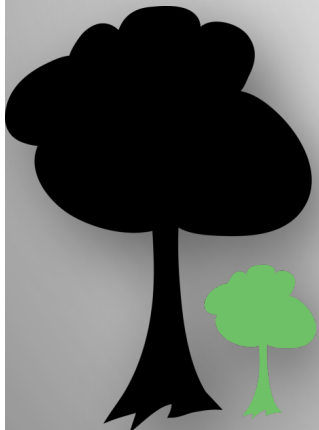
Ponitz et al., (2009). A structured observation of behavioral self-regulation and its contribution to kindergarten outcomes. *Developmental Psychology*, 45(3), 605-619.



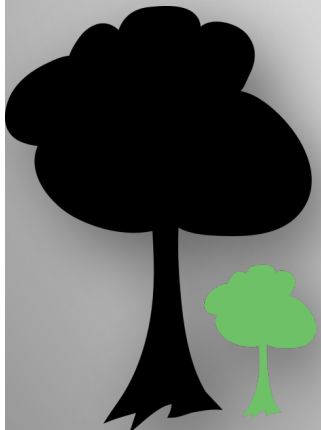
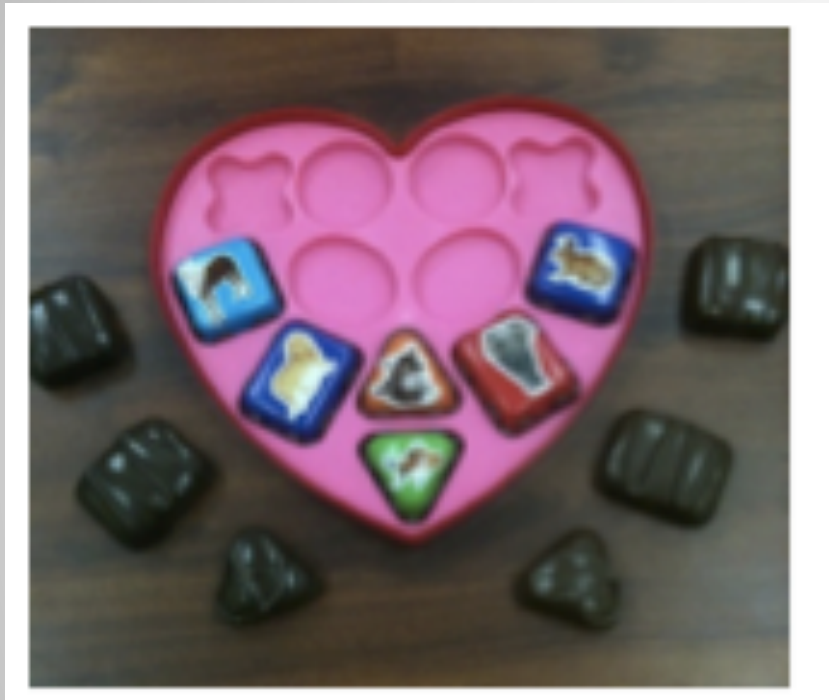
Dimensional Change Card Sort



Diamond, A., Carlson, S. M., & Beck, D. M. (2005). Task switching on the dimensional change card sort task: Separating the dimensions aids the ability to switch. *Developmental Neuropsychology*, 28, 689-729.

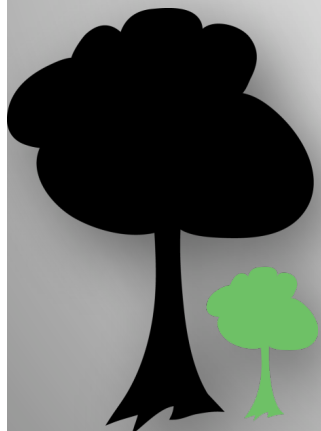


Memory Chocolates (working memory)

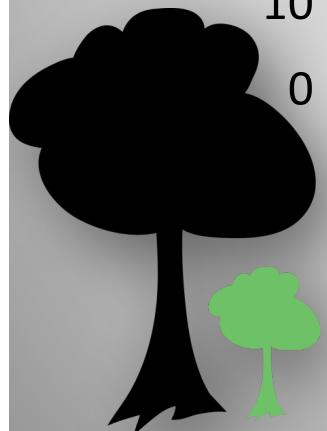
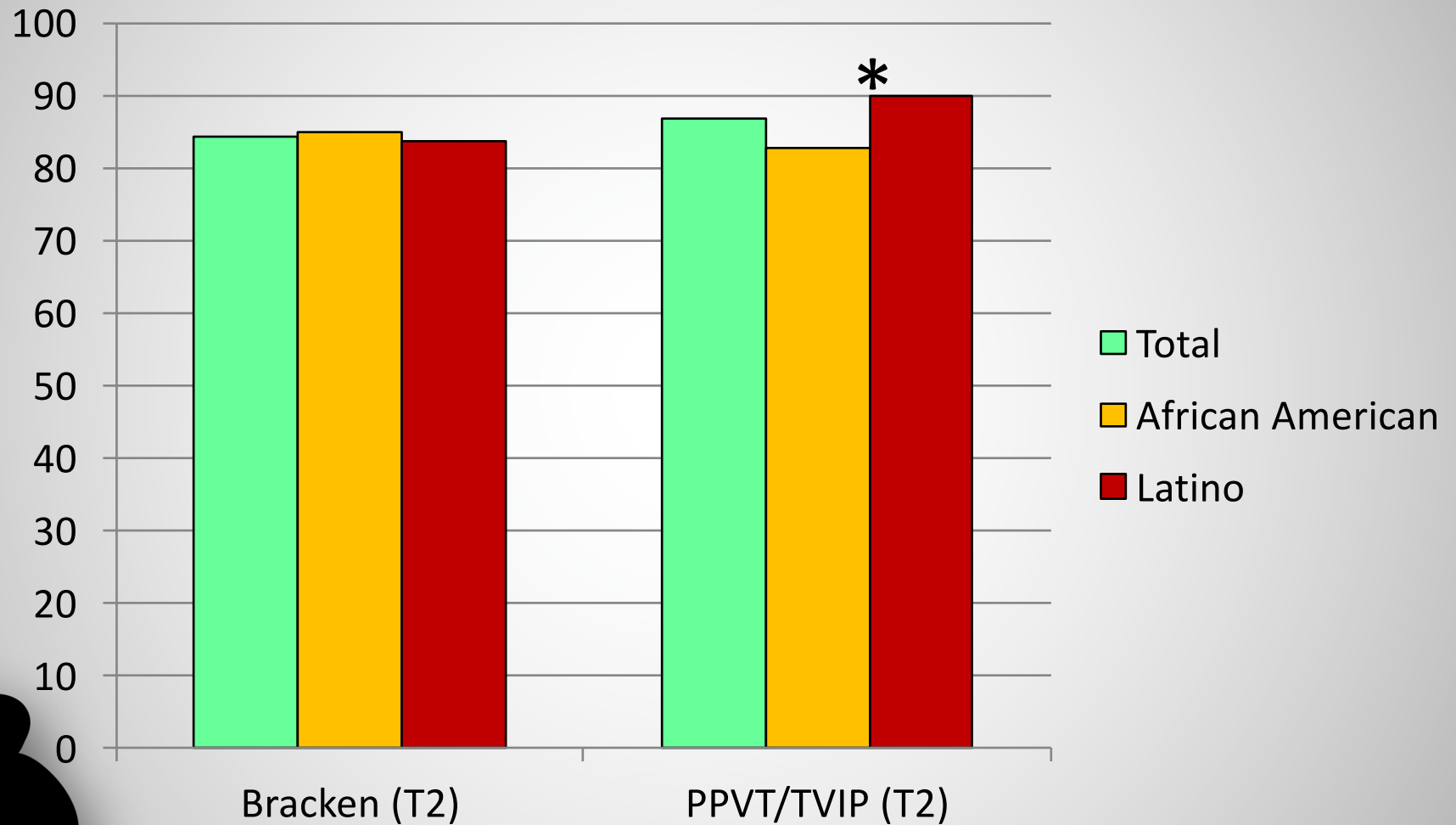


DPreP Findings Overview

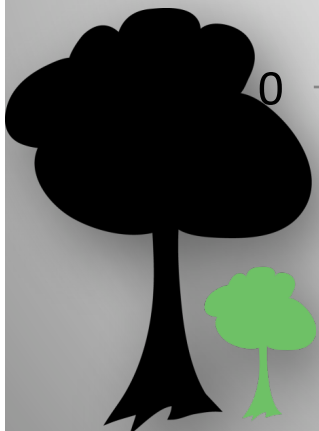
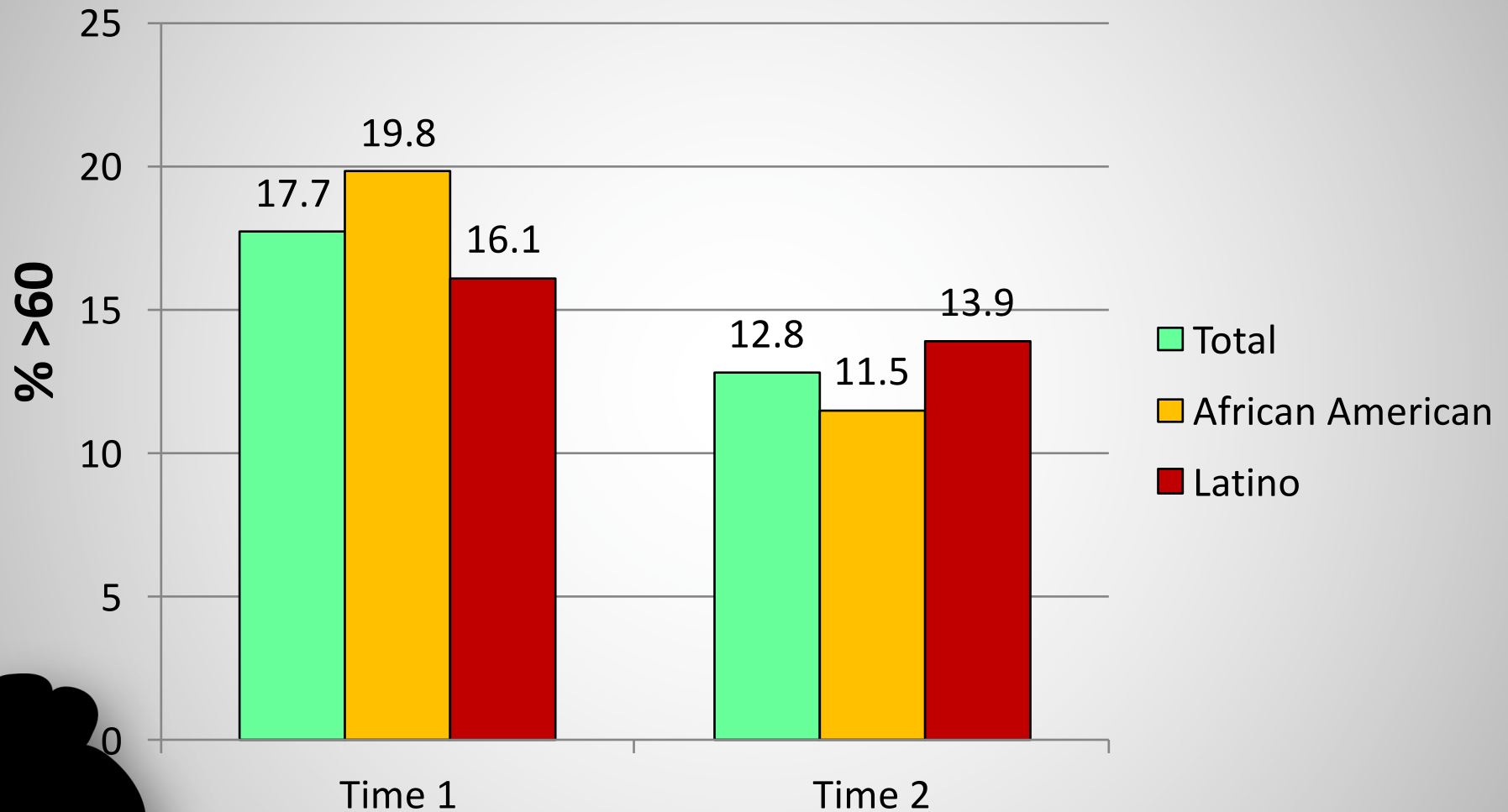
- Patterns of school readiness
- Patterns of self regulation skill development
- Determinants of self regulation and school readiness



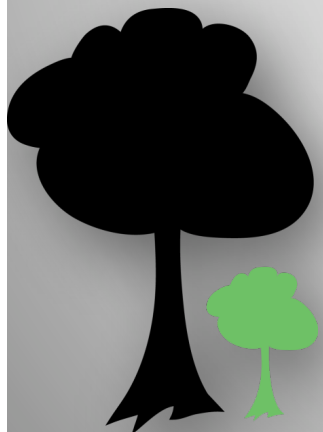
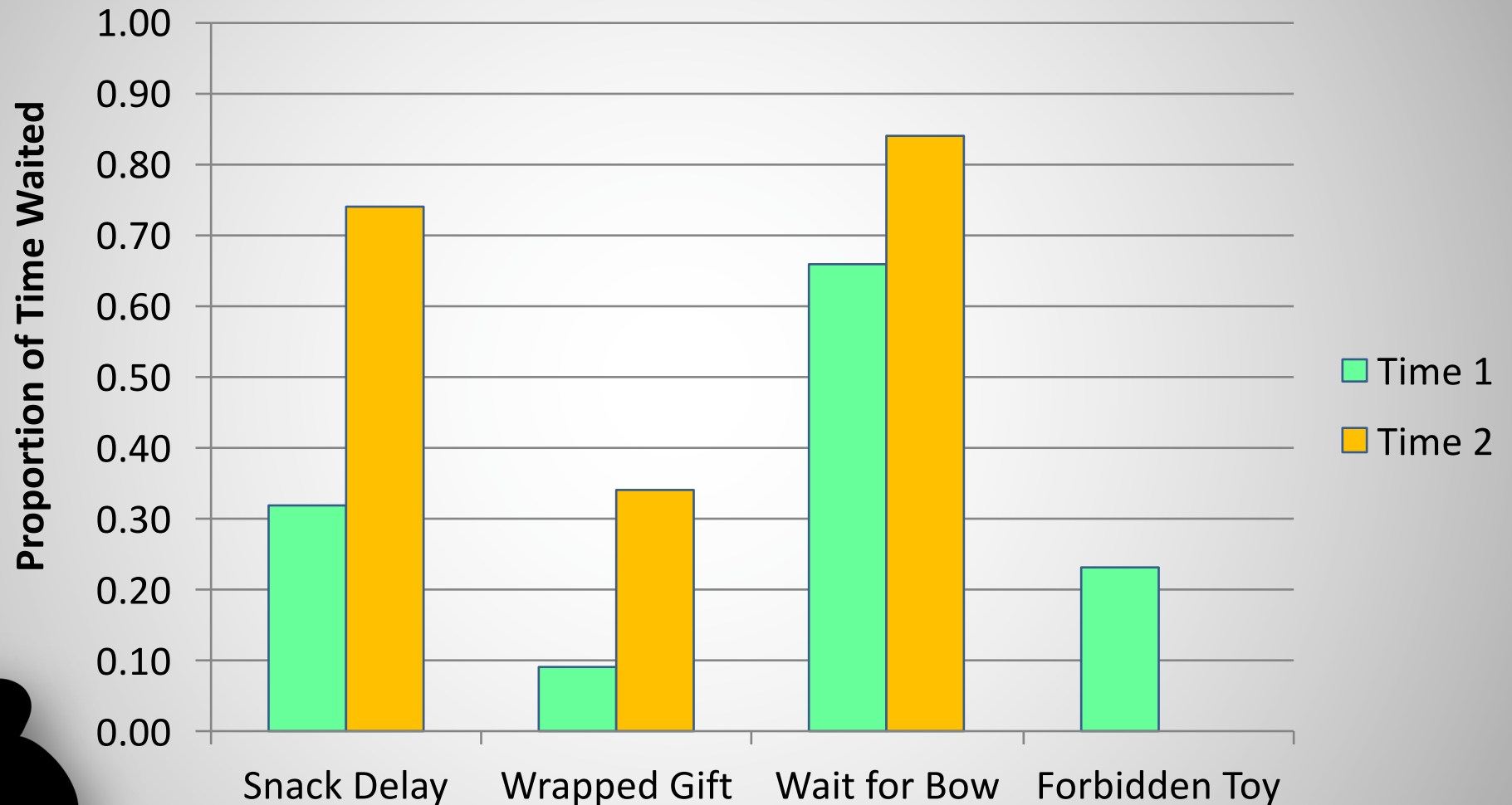
DPRReP Findings Overview: Patterns of School Readiness



DPRReP Findings Overview: Externalizing Behavior Problems

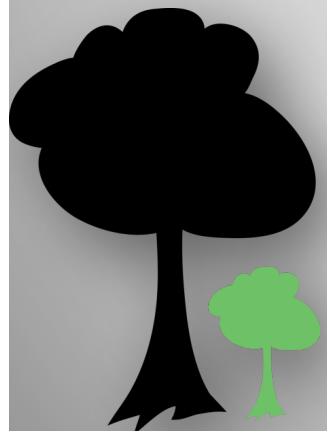
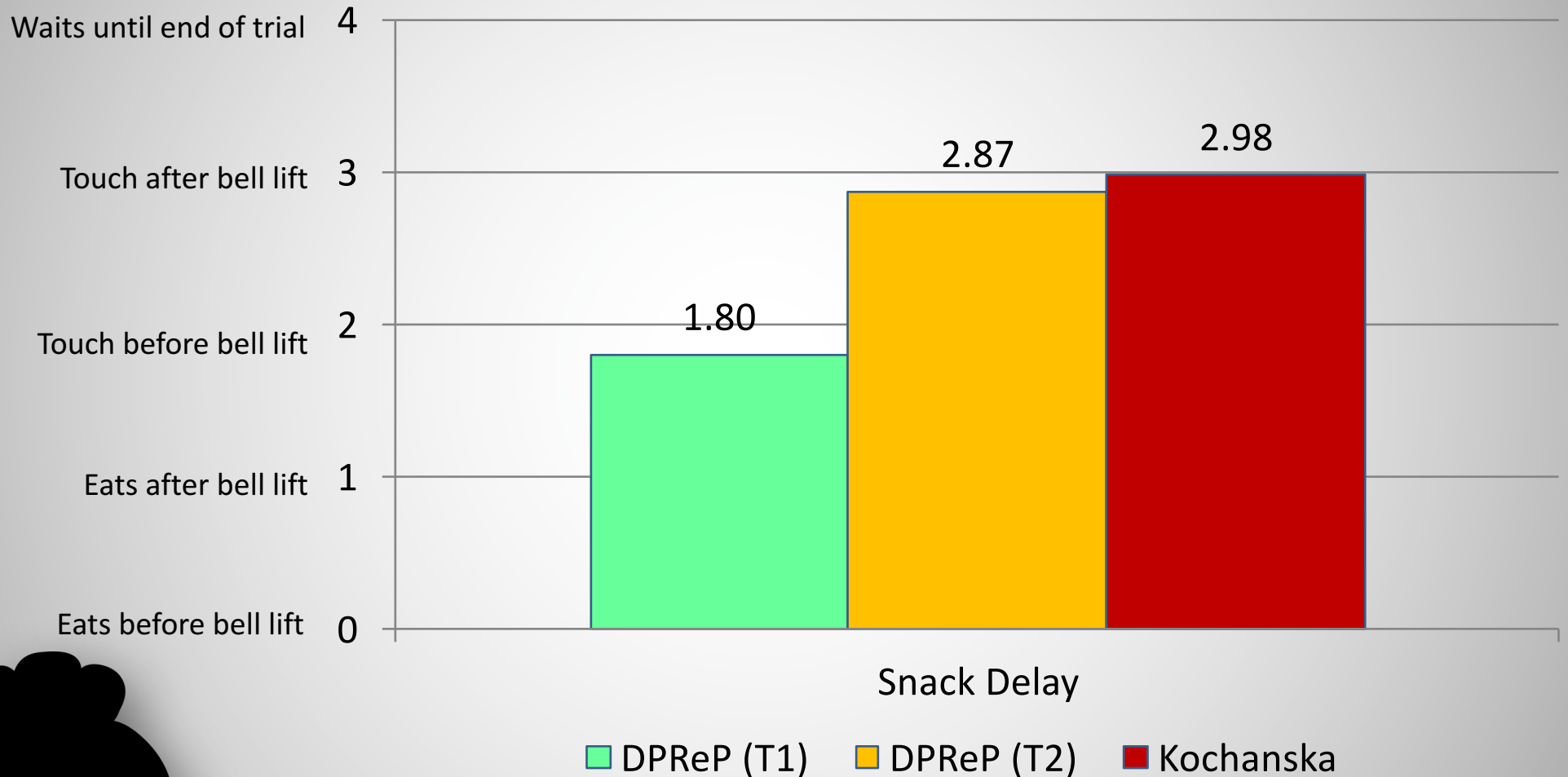


DPRReP Findings Overview: Patterns of Self Regulation Development



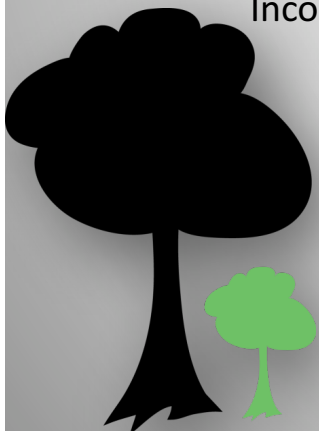
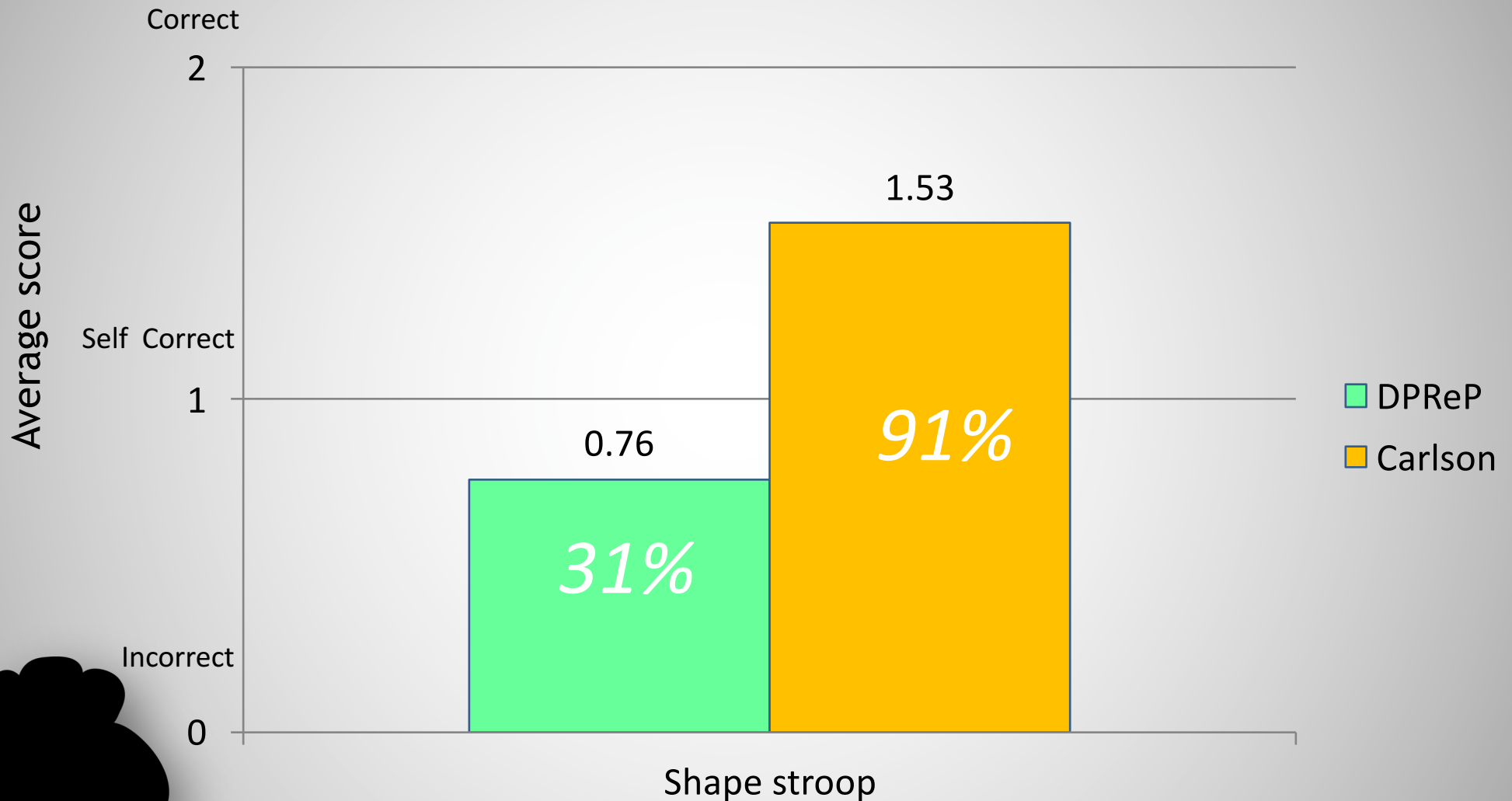
Cross-sample comparison

“Touch” score



Kochanska et al., (1996). Age: 26-41m
(mean 32m)

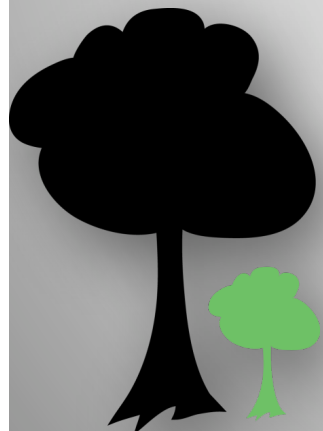
Cross-sample comparison



Carlson, Mandell, & Williams, 2004
Age: 24m

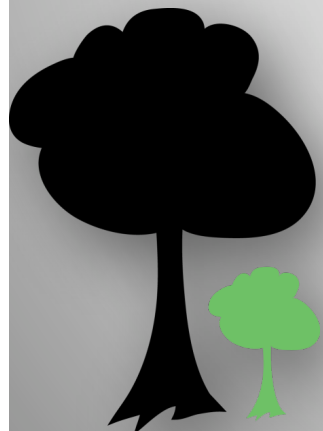
Self Regulation Factor Model

- Inhibitory control (T1 and T2)
 - Snack Delay
 - Wrapped Gift/Wait For Bow
 - Forbidden Toy
- Complex response inhibition (T2 only)
 - Mommy & Me
 - Heads & Toes
- Set Shifting (T2 only)
 - DCCS
- Working Memory (T2 only)
 - Memory Span



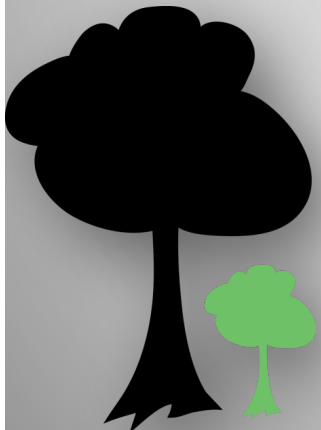
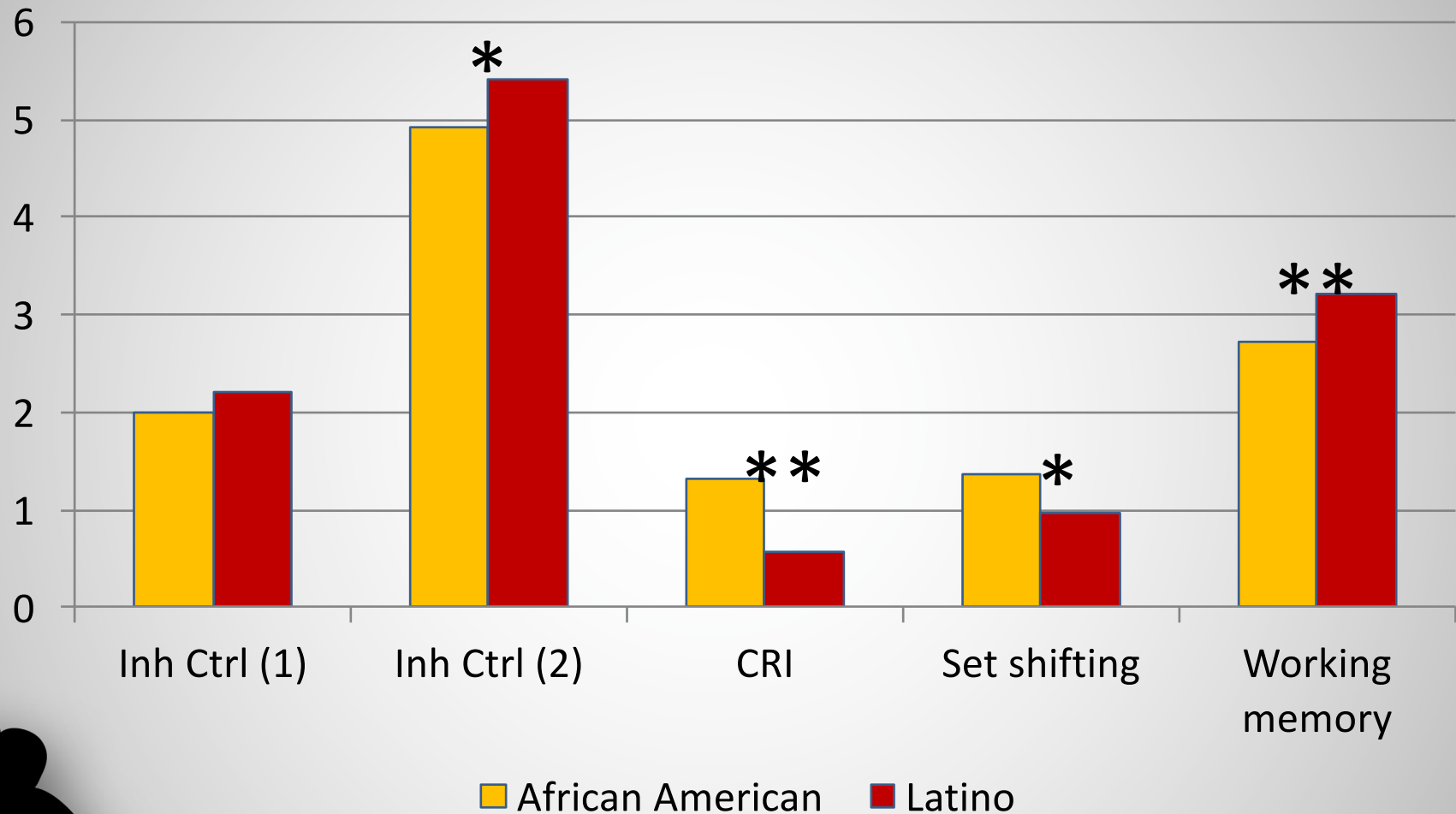
DPRReP Findings Overview: Self Regulation and School Readiness

	IC1	IC2	CRI	SS	WM	BR	PPVT	CBCL
Inhibitory control (T1)	1.00							
Inhibitory control (T2)	.30	1.00						
Complex response inhibition	.08	.11	1.00					
Set shifting	.05	.08	.10	1.00				
Working memory	.11	.18	-.02	.00	1.00			
Bracken	.25	.22	.15	.16	.22	1.00		
PPVT/TVIP	.16	.29	.03	.07	.27	.44	1.00	
CBCL	-.05	-.16	-.01	-.09	-.11	-.16	-.09	1.00


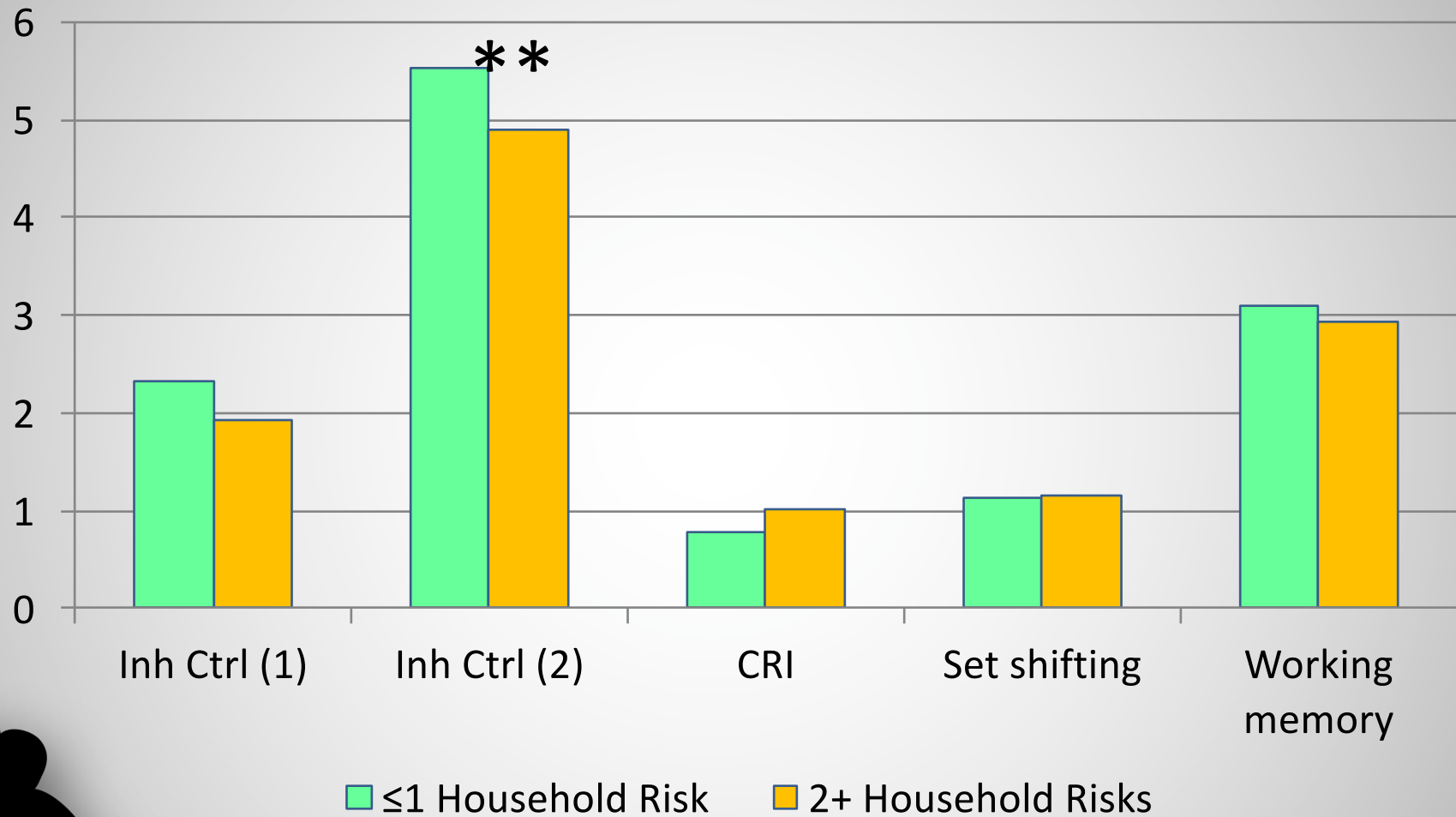


Bold font indicates $p < .05$

DPRReP Findings Overview: Determinants of Self Regulation



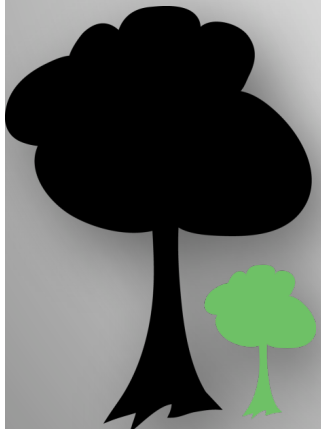
DPRReP Findings Overview: Determinants of Self Regulation



Household risk factors: PCG <HS education; below 50% FPL, single parent, child:adult ratio 3+; change in PCG; change in PCG partner; household move; neighborhood/household safety concerns; PCG depression; PCG harsh during interaction

DPRReP Findings Overview: Determinants of Self Regulation

	Parenting Sensitivity Composite (sensitivity, cognitive stimulation, positive regard, -negative regard, -detachment)	Parent Intrusiveness
Inhibitory control (T1)	.21**	-.21**
Inhibitory control (T2)	.15**	-.16**
Complex response inhibition	-.02	-.08
Set shifting	-.00	-.11
Working memory	.13*	-.07

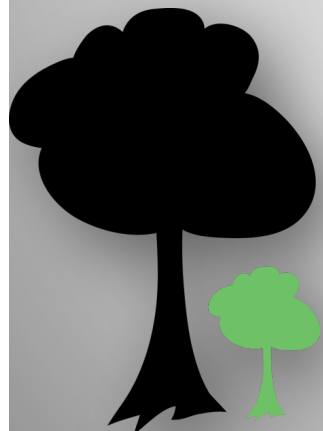


* $p < .05$; ** $p < .01$

DPreP Findings Overview:

Direct and indirect effects of parenting

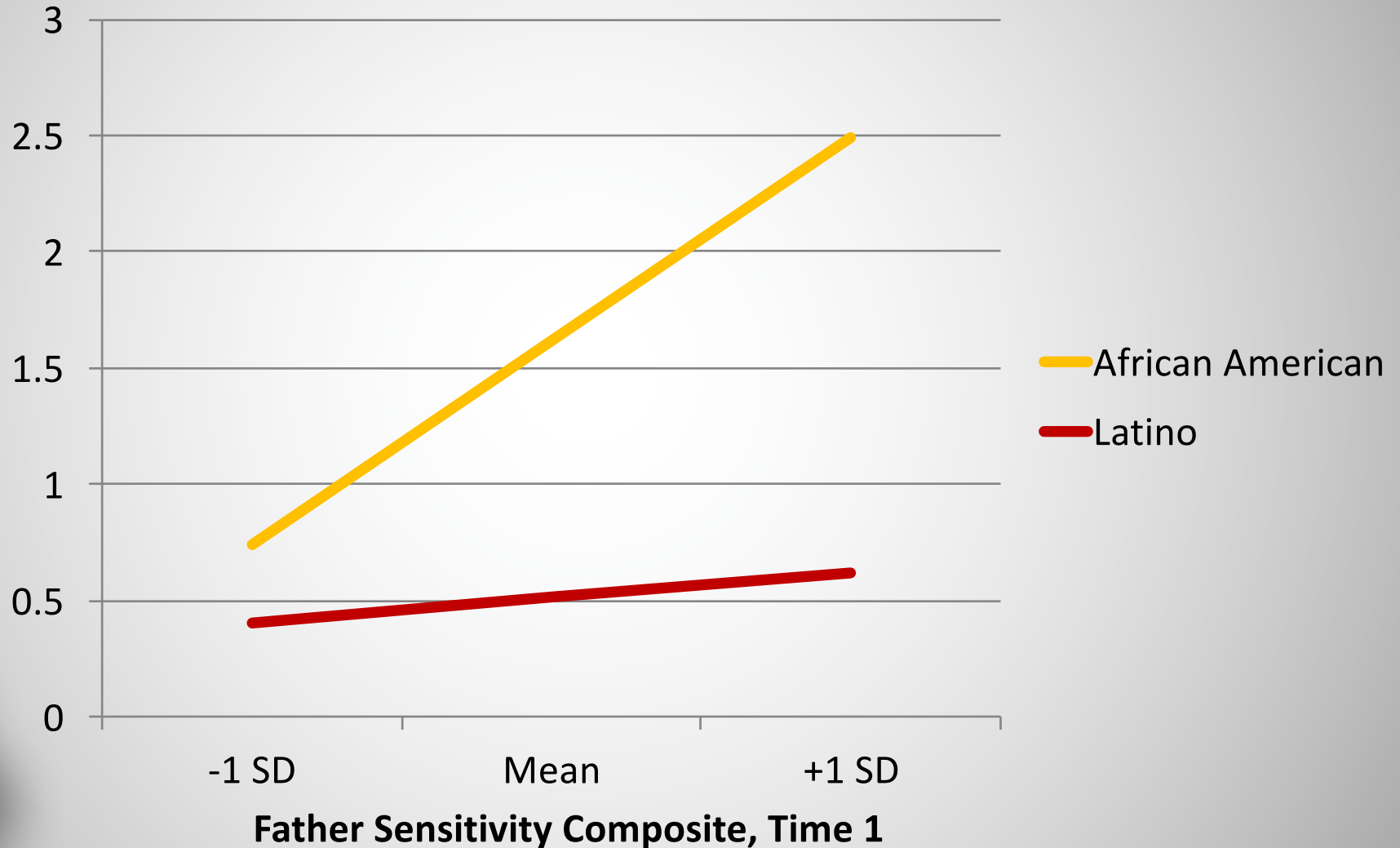
- Caregiver sensitivity
 - Directly associated with higher PPVT scores for all
 - Indirectly associated with higher PPVT scores (via IC and WM) for Latinos in higher risk households
- Caregiver intrusiveness
 - Directly associated with lower IC for all
 - Indirectly associated with lower Bracken scores (via IC) for African Americans living in higher risk households
 - Indirectly associated with lower PPVT scores (via IC) for Latinos living in higher risk households



DPRReP Findings Overview:

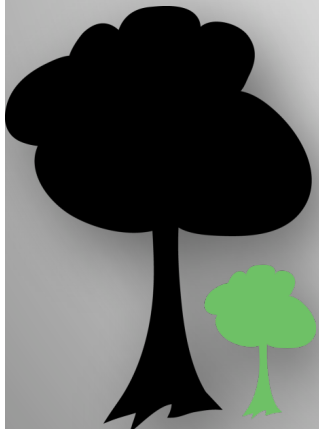
Fathering and Self Regulation Development

Complex
Response
Inhibition,
Time 2



Model adjusted for family income and mother sensitivity composite

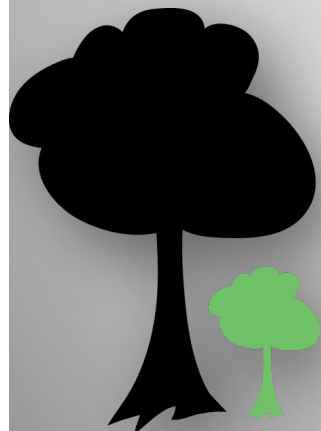
Adapted from Owen et al. 2013



Dallas Preschool Readiness Project:

Next Steps

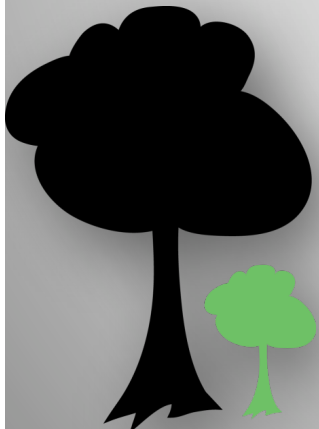
- Finalizing coding of T2 parent-child interaction data
- How to model joint influence of mothering and fathering?
- Spin-off analyses
 - Racial socialization practices and school readiness
 - Gender differences in the relation between parenting and change in behavior problems among Latinos
 - Spatial analyses
 - Changes in profiles of mothering (Hasanizadeh dissertation)
 - Maternal behavior, child language, and self regulation among Spanish-speakers (Peredo thesis)
 - Partner relationship quality, maternal depression, and child adjustment (Thomas dissertation)
 - Bilingualism and DCCS performance (N'ganga thesis)



Dallas Preschool Readiness Project:

Next Steps

- Phase 2 data collection (Kindergarten and first grade follow-ups) starting this fall
 - Will include teacher-reported data
- Related projects
 - Language development and self regulation development in ELLs (with Raul Rojas)
 - *Juega Conmigo* evaluation (Owen as part of Center for Children and Families)
 - Exploratory data collection/analysis of child BMI



Dallas Preschool Readiness Project

Funded by the *Eunice Kennedy Shriver* National Institute of Child Health and Development

Principal Investigators

Margaret O'Brien Caughy, Sc.D and Margaret Tresch Owen, Ph.D.

Phase 1 Project Staff

Jerry Roberson, DrPH, Project Director

Jamie Hurst, PhD, Lab Manager

Melissa Amos

Plaststilla Arnold

Adriana Villa Baird

Carmen Gonzalez

Nazly Hasanizadeh

Ana Maria Mata-Otero, PhD

Bunnoi McDaniel

Caroline Mejias

Junie Shrestha

Clare Stevens

Phase 2 Project Staff

Dawn Brinkley, Project Director

Suzy Armstrong

Plaststilla Arnold

Erica Ball

Maria Barrientos

Carmen Gonzalez

Nazly Hasanizadeh

Gabriella Jairala

Dulce Martinez

June N'ganga

Daniel Pacheco

Tatiana Peredo

