

# The Science of Learning and Development and Its Implications for Transforming K-12 Education

May 16, 2018 | 2:00-3:00 p.m. EDT

**Presenter:**

- Channa Cook-Harvey, Senior Researcher, Learning Policy Institute

# House Keeping Items

- Introduce yourself in the chat box.
- Ask questions – we'll save time at the end for Q&A.
- Share on social: #learningsciences, @nacol, @LPI\_Learning
- Today's webinar will be recorded and archived.
- Flag any audio issues in the chat box.

# The Science of Learning & Development: Implications for Transforming K-12 Education



Channa Cook-Harvey, PhD

May 16, 2018





**The problem is fundamental. Put twenty or more children of roughly the same age in a little room, confine them to desks, make them wait in lines, make them behave. It is as if a secret committee, now lost to history, had made a study of children and, having figured out what the greatest number were least disposed to do, declared that all of them should do it (p. 115).**

**Tracy Kidder (1989) Among Schoolchildren**

# What We Know from Science

**The brain and the development of intelligences and capacities are plastic and malleable. The brain develops over the entire lifespan as a function of experiences that activate neural pathways which permit new kinds of thinking and performance. The kinds of experience matter greatly.**

**Relationships also matter greatly for learning.**



**As a function of experiences, the brain and human capacities grow over time and across the developmental spectrum (physical, cognitive, affective).**

**What happens in one domain influences what happens in others. Emotions have physical consequences that can trigger or block learning, as can physical activity or its lack.**

**Adversity affects learning and how schools respond matters.**



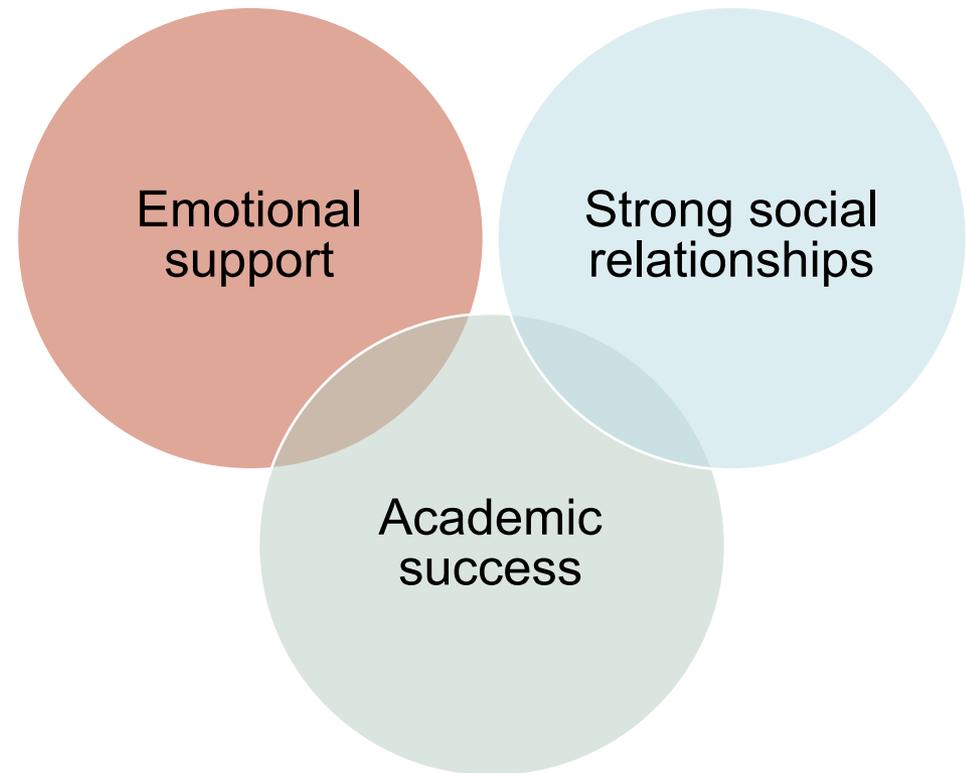
# Development & Schools

Schools must be designed to attend to the unique needs and trajectories of individual children as well as to patterns of development.



# School Climate Matters

**Hundreds of studies have found that a positive school climate supports stronger achievement, better behavior, more attachment, and stronger long-term outcomes for students**



# I. Environmental conditions that support success along the developmental and learning continuum:



- **supports for trusting relationships, attachment and emotional connections,**
- **physical and emotional safety, and**
- **a sense of belonging and purpose**

# 1. Structures for Effective Caring

**School and classroom structures should be designed to create and support *strong attachments and positive, long-term relationships* that provide both academic and social-emotional support.**



**Smaller schools / SLCs  
Personalizing structures:**

- Advisories
- Block scheduling
- Looping
- Teaching teams that share students

**Schools with longer  
grade spans (PK-8, 6-12)**

# 2. Learning Communities

**Schools and classrooms should be developed as learning communities in which all children feel a sense of *physical and psychological safety and belonging* and teachers engage in practices that help them *know their students well*.**



Intentional community-building with shared norms

Identity-safe classrooms in which all are respected and stereotype threat is reduced.

Two-way pedagogies that help teachers learn about students in order to teach them well

Structure and consistency

# 3. Trust and Alignment Among Adults

**School practices should be designed to *strengthen relational trust* among educators and between school staff and families to provide deeper knowledge about children and greater alignment between the home and school.**



Responsive leaders who distribute leadership & encourage participation

Collaboration among staff re: planning & addressing problems of practice

Authentic parent participation: home visits, student-teacher-parent conferences, engagement in student learning & school operations

## **II. Support for the Development of Social, Emotional, and Cognitive Skills, Mindsets, and Habits**



**Self-regulation**  
**Executive function**  
**Intrapersonal awareness**  
**Interpersonal skills**  
**Growth mindset and**  
**A sense of agency that**  
**support resilience and**  
**productive action.**

# 4. Integration of Social-Emotional Skills

**Schools and classrooms should provide regular opportunities to integrate social emotional skills into academic curricula and throughout the school day.**



Support executive functioning w/ strong organizational routines & explicit teaching

Explicitly teach SEL skills, e.g. self-regulation, empathy, collaboration, conflict resolution

Practice mindfulness and / or tools for stress management

# 5. Development of Mindsets

**Students should receive guidance and support to develop habits and mindsets that promote perseverance, resilience, and the ability to take and use feedback productively**



Support key mindsets that support academic success:

- 1) a feeling of belonging at school,
- 2) belief in the value of the work,
- 3) belief that effort will lead to competence (growth mindset), and
- 4) a sense of self-efficacy

..by affirming competence and structuring opportunities for mastery on authentic tasks (practice, feedback, support, revision, recognition)

# 6. Educative Behavioral Supports

**Behavior supports and practices should aim to be educative and restorative rather than punitive and exclusionary**



Explicitly teach skills

Encourage students to take responsibility

Enable students to make amends and proactively contribute to their community.

### III. Instructional strategies that support academic capacity, competence, efficacy, and motivation.



Well-scaffolded instruction and ongoing formative assessment that

- supports individualized and collaborative learning
- takes students' prior knowledge & experiences into account, and
- provides the right amount of challenge and support on relevant and engaging learning tasks.

# 7. Developmentally-Appropriate (Student-Centered) Instruction

**Teaching should address and *build on children's prior knowledge and experiences*, both to scaffold learning effectively and to inform practices that are individually and culturally responsive.**



Build on strengths, interests, & experiences with cultural competence

Design tasks that are authentic, engageable, & well-supported (thus motivating)

Focus on mastery & learning goals, not competition

# 8. Conceptual Understanding

**Teaching should support *engagement, motivation and understanding*, by organizing active learning around well-chosen tasks that are challenging and relevant**



## **Support cognition with**

- Schema / mental models showing patterns & connections
- Multiple representations & multiple modalities for learning
- Tools that reduce cognitive load
- Reduction of anxiety
- Guidance / explicit instruction + inquiry / discovery

**Design tasks that are authentic, engageable, & well-supported (thus motivating)**

**Focus on mastery & learning goals, not competition**

# 9. Learning to Learn

**To enable learning that is transferable and supports a growth mindset, teaching should be designed to develop *metacognitive thinking and reflection***



Model and teach self-regulation & metacognition: self-direction, goal-setting, planning, finding resources, evaluating, sense-making

Provide specific, concrete feedback using tools like rubrics that support self- and peer-assessment / reflection

Encourage mastery-oriented performance assessment & revision of work that support growth mindset

# **IV. Structures that reach beyond the classroom to provide systems of academic and social support.**



**These include personalized supports that respond to students' needs and address adversity.**

# 10. Integrated Services

**Schools should coordinate *access to integrated services* that enable children's healthy development.**



Wraparound programs that provide access to health and social services on-site and/or through community partnerships

Community school designs that provide integrated services, family & community engagement, extended learning opportunities, and collaborative structures

# 11. Multi-tiered Systems of Support

**Schools should create a collaborative, unified approach to working with staff, families, and support providers to *meet student needs and addresses learning barriers* based on a shared developmental framework.**



Teach all adults developmental principles to use in interacting with children (e.g. Dr. Comer's School Development Program model)

Collaborate with parents/ staff for diagnostic information when needs emerge

Use multi-tiered systems of support to address academic and social needs responsively without lengthy identification and labeling processes

# 12. Extended Learning Opportunities

*Extended learning opportunities should be designed to support personalized instruction and mentoring that strengthen relationships and close achievement gaps.*



**Before and after school time for connection, homework, enrichment**

**Tutoring for specific needs**

**Mentoring**

**Summer learning opportunities**

# LPI Survey of CA Principals

**9 in 10 would like to receive more PD in how to:**

- **Create a school environment that develops personally and socially responsible young people and uses discipline for restorative purposes (91%)**
- **Redesign a school organization to support deeper learning for teachers and students (90%)**
- **Lead schools that support students' social and emotional development (89%).**
- **Develop systems that meet children's needs and support their physical and mental health (88%).**



**Questions? Comments?**

# Thank You for Attending

## For More Information:

- Learning Policy Institute: <https://learningpolicyinstitute.org/>
- iNACOL Resources: <https://www.inacol.org/resources/>
- Upcoming iNACOL Events: <https://www.inacol.org/events/>
- iNACOL Symposium: <https://www.inacol.org/symposium/>

*Early-bird registration available until 7/11/18.*

## Contact Us:

- Channa Cook-Harvey, Senior Researcher, Learning Policy Institute, [cmcookharvey@learningpolicyinstitute.org](mailto:cmcookharvey@learningpolicyinstitute.org)