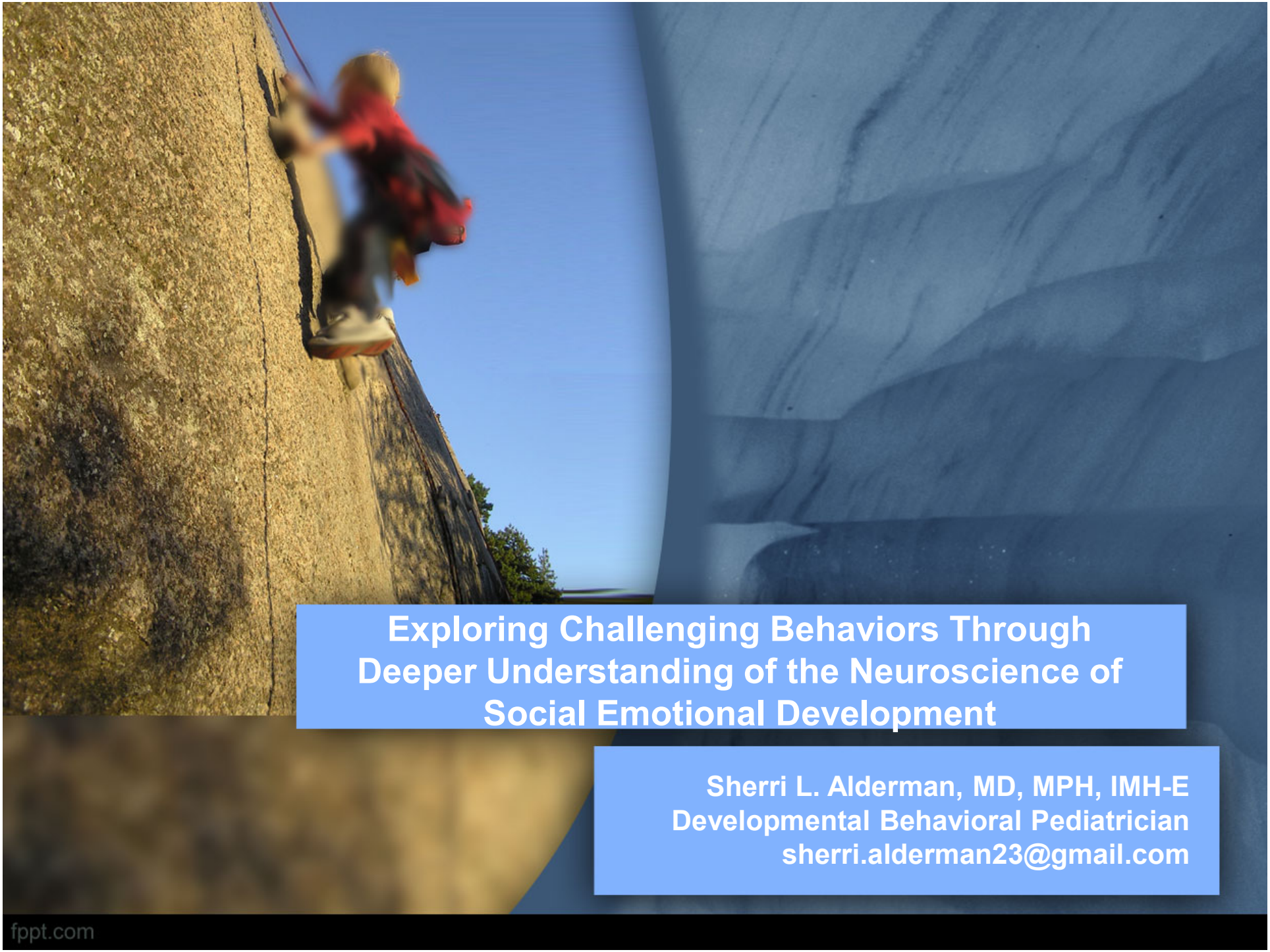

Exploring Challenging Behaviors Through Deeper Understanding of the Neuroscience of Social Emotional Development

Sherri L. Alderman, MD, MPH, IMH-E
Developmental Behavioral Pediatrician
sherri.alderman23@gmail.com

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Disclaimer

- I have no financial interests to disclose

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Goals & Objections

- Understand the neuroscience of social emotional development
- Describe social emotional development as dynamically and progressively building on environmental experiences in early childhood
- Reframe challenging behaviors as communication of emotional needs previously adapted to other environmental settings that are now maladaptive in new and different conditions and behavioral expectations

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Agenda

- Part 1: Setting the Stage
- Part 2: Neuroscience, Neurochemistry & Mirror Neurons
- Part 3: Social Emotional Developmental Model & Stress
- Part 4: Implicit Bias
- Part 5: Trauma-Informed Workplace

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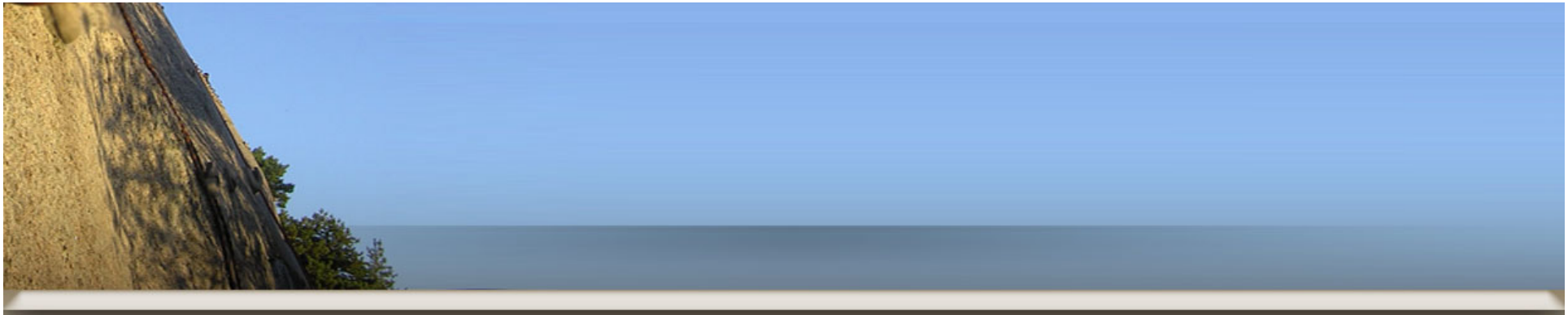

Part 1

Setting the Stage

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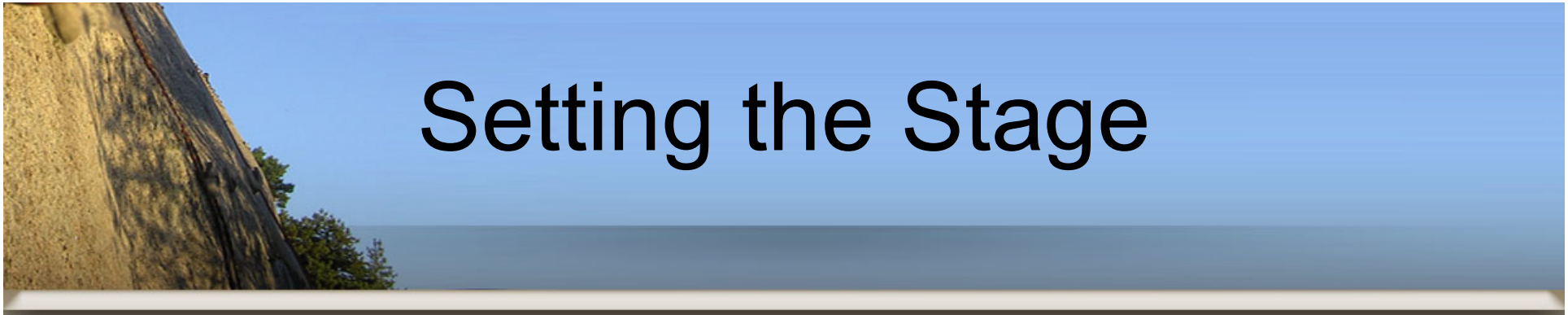

Setting the Stage

- 60% of children have experienced some kind of violence within the last year
- 11% have experienced 5 or more types of violence
  - Child abuse and neglect
  - Community crime exposure
  - Family abuse exposure

Finkelhor 2009

- Chronic stress adversely impacts brain architecture beginning prenatally and leads to social emotional and cognitive developmental delay and impaired kindergarten readiness

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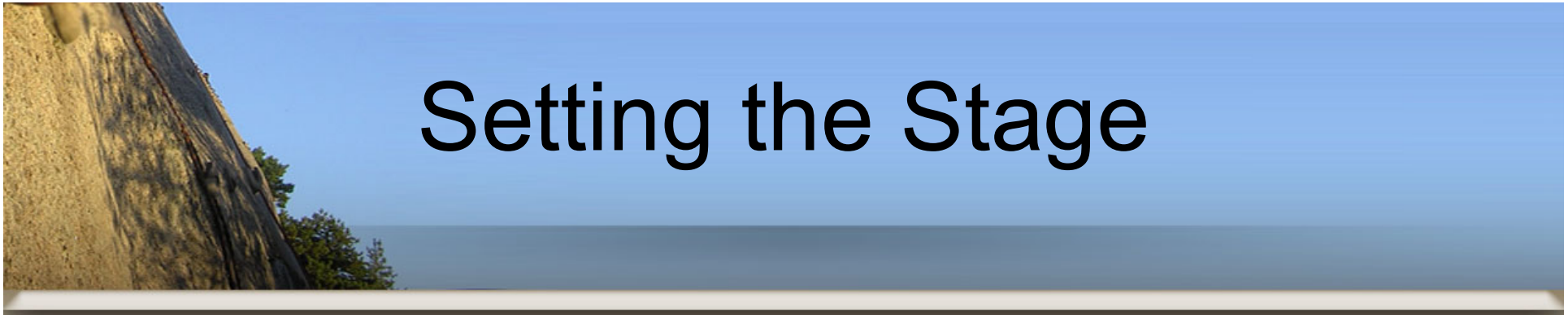

Setting the Stage

- Providing children with a safe, nurturing environmental experience in relationships with mature, regulated, emotionally engaged adults builds and repairs social emotional development
- Social emotional development, cognitive development and literacy skills are closely linked

National Research Council & IOM 2000, 2001
Miles & Stipek 2006
Raver 2002
Hair, Halle, Terry-Humen et al. 2006

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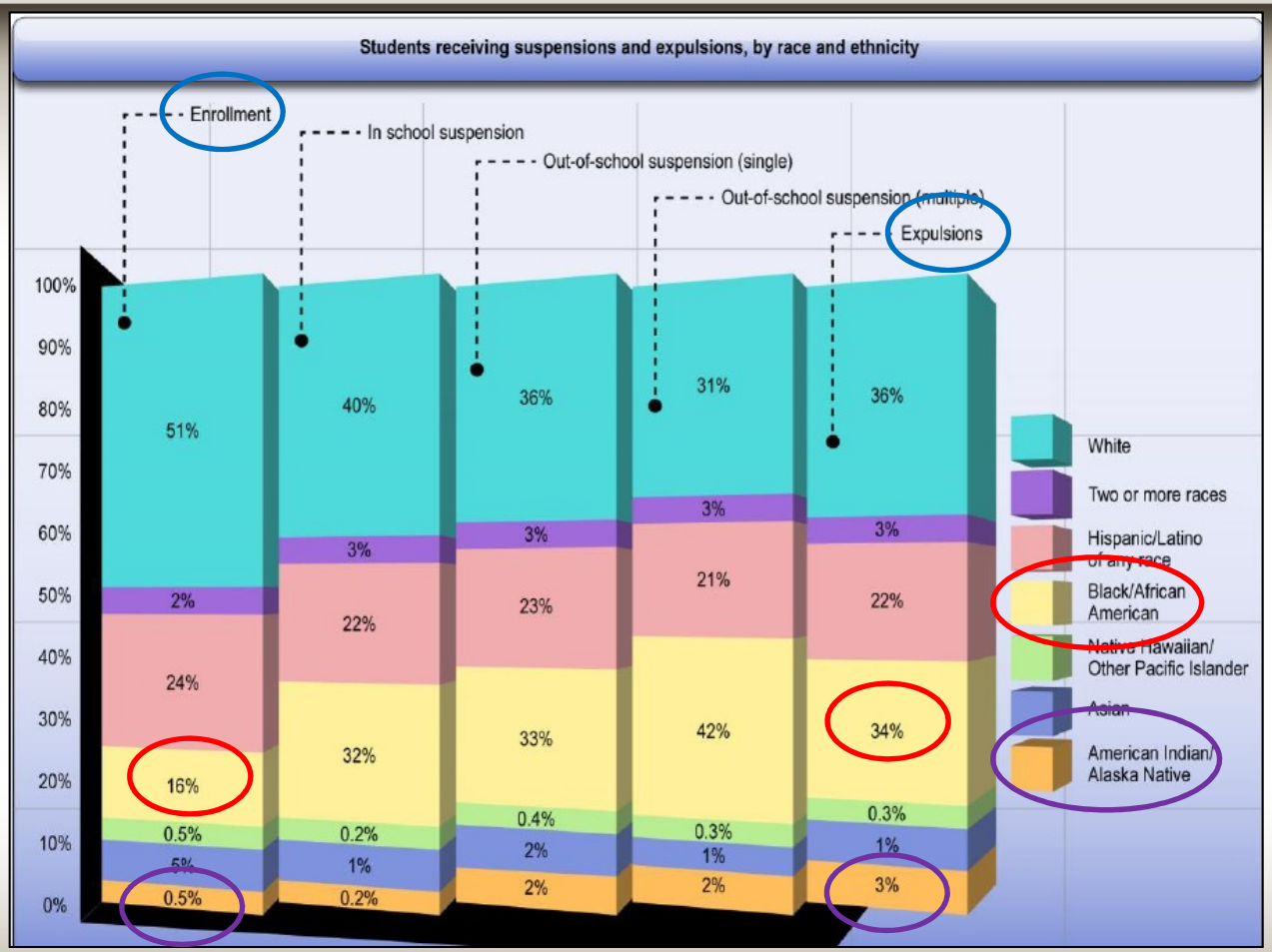
Setting the Stage

School Suspension & Expulsion by Race/Ethnicity



US DOE Office for Civil Rights 2014

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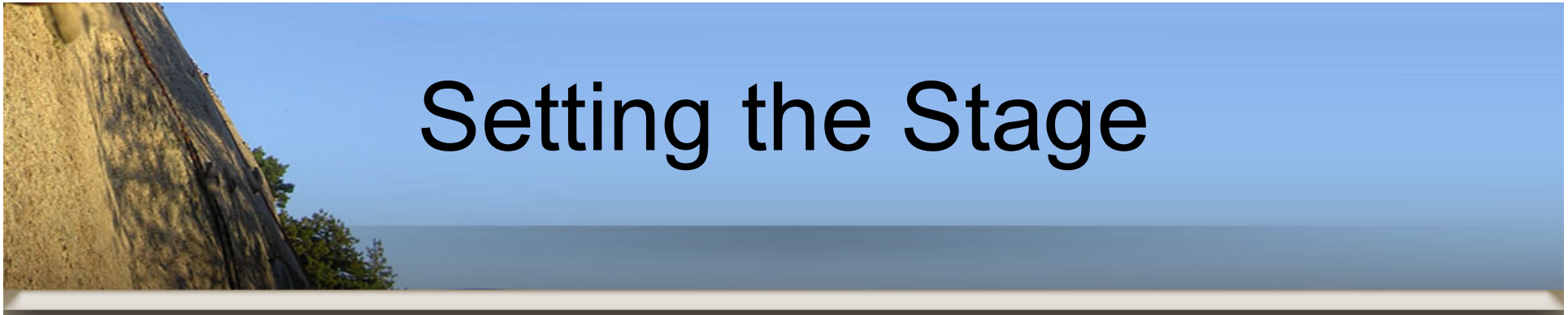

Setting the Stage

- Black students and Native Americans (K-12 & preschool) are suspended and expelled at a rate 3 times greater than white students

US DOE Office for Civil Rights 2014

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Setting the Stage

National & Oregon K-12 Expulsion by Sex 2011-12				
		Number expelled	**Rate of expulsion (per 10,000 students)**	**Percent of total expelled**
Boys	Oregon	1529	**27**	**77%**
	National	83,283	17	75%
Girls	Oregon	467	**8**	**23%**
	National	27,735	6	25%
Boys & Girls	Oregon	**1996**	36	100%
	National	111,018	22	100%

Source: ocrdata.ed.gov/StateNationalEstimations/Estimations_2011_12

National & Oregon K-12 Expulsion by Race/Ethnicity 2011-12

		Percent of total students	Percent of expelled students	Disparity factor*
American Indians/Alaska Native Boys	Oregon	0.9	2.6	**2.9**
	National	0.6	1.6	2.7
Black/African Am Boys	Oregon	1.3	3.6	**2.8**
	National	8.1	25.2	3.1
Hispanic/Latino Boys	Oregon	10.7	18.9	1.8
	National	12.1	16.7	1.4
Native Hawaiian/Other Pacific Islander Boys	Oregon	0.4	0.6	1.5
	National	0.2	0.2	1
2 or more races	Oregon	2.4	3.3	1.4
	National	1.3	0.5	0.35
White Boys	Oregon	33.6	46	1.4
	National	26.7	27.6	1
Asian Boys	Oregon	2	0.5	0.25
	National	2.4	0.8	0.33

*Disparity factor is the factor of percent total student population by race/ethnicity versus percent expelled students by race/ethnicity

Source: ocrdata.ed.gov/StateNationalEstimations/Estimations_2011_12

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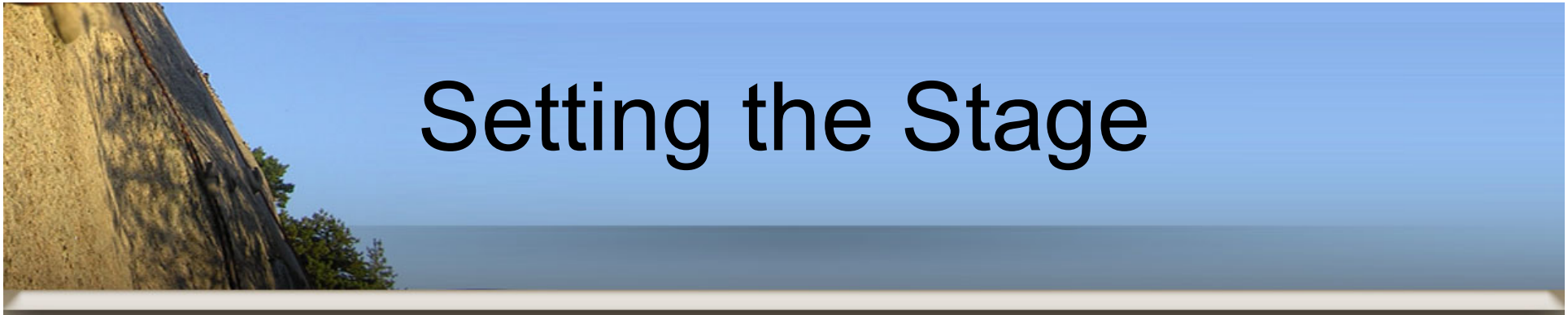

Setting the Stage

- Students who experience out-of-school suspension & expulsion are as much as 10 times more likely to dropout of high school

- Social emotional skills in kindergarten are related to:
  - High school graduation (OR=1.54)
  - Stable employment (OR=1.66)
  - Involvement with police before adulthood (OR=0.65)
  - Arrest in young adulthood (OR=0.60)

Lamont 2013
Jones 2015

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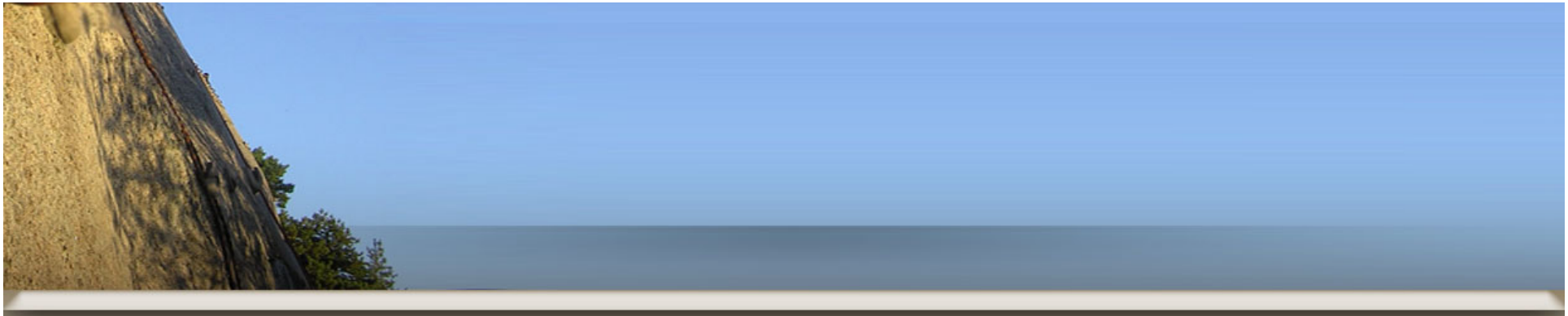

Part 2

Neuroscience, Neurochemistry & Mirror Neurons

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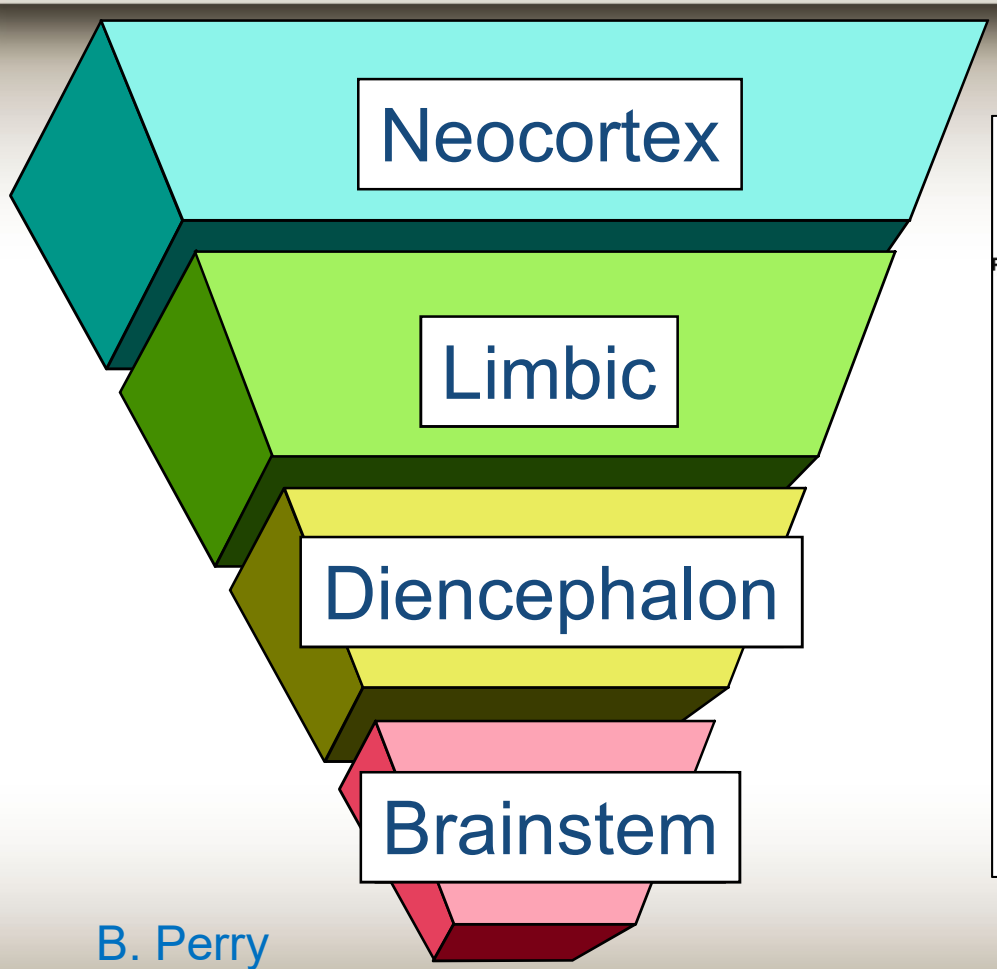
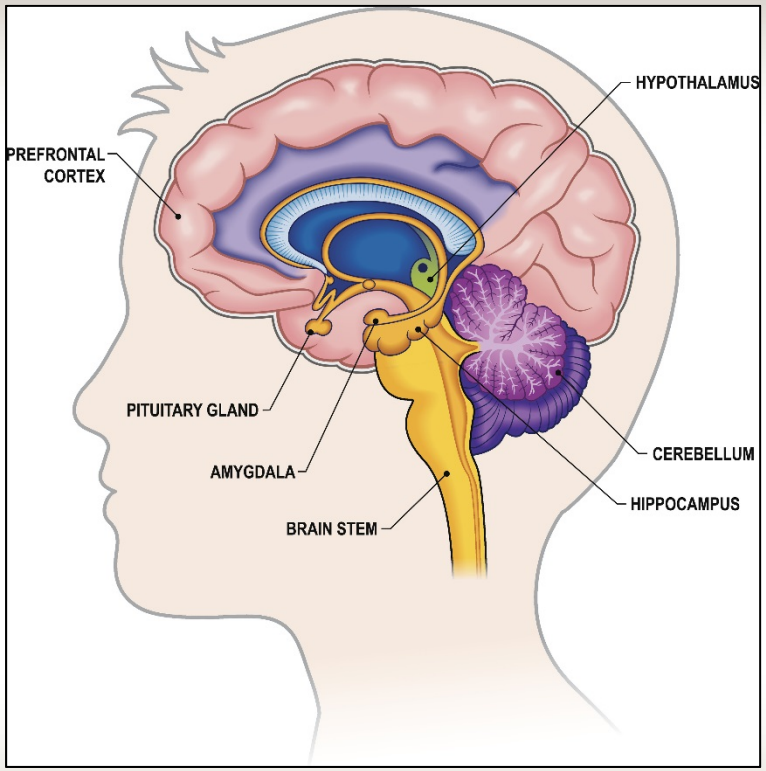
Neuroscience, Neurochemistry & Mirror Neurons



B. Perry



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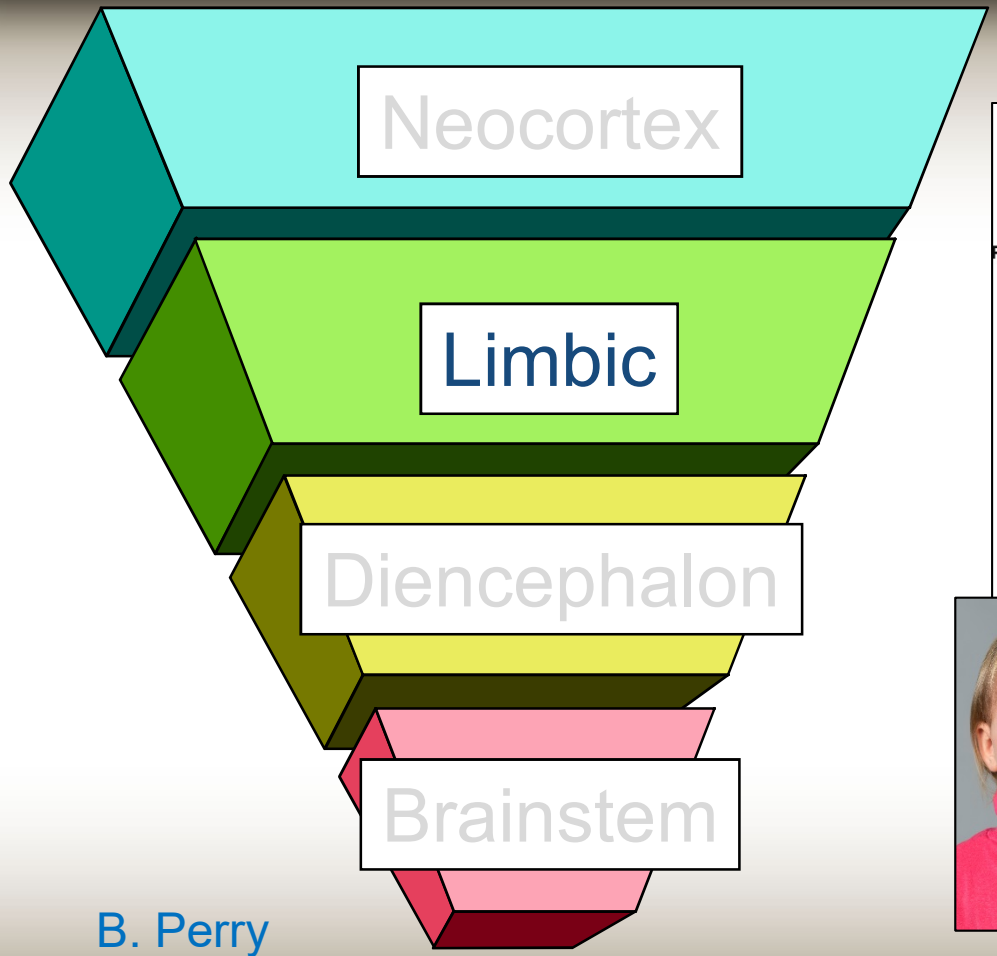
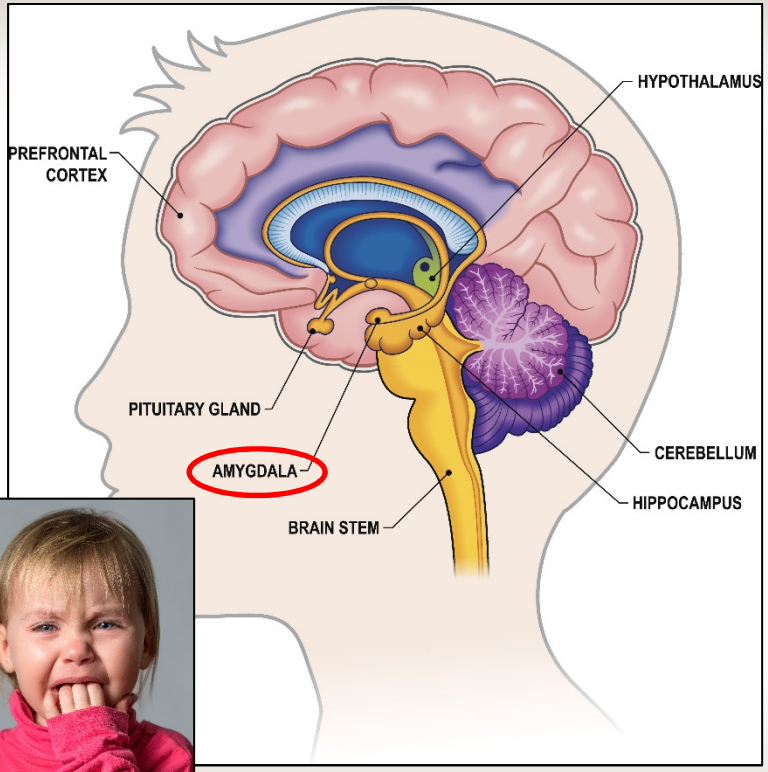
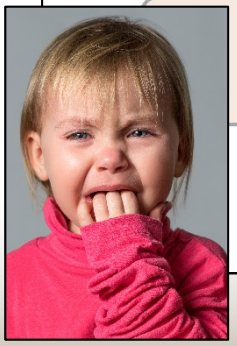
Neuroscience, Neurochemistry & Mirror Neurons



B. Perry

Amygdala





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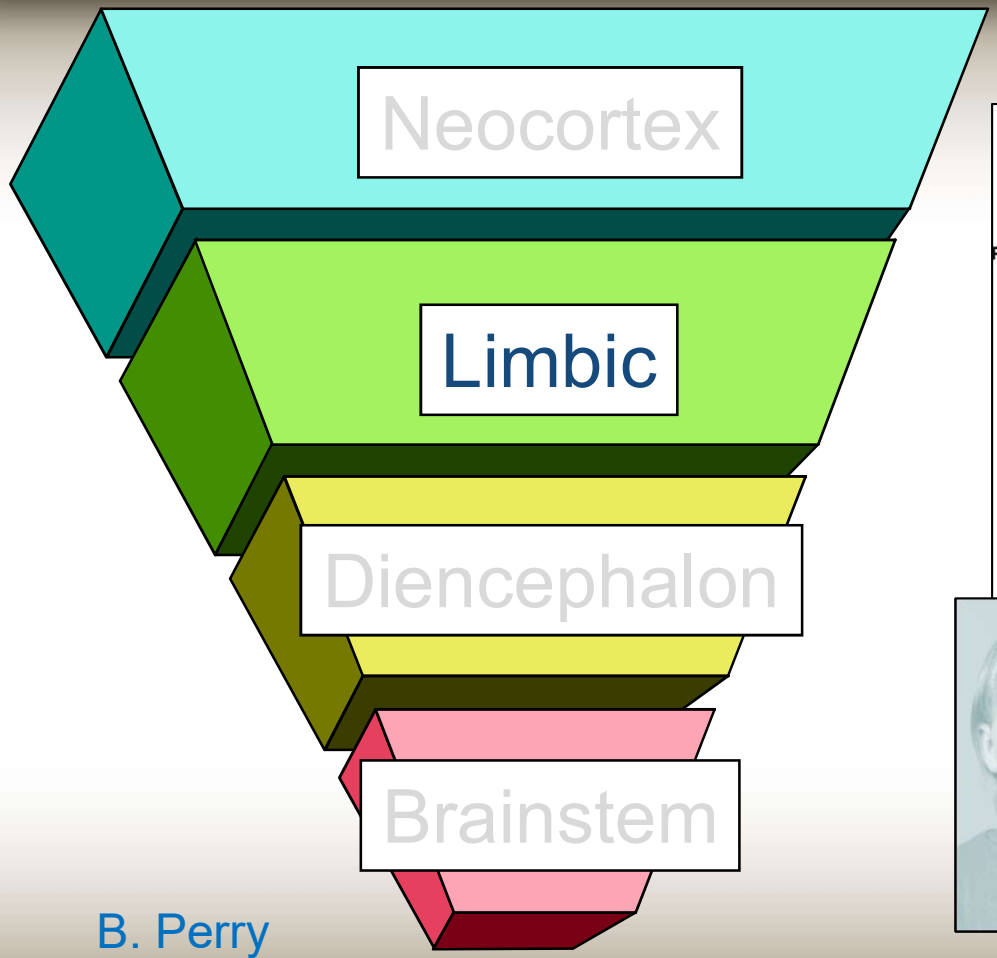
Neuroscience, Neurochemistry & Mirror Neurons



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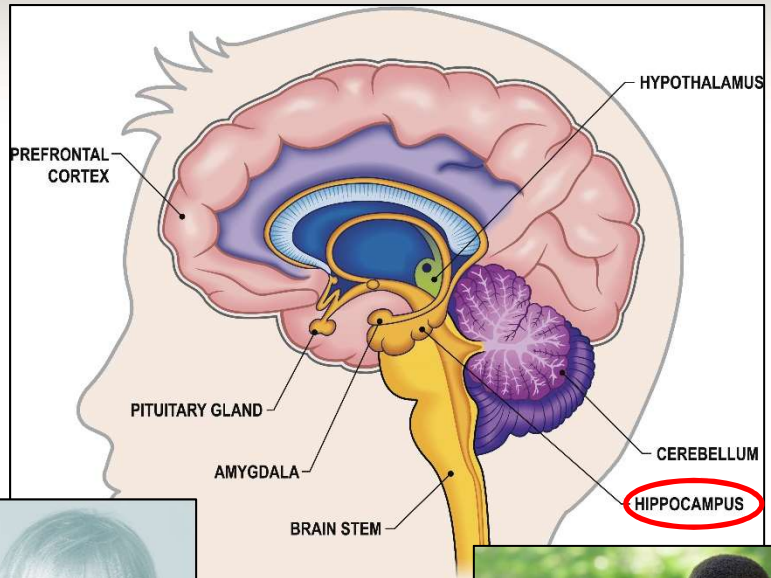
Hippocampus



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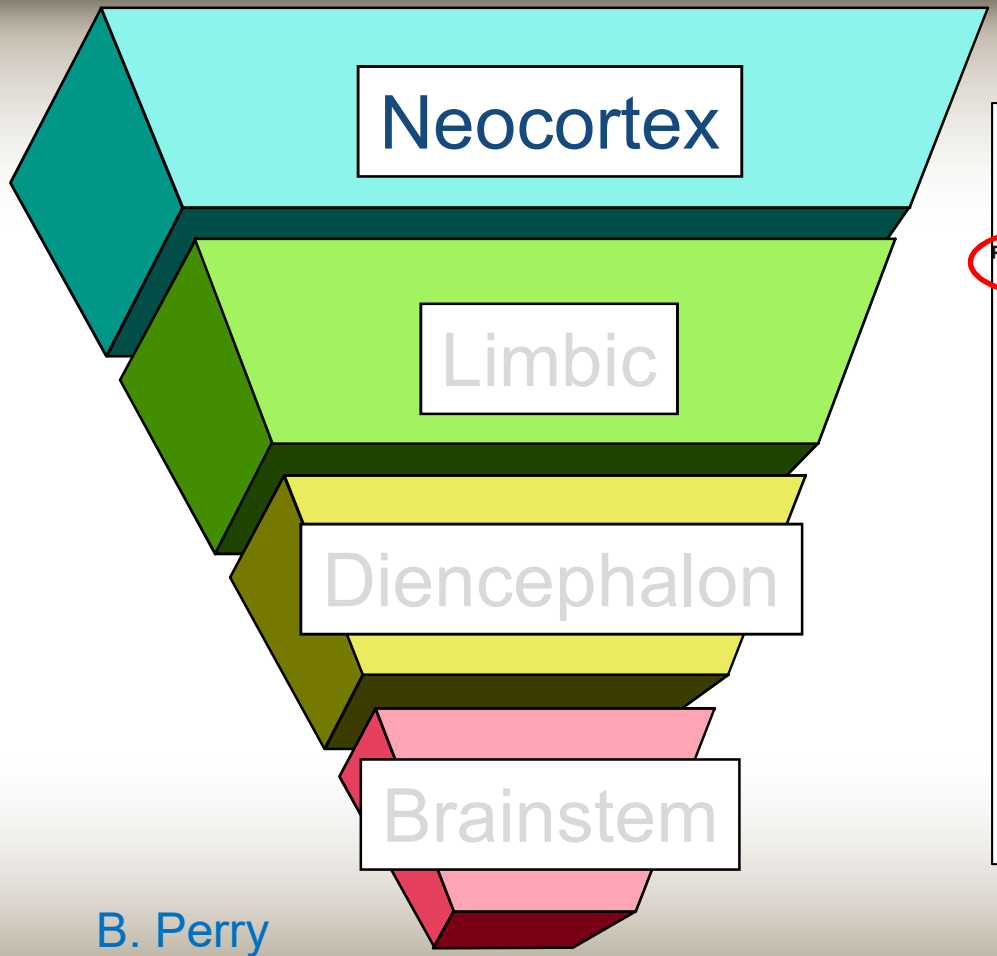
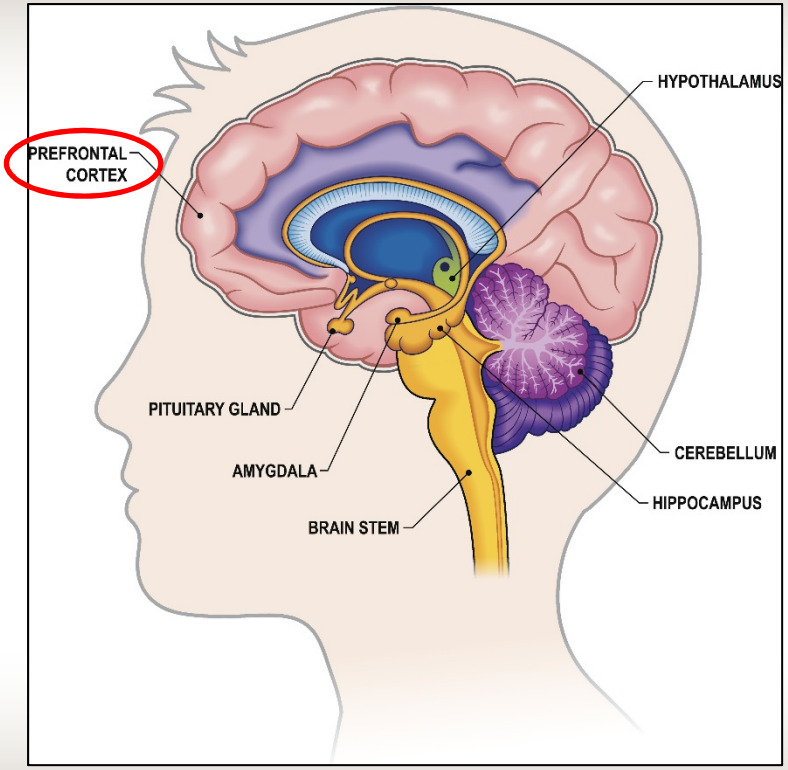
Neuroscience, Neurochemistry & Mirror Neurons



B. Perry

Prefrontal Cortex



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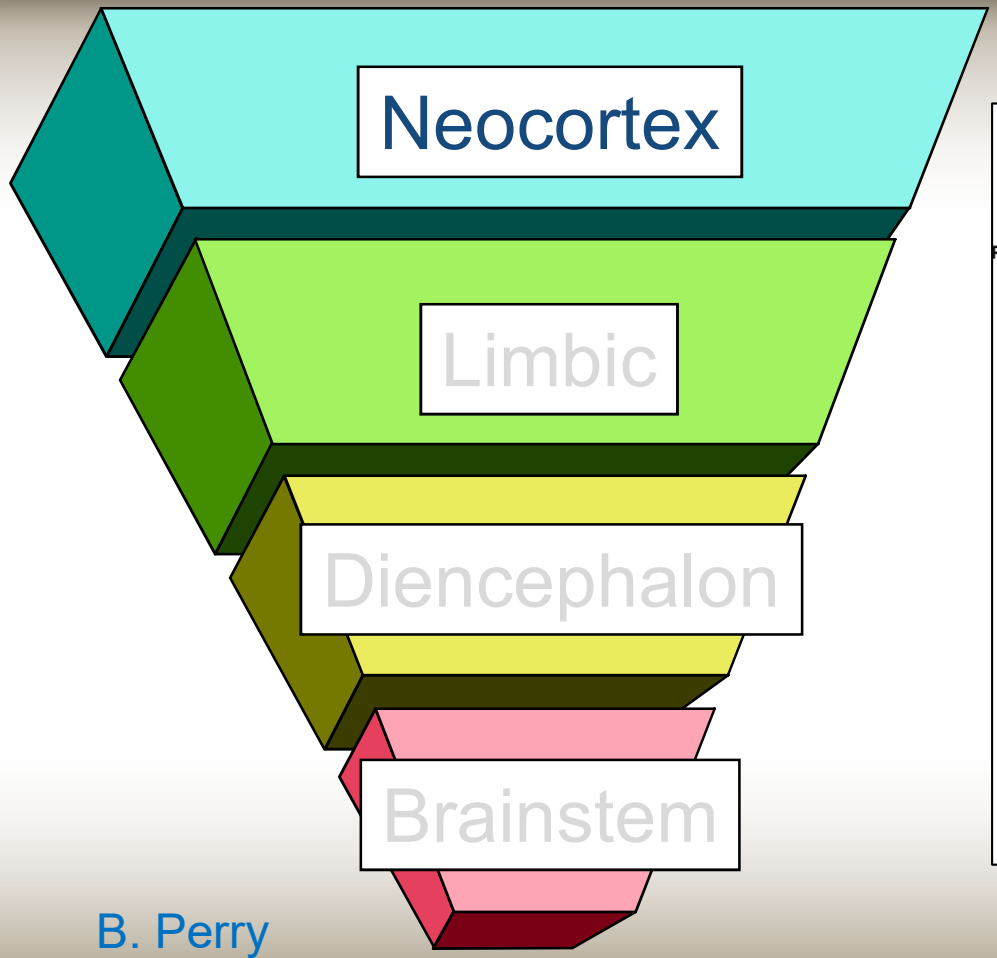
Neuroscience, Neurochemistry & Mirror Neurons



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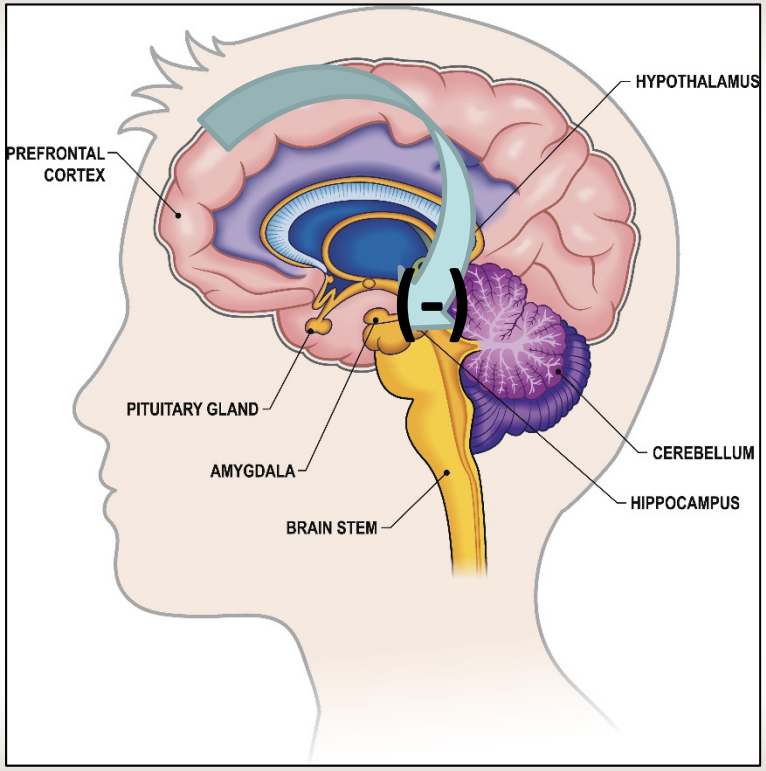
Self-Regulation



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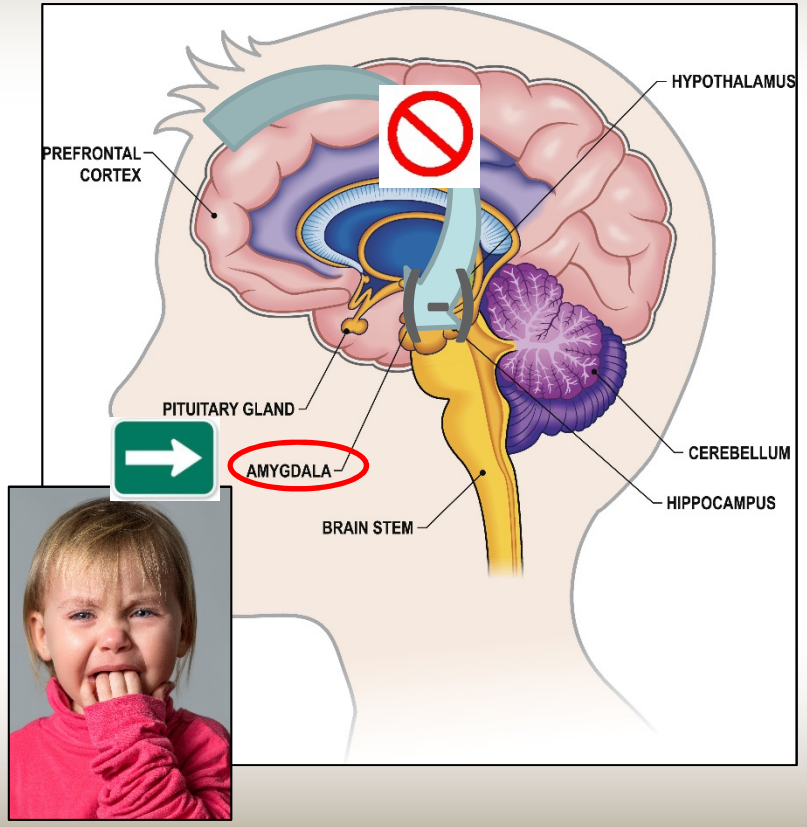
Neuroscience, Neurochemistry & Mirror Neurons

Stress



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0-6 MESES
0-6 MONTHS

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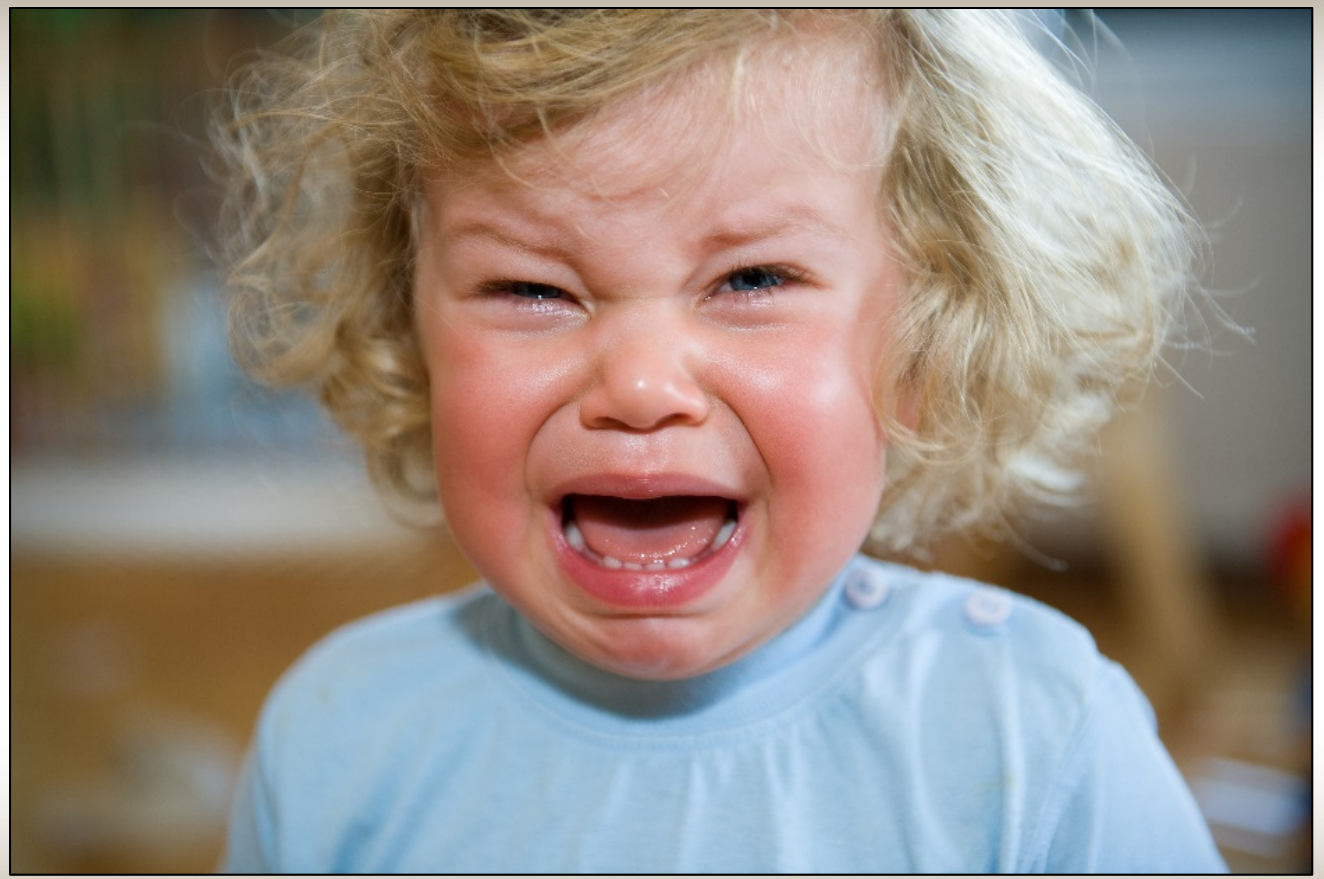
Neuroscience, Neurochemistry & Mirror Neurons



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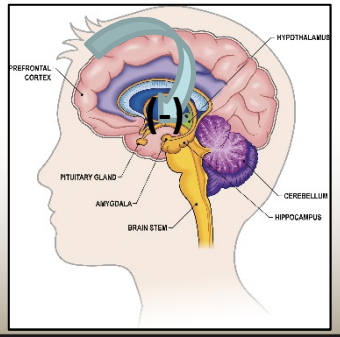
Neuroscience, Neurochemistry & Mirror Neurons

Mirror Neurons:

- The foundation for development of empathy
- We feel other's expressed emotions
- And must use our prefrontal cortex to cool our response to the situation



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Neuroscience, Neurochemistry & Mirror Neurons

Key Points

- Limbic system holds implicit memories laid down starting before birth
- Implicit memories carry forward and are triggered to action by similar stimuli in new settings in ways that may no longer be beneficial—adaptive behavior ⟶ maladaptive behavior
- Prefrontal cortex capacity to control emotional reactions develops throughout childhood, adolescence and young adulthood; stress impedes this process
- Mirror neurons are a human characteristic that allows us to feel others' emotions, understand others' intentions and empathize

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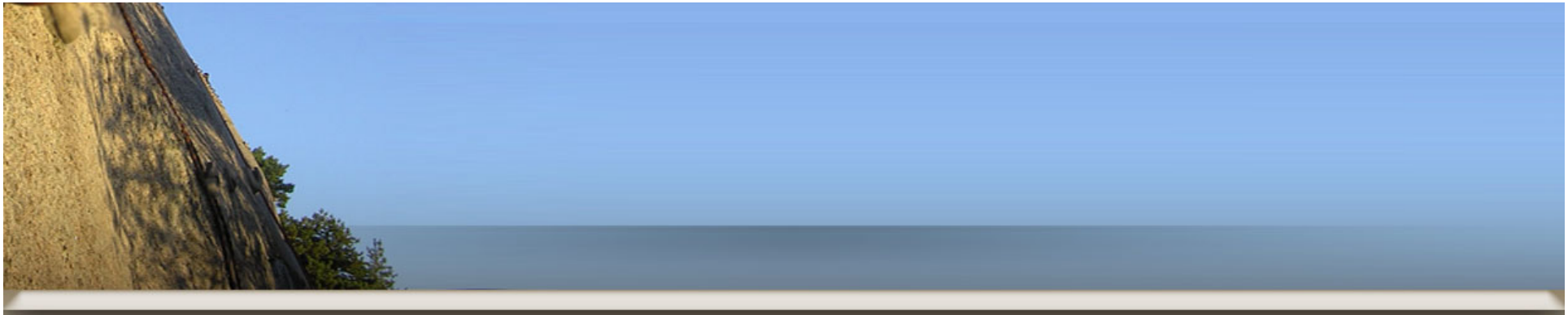

Part 3

Social Emotional Developmental Model & Stress

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Social Emotional Developmental Model & Stress

Early Childhood Longitudinal Study—Kindergarten Class of 1998-99 (ECLS-K)

- Phase #1: Identify multidimensional profile clusters of children entering kindergarten
- Phase #2: Measure academic performance by profile type in Spring of First Grade

Hair, Halle, Terry-Humen et al. 2006

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Social Emotional Developmental Model & Stress

Early Childhood Longitudinal Study—Kindergarten Class of 1998-99 (ECLS-K)

- National Education Goals Panel framework
  - Physical health
  - Social/emotional health
  - Approaches to learning (eliminated)
  - Language development
  - Cognitive development
- 4 clusters/groups identified
  - Comprehensive Positive Development (all 4 domains above average)
  - Social Emotional & Health Strengths (lang & cog below average, ELL)
  - Social Emotional Risk (all 4 below average, SE significantly)
  - Health Risk (health, cog & lang below average)

Hair, Halle, Terry-Humen et al. 2006

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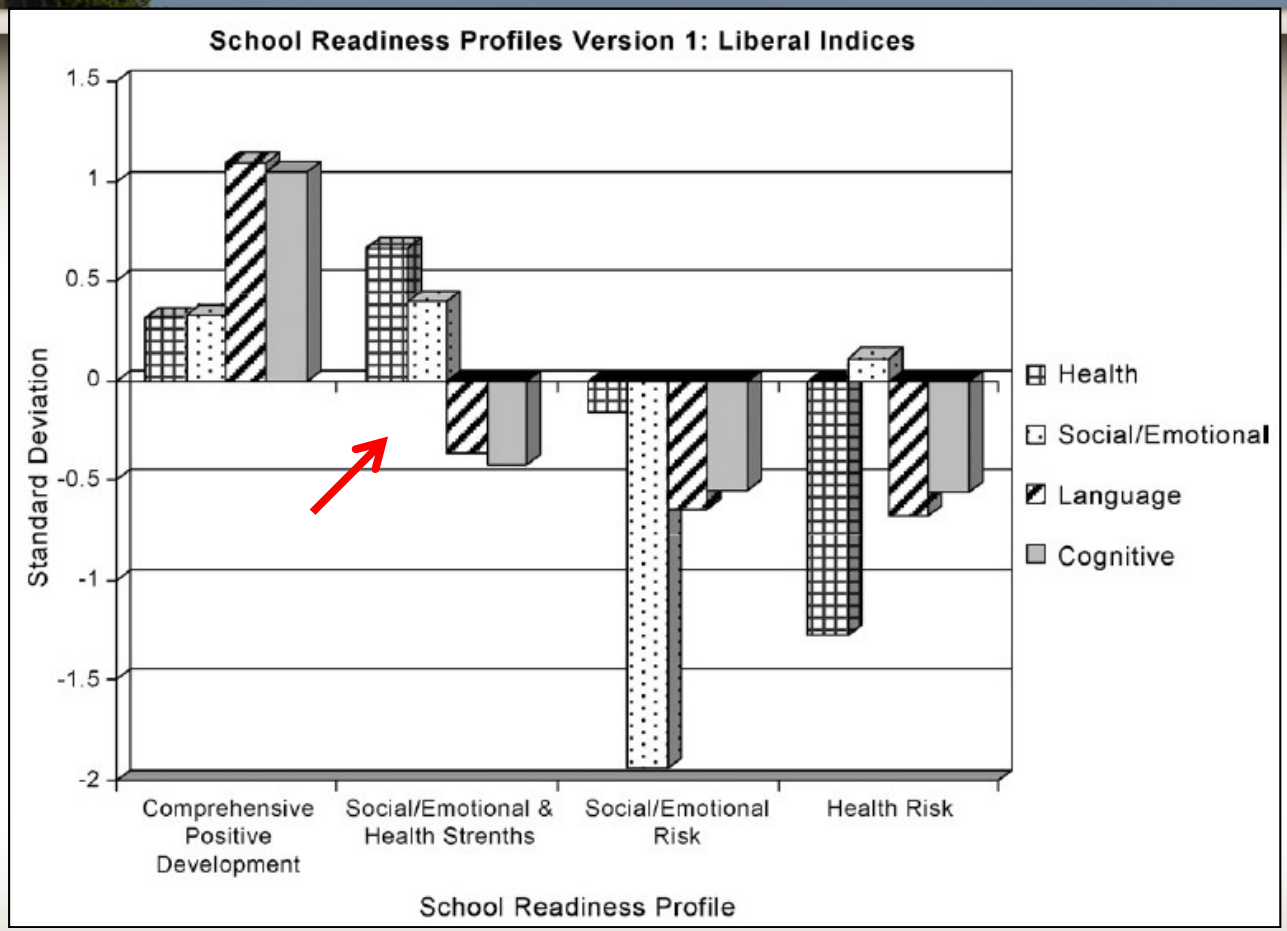
Social Emotional Developmental Model & Stress

Longitudinal Study Phase #1

n=17,219 children entering kindergarten



Hair, Halle, Terry-Humen et al. 2006

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Social Emotional Developmental Model & Stress

Early Childhood Longitudinal Study—Kindergarten Class of 1998-99 (ECLS-K)

- Longitudinal Study: Phase #2—math and language performance Spring of First Grade (n=13,397)

- Average math and language performance by group relative to Social Emotional & Health Strengths group
  - Comprehensive Positive Development were 0.5 SD above
  - Social Emotional Risk & Health Risk groups were 0.5 SD below

Hair, Halle, Terry-Humen et al. 2006

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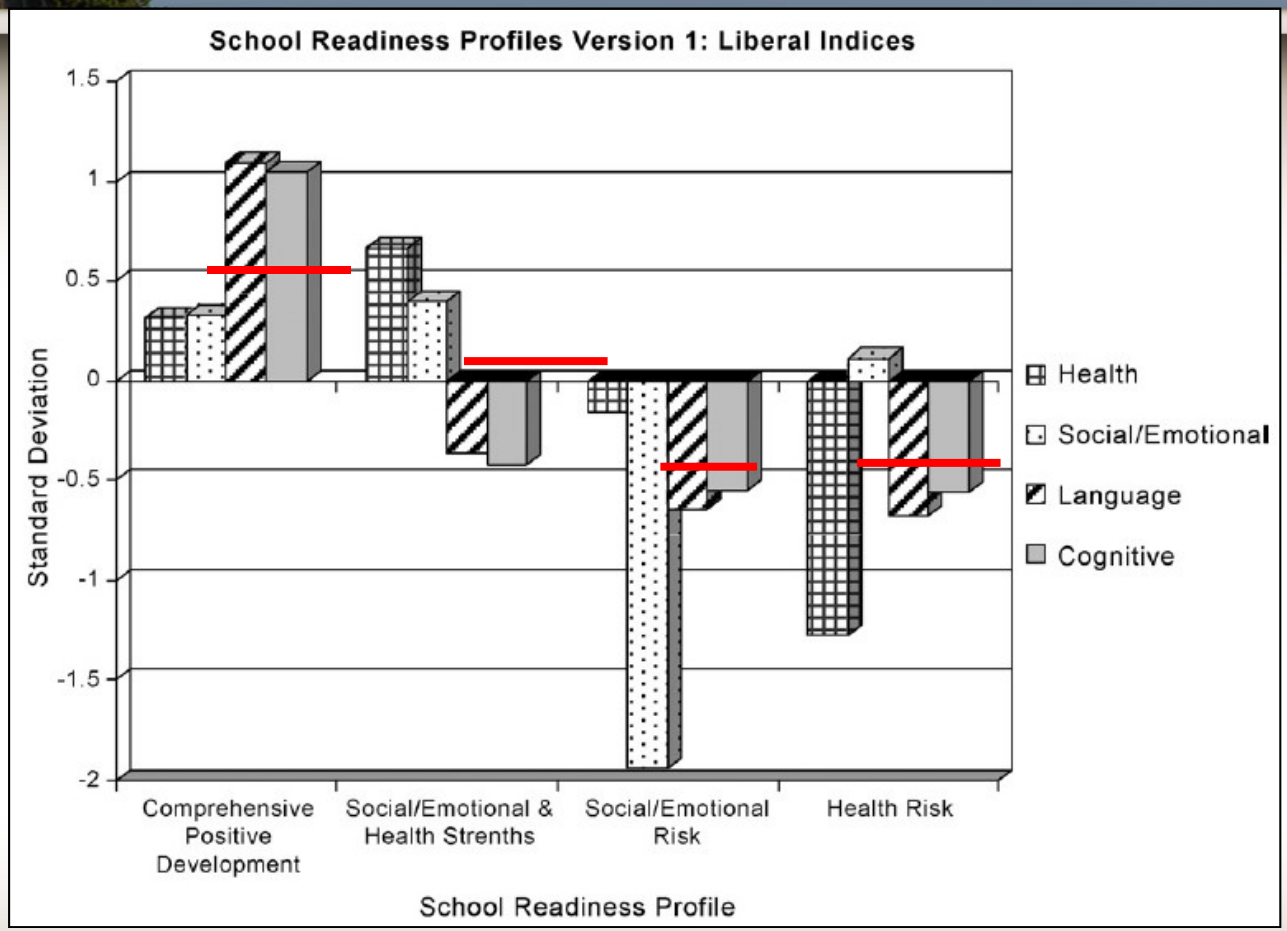
Social Emotional Developmental Model & Stress

Longitudinal Study Phase #2 represented by red lines



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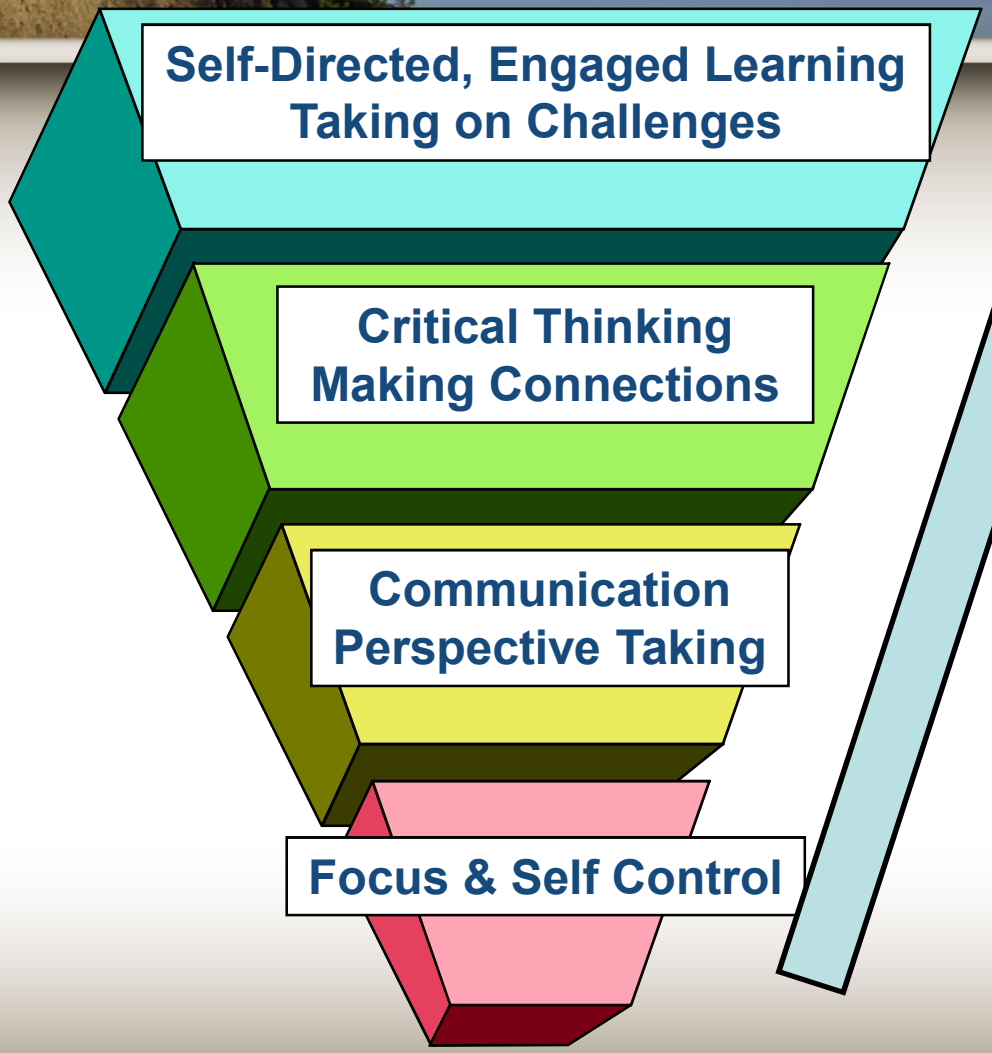
Social Emotional Developmental Model & Stress



EXECUTIVE FUNCTION

Ellen Galinsky's
Mind in the Making

Galinsky 2010

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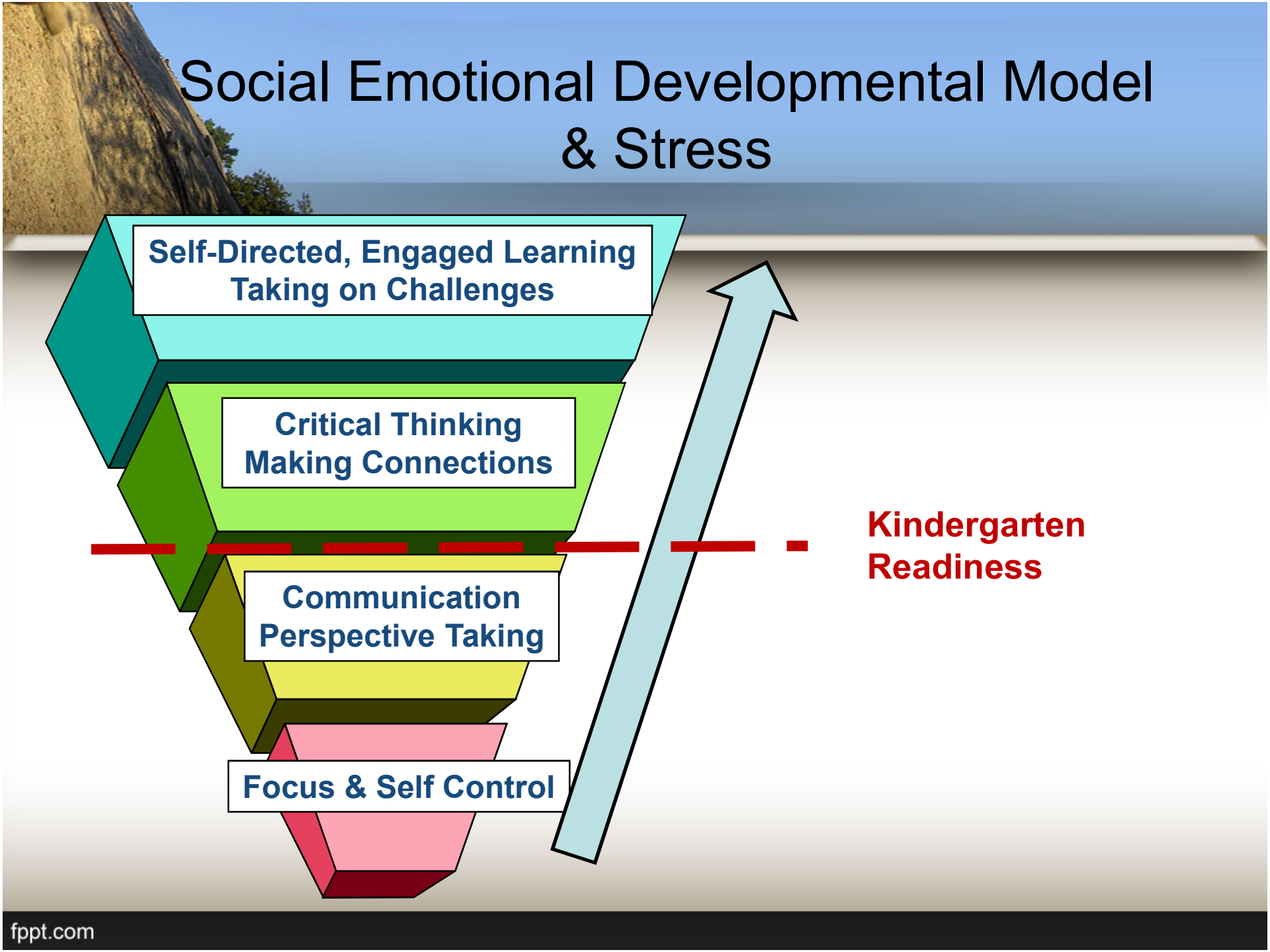
Social Emotional Developmental Model & Stress



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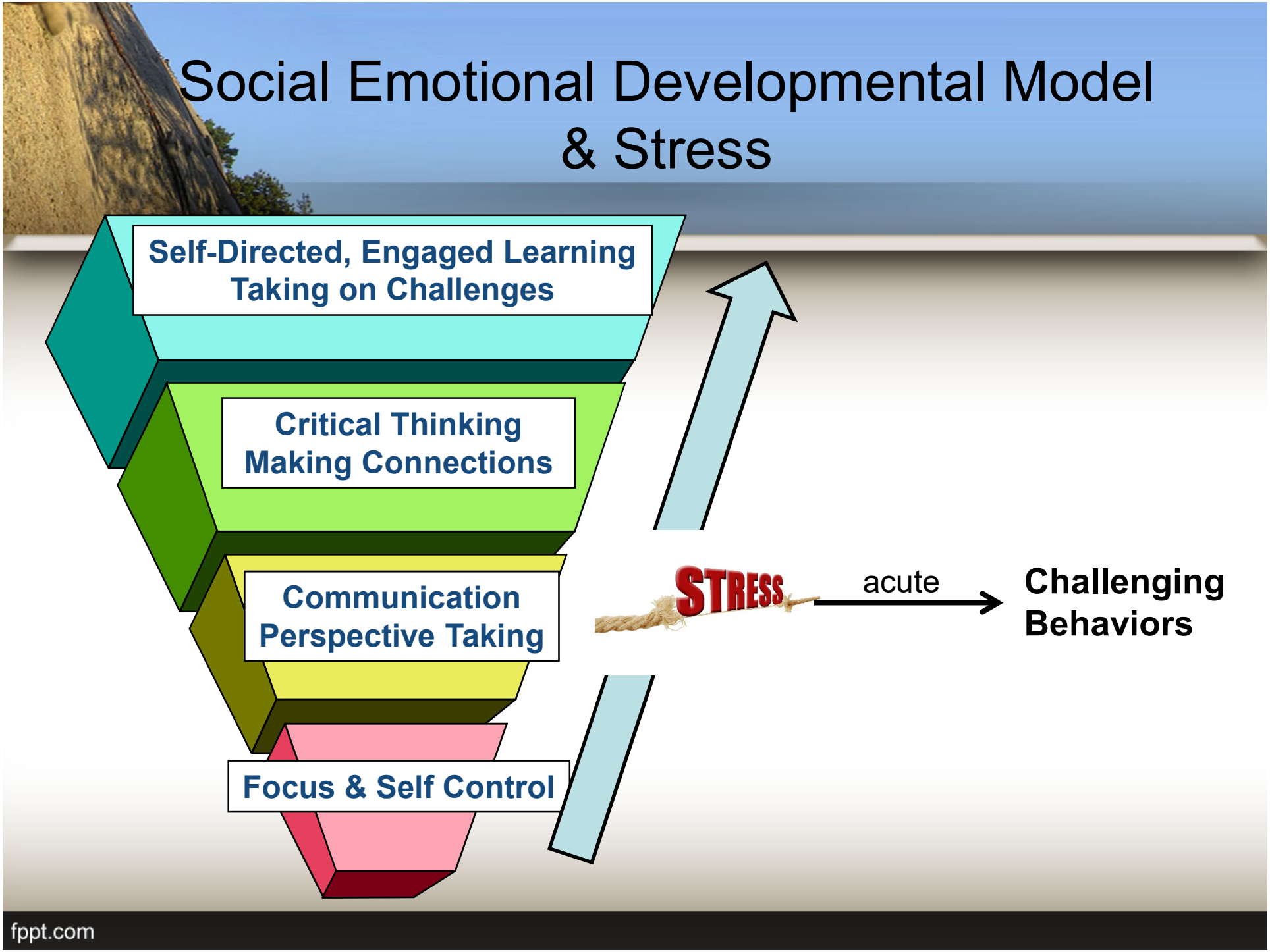
Social Emotional Developmental Model & Stress



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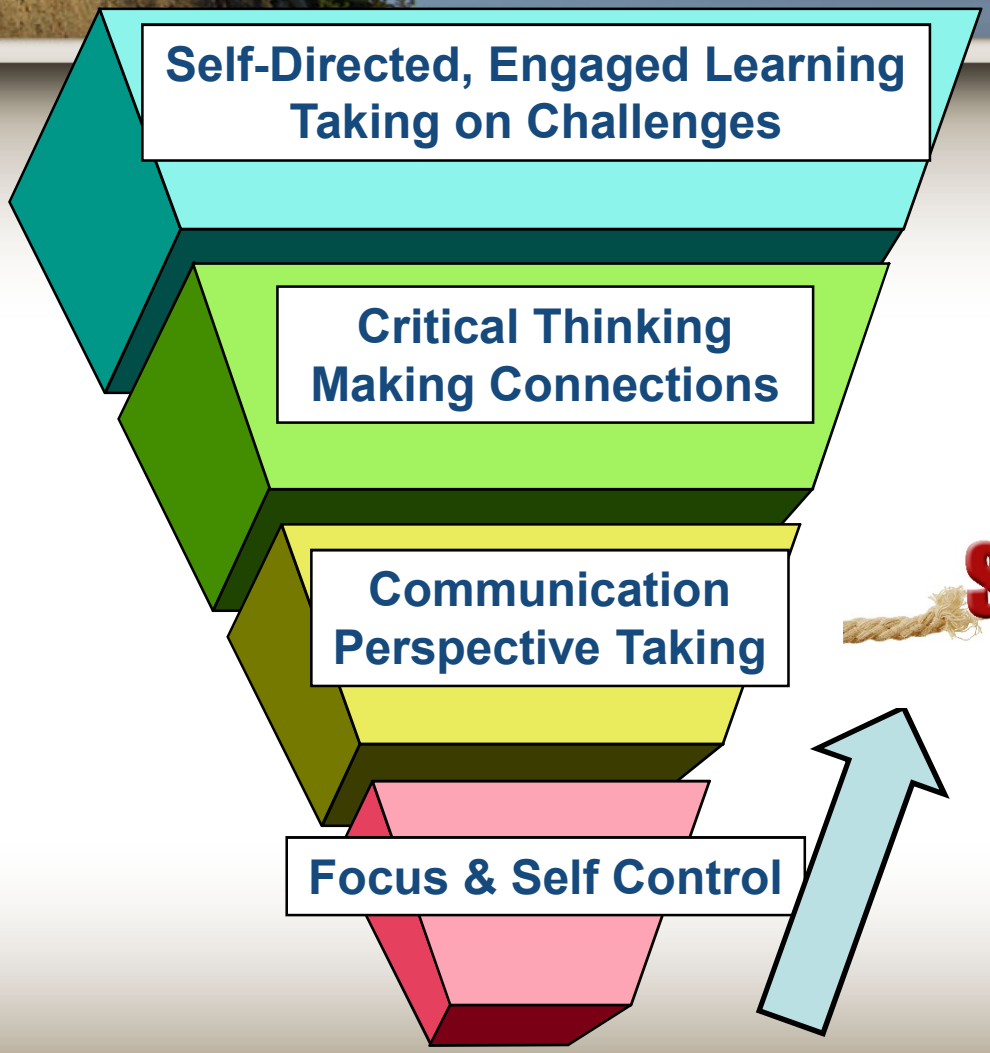
Social Emotional Developmental Model & Stress



chronic → **Challenging Behaviors**

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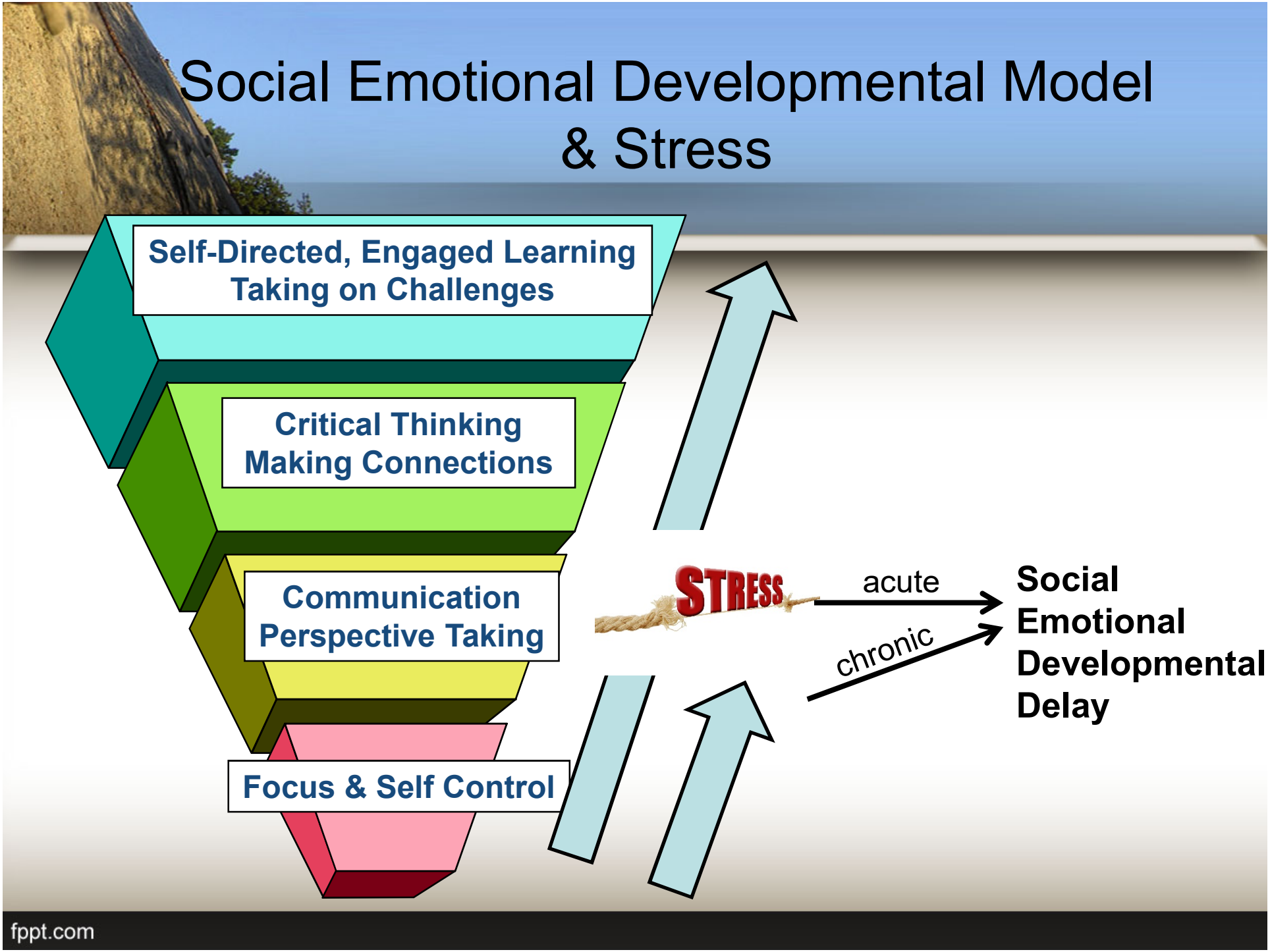
Social Emotional Developmental Model & Stress



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Social Emotional Developmental Model & Stress

Continuum of Behavior

Limbic (emotional) ⟷ Prefrontal (EF)

Reactive/impulsive	Proactive/goal oriented
Immediate treat	Longer-term goals
Now	Later (consequences)
Outcome—one	Outcome—many
Self	Others
Instability, toxic stress	Stability, tolerable stress

Center for the Developing Child 2016

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Social Emotional Developmental Model & Stress

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Instability, toxic stress

Stability, tolerable stress

Center for the Developing Child 2016

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Social Emotional Developmental Model & Stress

Motor Activities Promote Self-Regulation

- **Efficacy of a self-regulation intervention**
  - RCT
  - 65 preschool children, average age 54.6 months
  - Half received intervention
  - Intervention: circle time games
  - 16 30-minute sessions (2/wk X 8 wks)

Tominey & McClelland 2011

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Social Emotional Developmental Model & Stress

Motor Activities Promote Self-Regulation

Results:

Children entering preschool with low level behavioral self-regulation skills showed improved self-regulation skills after the intervention and significant gains in letter-word identification compared to control group.

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Tominey & McClelland 2011

Social Emotional Developmental Model & Stress

Biological Sensitivity

- Children who have low biological sensitivity to context seem to be less affected by both positive and negative environmental influences "dandelion child"

- Children who have high biological sensitivity respond to both positive and negative environmental influences "orchid child"

Obradovic et al. 2010

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Social Emotional Developmental Model & Stress

- Behavior is communication
- A lack of self-regulation can stem from
  - Social emotional developmental delay
  - Chronic stress
  - Overwhelming acute stress

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Social Emotional Developmental Model & Stress

- Children learn (or regain) emotional regulation through activation of their mirror neurons in the presence of a mature, regulated adult
- The nurturing, mature adult must be the prefrontal cortex for the immature child
- Every time a child shifts from a dysregulated state to a regulated state, the prefrontal—limbic neuropathway is primed
- A primed neuropathy is more likely to be activated in the future

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Social Emotional Developmental Model & Stress

Regulating Activities

- Motor activities (rhythm) in small doses (15 minutes) multiple times throughout the day are regulating
- Simple children's games, changing the rules, promote self-regulation

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Social Emotional Developmental Model & Stress

Regulating Activities

- **Head-Toes-Knees-Shoulders**
  - Simon Says
  - Simon Says Opposite

Tominey & McClelland 2011

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Social Emotional Developmental Model & Stress

Tominey & McClelland 2011

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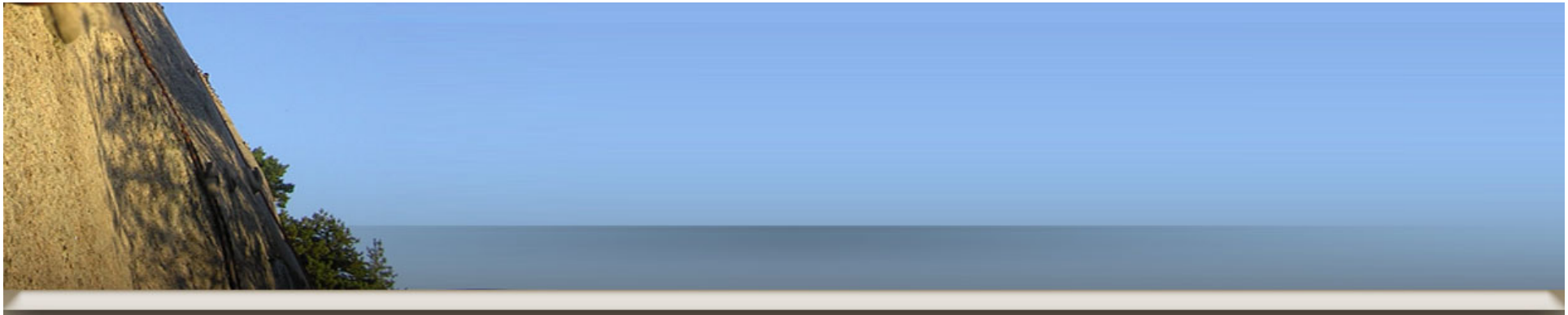

Part 4

Implicit Bias

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Implicit Bias

- Automatic and unconscious stereotypes affecting our behavior based on innate inability to “say what’s on our minds”
- Our own attitudes and beliefs hidden from ourselves
- Implicit bias stems from implicit memory

- Project Implicit: Implicit Association Test
- https://implicit.harvard.edu/implicit/takeatest.html
- Test categories include disability, age, race, skin tone, weight, gender-career, gender-science

WARNING: tests carry possibility for harm, confusion and/or triggered emotions

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Implicit Bias

- Implicit biases are pervasive across people and institutions
- “Shifting Standards Hypothesis”: unconscious change in our perceptions and expectations of others

American Psychological Association 2012
Bates & Glick 2013

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Implicit Bias

Early Educators' Implicit Bias Research

Key Research Questions:

- Is it possible that teachers' implicit sex and race biases may impact their behavioral expectations leading them to expect and anticipate more challenging behaviors from some children and, therefore, pay more attention to those children and scrutinize them more closely?
- If so, what is the nature of these biases and how might they change over time as teachers gain more knowledge of the contextual family and community factors that may be explanatory of these behaviors?

Gilliam et al. 2016

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Implicit Bias

Early Educators' Implicit Bias Research

- n=132 teachers and student teachers attending an annual conference for early care and educational professionals
- Living in USA, English fluent
- 67% White, 22% Black, 77% of total non-Hispanic/non-Latino origin
- 94% female

Gilliam et al. 2016

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Implicit Bias

Early Educators' Implicit Bias Research

- Task #1: Eye-Tracking Study
- Press enter key when "you see a behavior that could become a potential challenge…"
- Measured 'areas of interest' and 'dwell time'

Gilliam et al. 2016

fppt.com

Implicit Bias

Early Educators' Implicit Bias Research Findings

- Task #1: Eye-Tracking Study
- More gazing at boys than girls (p=0.002)
- More time gazing at Black Children than White (p=0.002)
- More time gazing at Black boy than other children (p=0.002)

Gilliam et al. 2016

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Implicit Bias

Early Educators' Implicit Bias Research Findings

- Task #1: Eye-Tracking Study
- Black participants dwelled more on Black boys and less time gazing at other children compared to White participants

Gilliam et al. 2016

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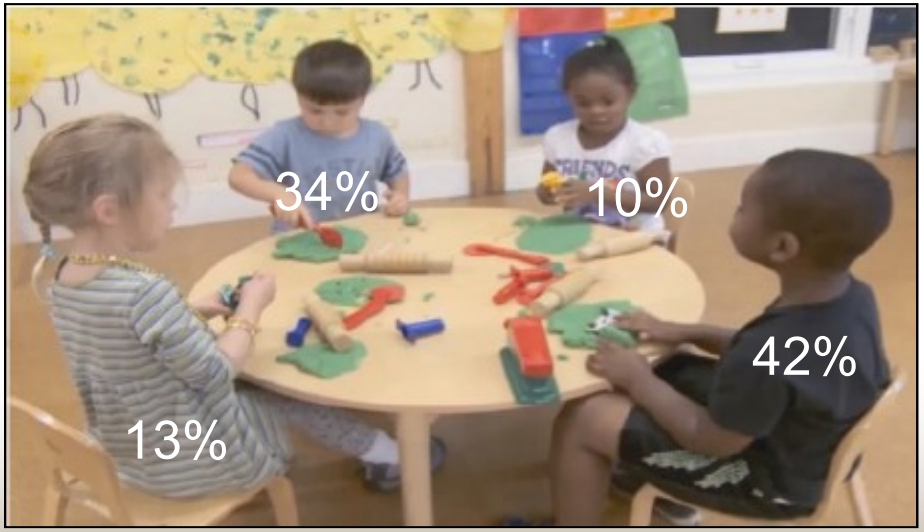
Implicit Bias

Early Educators' Implicit Bias Research Findings

- Task #1: Eye-Tracking Study
- Participants' report of which child required most of their attention (no participant race differences):



Gilliam et al. 2016

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Implicit Bias

Early Educators' Implicit Bias Research

- Task #2: Vignette Study
- Vignette of preschool student with behavioral challenges in preschool classroom
- Vignette the same; name of child implied child's race
- Some participants also received family background information (multiple family and community challenges)
- Participants rated severity of child's behavior on 5-point scale
- Participants were also asked for their recommendations on disciplinary action

Gilliam et al. 2016

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Implicit Bias

Early Educators' Implicit Bias Research Findings

- Task #2: Vignette Study
- Participants rated White children's behavior as more severe than Black children's
- No sex or race of child differences in discipline recommendations
- Black participants recommended expelling or suspending children more days than White participants

Gilliam et al. 2016

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Implicit Bias

Early Educators' Implicit Bias Research Findings

- Task #2: Vignette Study
- No family background (?shifting standards)
  - White participants rated White children's behavior as more severe than Black children
  - Black participants rated Black children's behavior as more severe than White children
- Family background information provided
  - Black participants rated White children's behavior more severe than Black children (?same race empathy)
  - White participants rated White and Black children's behavior equally severe

Gilliam et al. 2016

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Implicit Bias

Suggested Strategies for Consideration:

- Implicit biases may be reduced through interventions designed to either address biases directly or increase teachers' empathy for the children
- Increased partnerships with mental health and developmental consultation for added professional perspective and expertise in the classroom
- Implementation of greater home-school collaboration and parental involvement in the early childhood setting to increase empathy and hopefulness even when home conditions are known
- Parent training, coaching and tool kit to empower parents to advocate and interface with professionals around their child's development, academic success and long-term goals

Gilliam et al. 2016

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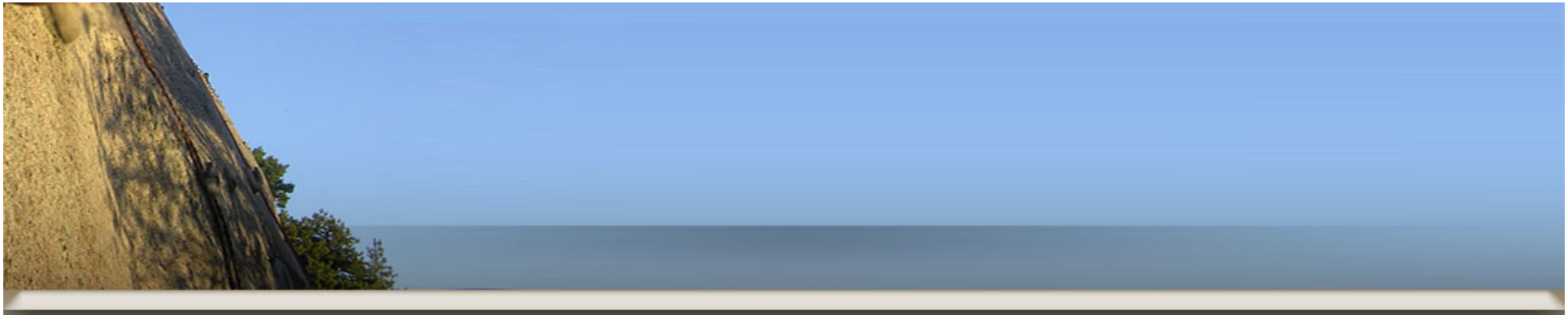

Part 5

Trauma-Informed Workplace

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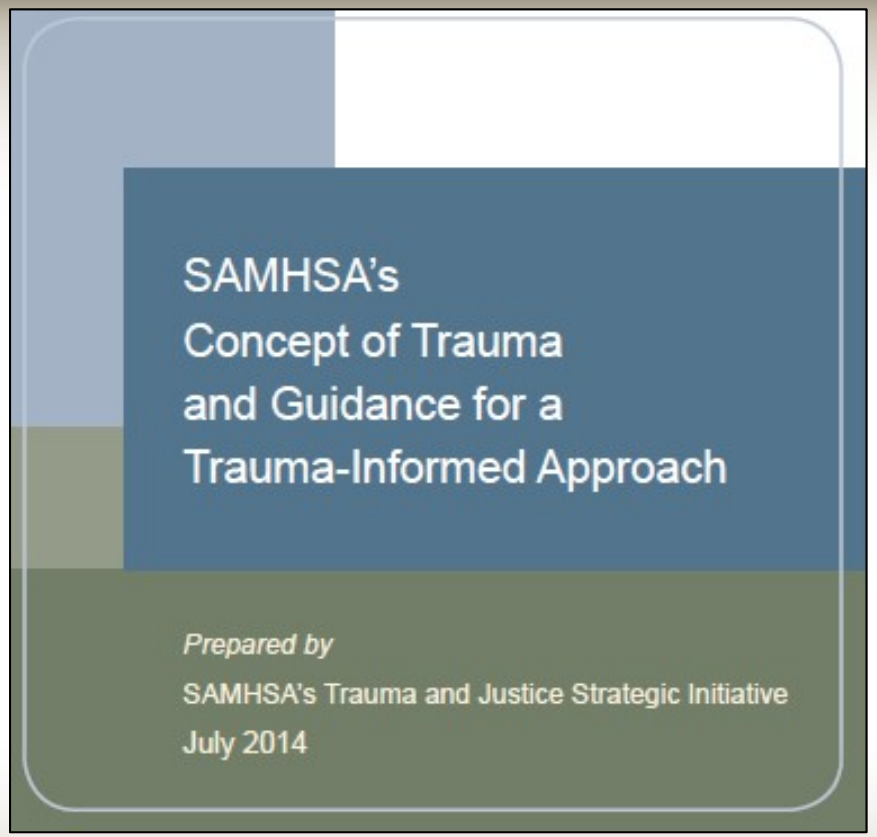
Trauma-Informed Workplace



Set of Four Assumptions:

1. Realizing extent of trauma
2. Recognizing signs & symptoms of trauma
3. Responding by integrating knowledge into policies, procedures & practices
4. Resisting re-traumatization
5. Repair

http://store.samhsa.gov/shin/content/SMA14-4884/SMA14-4884.pdf

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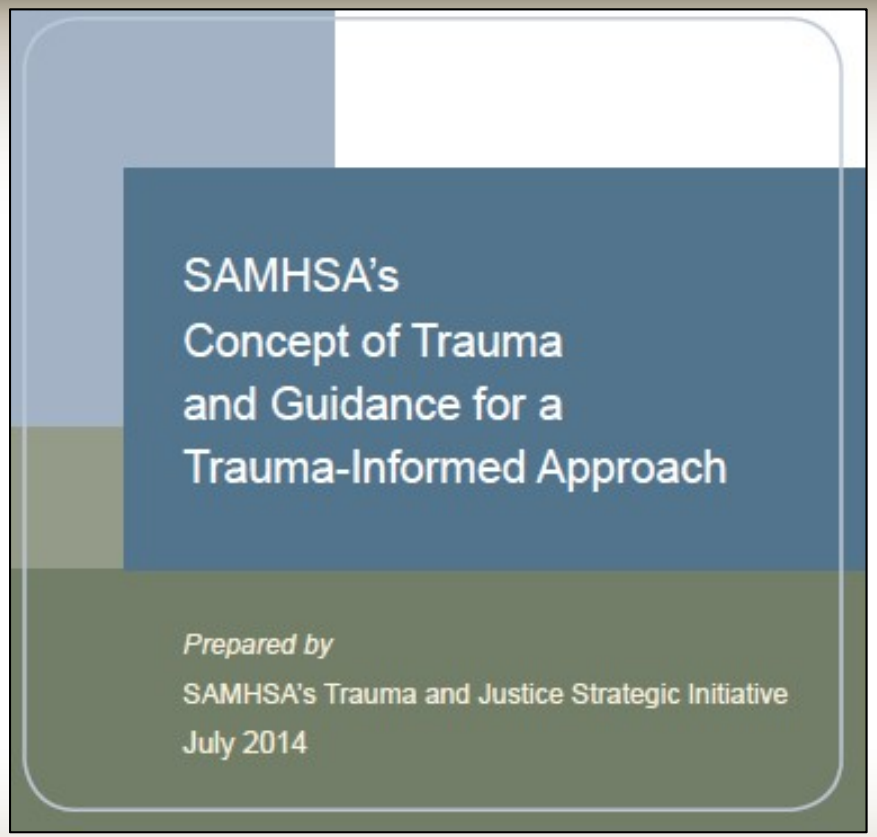
Trauma-Informed Workplace



Six Key Principles of a Trauma-Informed Approach:

1. Safety
2. Trustworthiness & Transparency
3. Peer Support
4. Collaboration & Mutuality
5. Empowerment, Voice & Choice
6. Cultural, Historical and Gender Issues

http://store.samhsa.gov/shin/content/SMA14-4884/SMA14-4884.pdf

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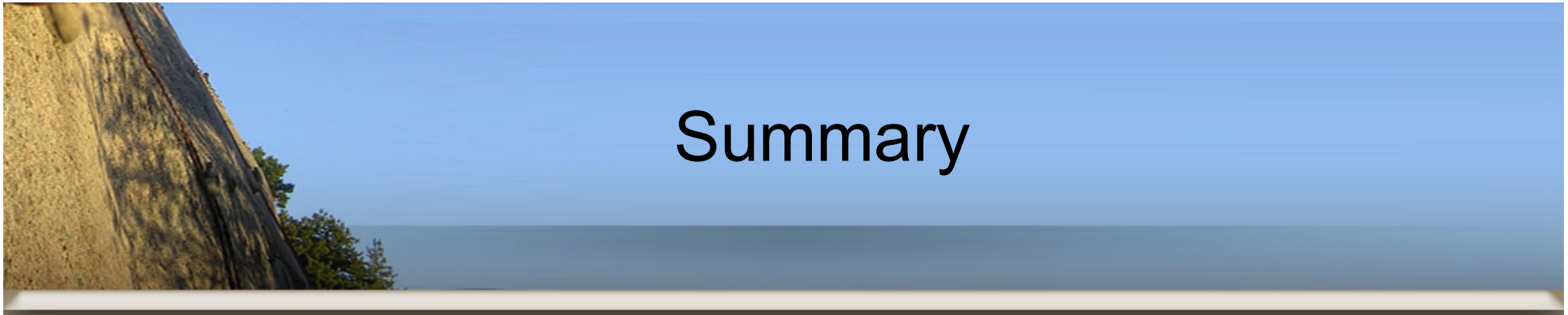

Summary

- Behavior is the physical manifestation of underlying neuroscience, neurochemistry and mirror neurons laid down in brain architecture beginning before birth.
- Social emotional development follows a developmental-age progression.
- Challenging behaviors can stem from social emotional developmental delay, chronic stress or overwhelming acute stress.
- Behavior is communication.
- Implicit biases are pervasive across people and institutions; increasing awareness enhances our ability to serve the diversity of people and cultures in our communities.
- A trauma-informed workplace is a thoughtfully created, sensitive environment welcoming of all cultures and rich with opportunity for everyone to achieve their full potential.

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Q & A

Thank you!

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Resources

Expulsion

- School Suspensions Are an Adult Behavior, Rosemarie Allen/TEDxMileHigh, https://www.youtube.com/watch?v=f8nkcRMZKV4.

Implicit Bias

- American Psychological Association, Presidential Task Force on Preventing Discrimination and Promoting Diversity (2012). *Dual Pathways to a Better America: Preventing Discrimination and Promoting Diversity,* Washington, DC: American Psychological Association, https://www.apa.org/pubs/info/reports/dual-pathways-report.pdf
- Project Implicit: Implicit Association Test
- https://implicit.harvard.edu/implicit/takeatest.html
- Project Implicit: Investigating the Gap between Intentions and Actions https://www.projectimplicit.net

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Resources

Social Emotional Development

- InBrief: Executive Function video, document (English & Spanish), Center on the Developing Child, Harvard University, http://developingchild.harvard.edu/resources/inbrief-executive-function/.
- Using Brain Science to Create New Pathways Out of Poverty: Beth Babcock at TEDxBeaconStreet, https://www.youtube.com/watch?v=kHIq-8J2K0Q.

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Resources

Trauma

- Helping Children Cope After a Natural Disaster, links to online to documents available through a variety of respected government and nonprofit organizations. http://www.earlychildhoodwebinars.com/wp-content/uploads/2016/09/Helping-Children-Cope-After-a-Natural-Disaster.pdf.
- Helping Children Rebound: Strategies for Infant and Toddler Teachers, Teaching Strategies, LLC. http://teachingstrategies.com/content/pageDocs/Helping-Children-Rebound-IT-2012.pdf.
- Helping Children Rebound: Strategies for Preschool Teachers, Teaching Strategies, LLC. https://www2.teachingstrategies.com/content/pageDocs/Helping-Children-Rebound-PS-2012.pdf.

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Resources

Trauma

- Substance Abuse and Mental Health Services Administration (2014). SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach, HHS Publication NO. (SMA) 14-4884. Rockville, MD: Substance Abuse and mental Health Services Administration, http://store.samhsa.gov/shin/content/SMA14-4884/SMA14-4884.pdf

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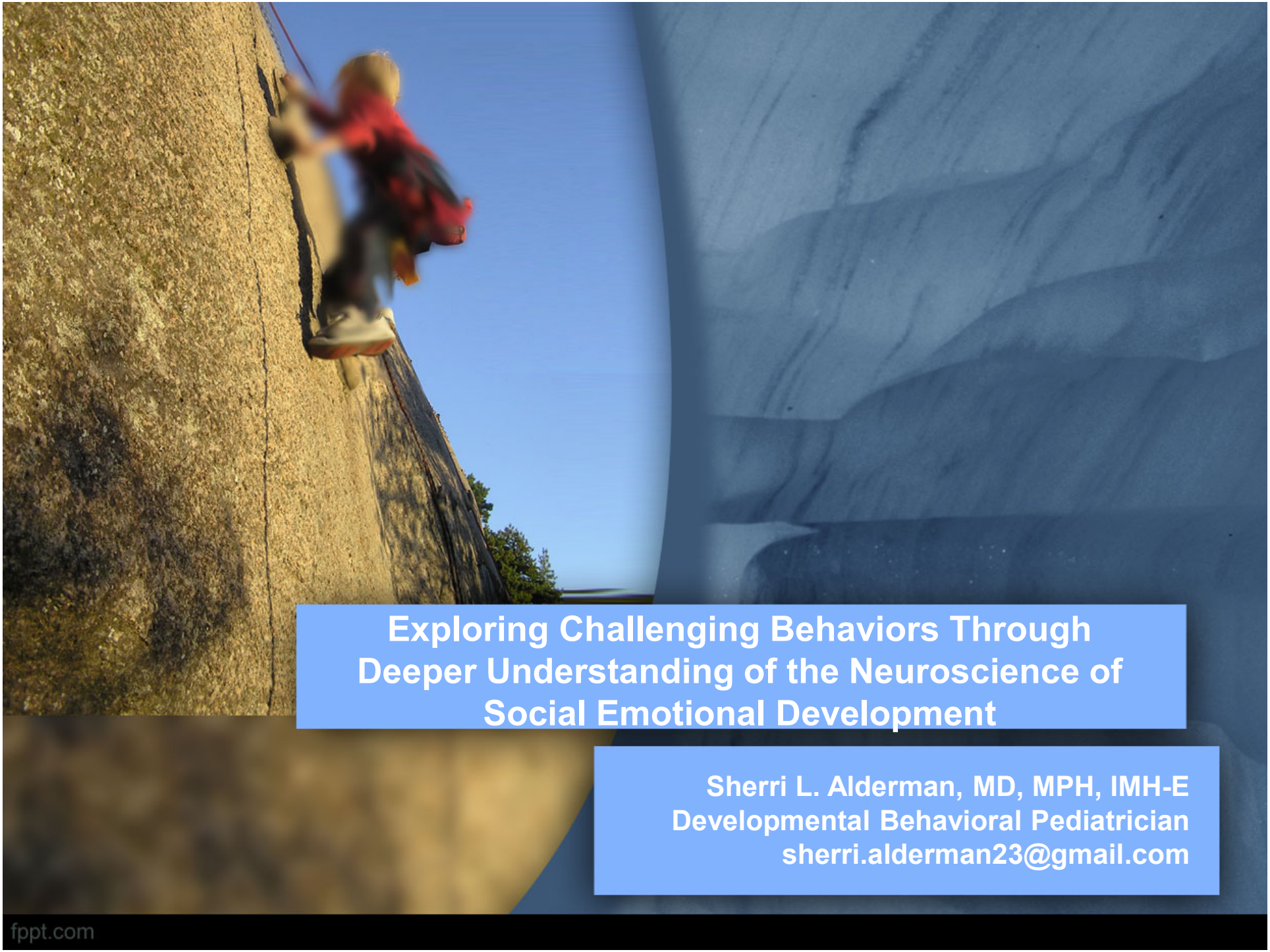

Exploring Challenging Behaviors Through Deeper Understanding of the Neuroscience of Social Emotional Development

Sherri L. Alderman, MD, MPH, IMH-E
Developmental Behavioral Pediatrician
sherri.alderman23@gmail.com

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