

# The Science Behind SEL:

## Top Findings from Recent Research





**Finding #1: “*Children with strong social skills in kindergarten more likely to thrive as adults.*”**

Jones, D., Greenberg, M., & Crowley, M. (2015). Early social-emotional functioning and public health: The relationship between kindergarten social competence and future wellness. *American Journal of Public Health, 105*, 2283-2290.

# The Study

- Key Research Findings:
- Children with high prosocial skills in kindergarten were more likely to:
  - Graduate from high school
  - Complete a college degree
  - Obtain a full time job
- Children with low prosocial skills in kindergarten were more likely to:
  - Have spent time in juvenile detention
  - Been arrested by early adulthood
  - Have a higher rate of recent binge drinking and 82% higher rate of recent marijuana usage; and
  - Higher chance of being in or on a waiting list for public housing.



**Finding #2: Social & Emotional Skills  
are malleable**

# NEUROPLASTICITY

A 3D rendering of a neural network. The background is a dark blue, almost black, space filled with a complex web of thin, light blue lines representing axons and dendrites. Several larger, more prominent neurons are visible, each with a central, textured, light blue cell body (soma) and multiple long, tapering processes extending outwards. These processes are interconnected at various points, which are highlighted by small, glowing orange-yellow spheres, representing synapses. The overall effect is a dense, interconnected network of biological structures, illuminated with a cool blue light and punctuated by warm orange highlights.

(Goldsmith, Pollak, & Davidson, 2008; Kandel et al., 2000)

# We Feel, Therefore We Learn: The Relevance of Affective and Social Neuroscience to Education

Mary Helen Immordino-Yang<sup>1</sup> and Antonio Damasio<sup>2</sup>

---

ABSTRACT—Recent advances in neuroscience are highlighting connections between emotion, social functioning, and

tions between decision making, social functioning, and moral reasoning hold new promise for breakthroughs in understand

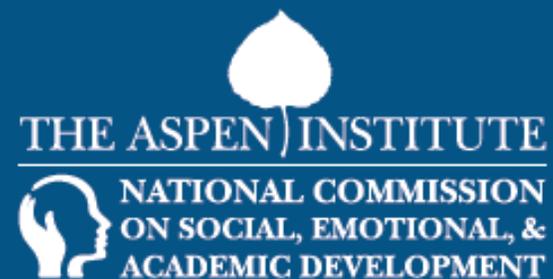
A network diagram of a brain, with white nodes and lines representing neural connections, set against a dark blue background. The diagram is positioned in the upper right quadrant of the page.

# The Brain Basis for Integrated Social, Emotional, and Academic Development

---

How emotions and social  
relationships drive learning

Mary Helen Immordino-Yang,  
Linda Darling-Hammond,  
Christina Krone



Physiological conditions that must be present for optimal brain development and learning

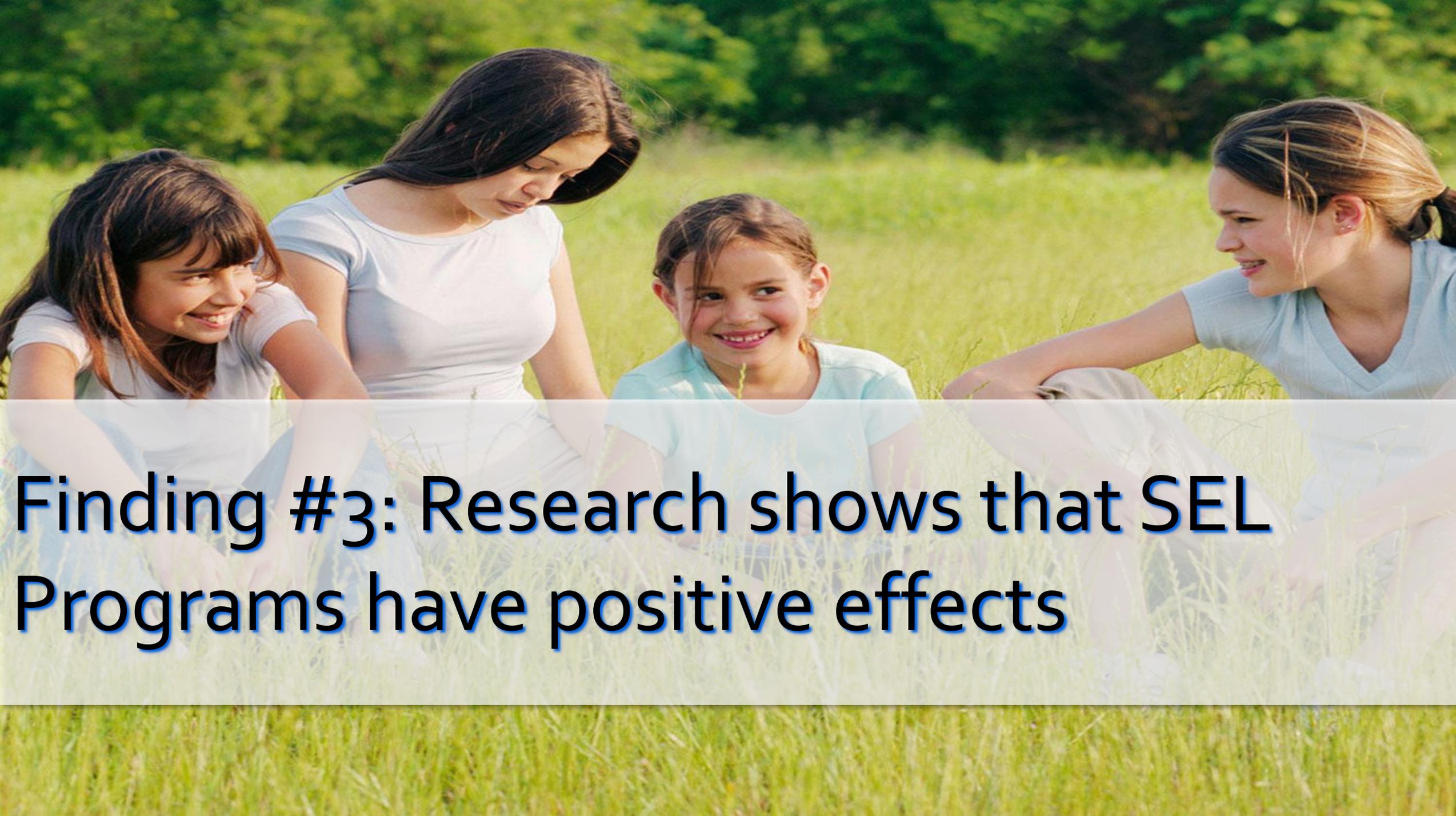
Sleep/Rest

Nutrition and low exposure to toxins

Physical activity/Exercise/Green Space

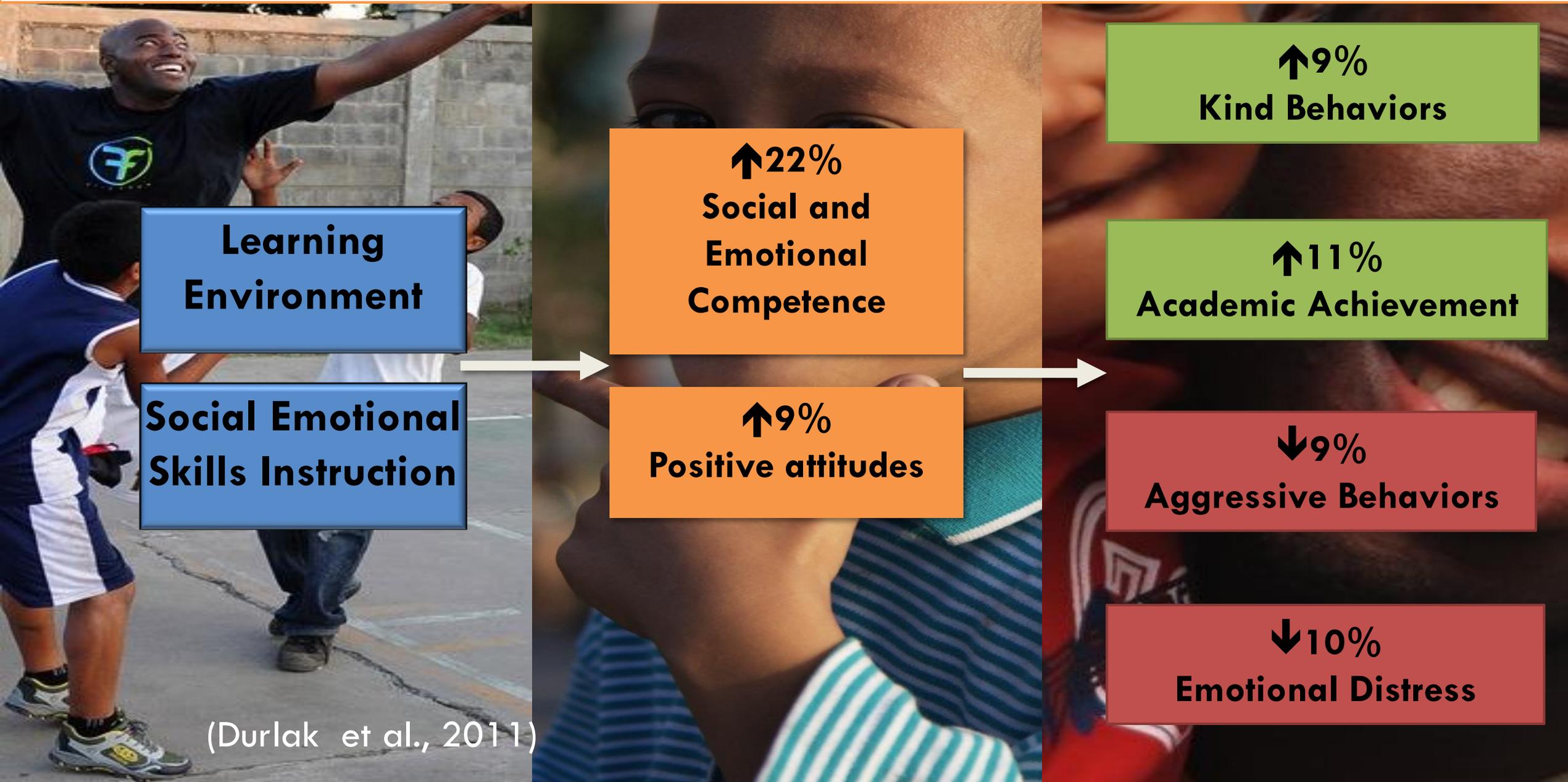
Emotional well-being  
Social relationships/Safety/Belonging

Cultural Safety

A photograph of a woman and three young girls sitting in a grassy field. The woman is in the center, leaning forward and smiling. The girls are on either side of her, also smiling and looking towards each other. They are all wearing light-colored clothing. The background is a lush green field with trees in the distance.

**Finding #3: Research shows that SEL Programs have positive effects**

# CASEL Meta-analysis: 213 studies, 270,034 students



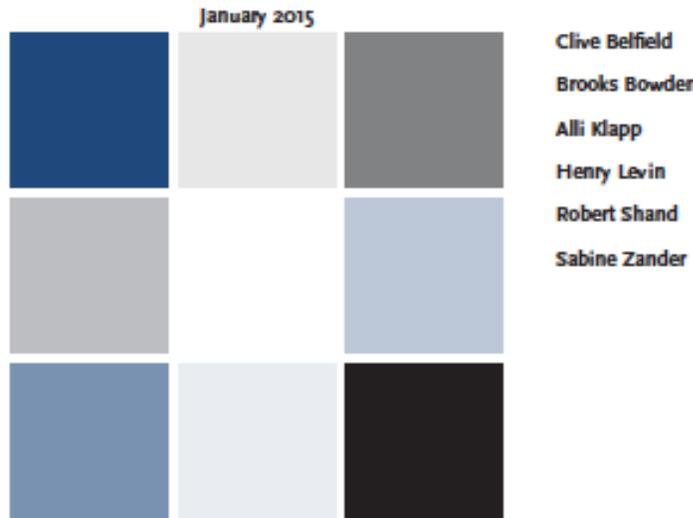
# Longitudinal Findings from the Seattle Social Development Project at Age 21 (Hawkins et al., 2008)

- More high school graduates
  - More attending college
  - More employed
  - Better emotional and mental health
  - Fewer with a criminal record
  - Less drug selling
  - Less co-morbid diagnosis of substance abuse and mental disorder
- Cost-benefit: \$3.14/student for \$1.00 invested

# Economic Value of SEL

- The aggregate result of the analysis showed an average benefit-cost ratio of about 11 to 1 among the six evidence-based SEL interventions studied.
- This means that, **on average, for every \$1 invested in SEL programming, there is a return of \$11.**

## THE ECONOMIC VALUE OF SOCIAL AND EMOTIONAL LEARNING



Center for Benefit-Cost Studies in Education  
Teachers College, Columbia University  
[www.cbcse.org](http://www.cbcse.org)

Funding for this research was provided by the  
NoVo Foundation ([novofoundation.org](http://novofoundation.org)).



**MINDUP** \* Kindergarten to 8<sup>th</sup> grade  
(5 to 14 yrs)

Focused Classrooms • Mindful Learning • Resilient Children  
**SCHOLASTIC**

Focused Classrooms • Mindful Learning • Resilient Students  
**SCHOLASTIC**

Focused Classrooms • Mindful Learning • Resilient Students  
**SCHOLASTIC**

A group of children are sitting in a garden, practicing mindfulness. They have their eyes closed and hands clasped in front of them. The background is filled with lush green plants and trees. The text is overlaid on the image.

**THE CORE PRACTICE** 3x a day  
“the heart of the program”

PAUSE

LISTEN

BREATHE

## Enhancing Cognitive and Social–Emotional Development Through a Simple-to-Administer Mindfulness-Based School Program for Elementary School Children: A Randomized Controlled Trial

Kimberly A. Schonert-Reichl, Eva Oberle,  
Molly Stewart Lawlor, David Abbott,  
and Kimberly Thomson  
University of British Columbia

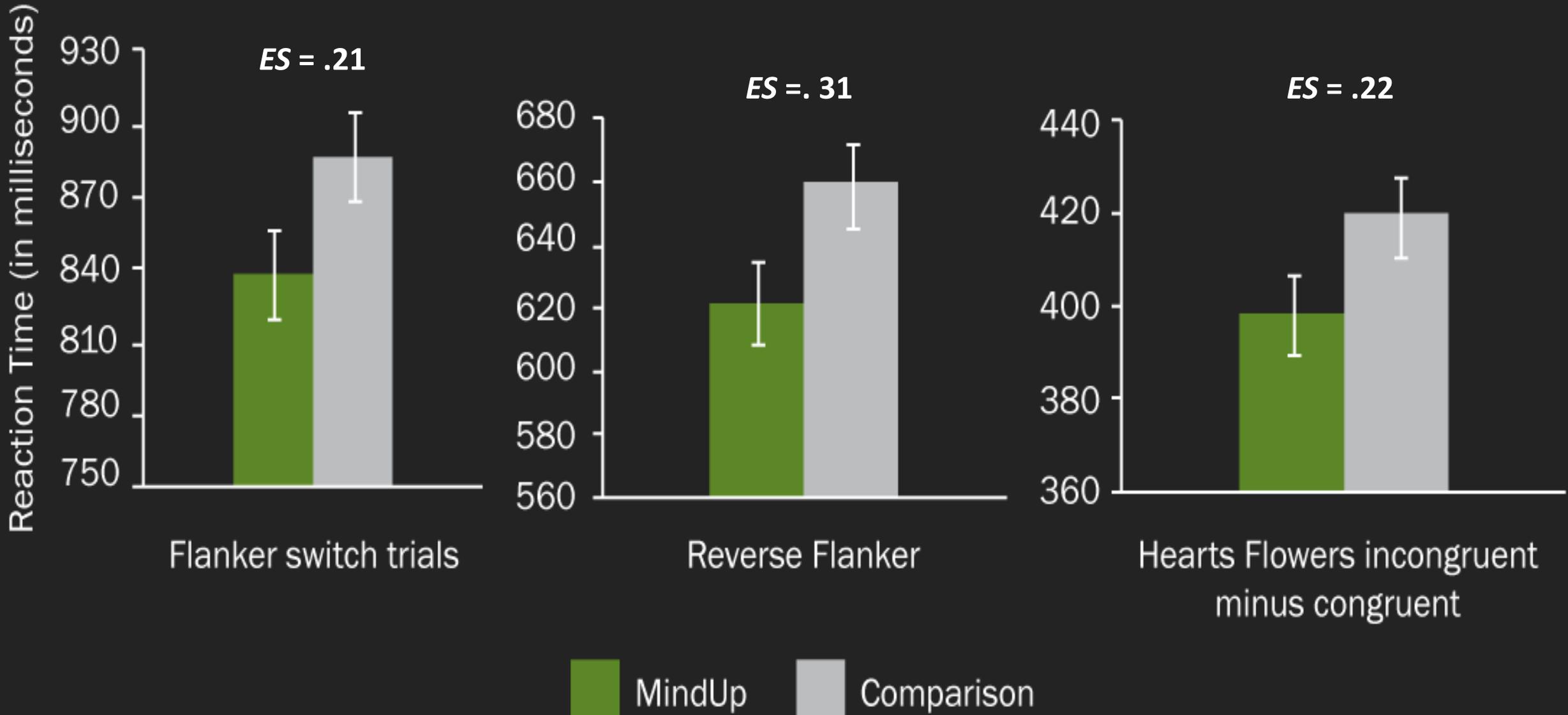
Tim F. Oberlander and Adele Diamond  
University of British Columbia and Children's  
Hospital, Vancouver, British Columbia, Canada

The authors hypothesized that a social and emotional learning (SEL) program involving mindfulness and caring for others, designed for elementary school students, would enhance cognitive control, reduce stress, promote well-being and prosociality, and produce positive school outcomes. To test this hypothesis, 4 classes of combined 4th and 5th graders ( $N = 99$ ) were randomly assigned to receive the SEL with mindfulness program versus a regular social responsibility program. Measures assessed executive functions (EFs), stress physiology via salivary cortisol, well-being (self-reports), prosociality and peer acceptance (peer reports), and math grades. Relative to children in the social responsibility program, children who received the SEL program with mindfulness (a) improved more in their cognitive control and stress physiology; (b) reported greater empathy, perspective-taking, emotional control, optimism, school self-concept, and mindfulness, (c) showed greater decreases in self-reported symptoms of depression and peer-rated aggression, (d) were rated by peers as more prosocial, and (e) increased in peer acceptance (or sociometric popularity). The results of this investigation suggest the promise of this SEL intervention and address a lacuna in the scientific literature—identifying strategies not only to ameliorate children's problems but also to cultivate their well-being and thriving. Directions for future research are discussed.

*Keywords:* social and emotional learning, well-being, mindfulness, intervention, prosociality

*Supplemental materials:* <http://dx.doi.org/10.1037/a0038454.supp>

# Executive Functions (Post-test)



# Summary of Findings on MindUP

- ↑ Self-control
- ↑ Positive emotions
- ↑ Empathy and perspective-taking
- ↑ Social and emotional competence
- ↑ Stress regulation
- ↑ Kindness and caring for others
- ↑ Math grades
- ↓ Depressive symptoms



**Health Benefits of SEL: Can random assignment to volunteering reduce cardiovascular risk in teens?**



## ONLINE FIRST

# Effect of Volunteering on Risk Factors for Cardiovascular Disease in Adolescents

## *A Randomized Controlled Trial*

Hannah M. C. Schreier, PhD; Kimberly A. Schonert-Reichl, PhD; Edith Chen, PhD

**Importance:** The idea that individuals who help others incur health benefits themselves suggests a novel approach to improving health while simultaneously promoting greater civic orientation in our society. The present study is the first experimental trial, to our knowledge, of whether regular volunteering can reduce cardiovascular risk factors in adolescents.

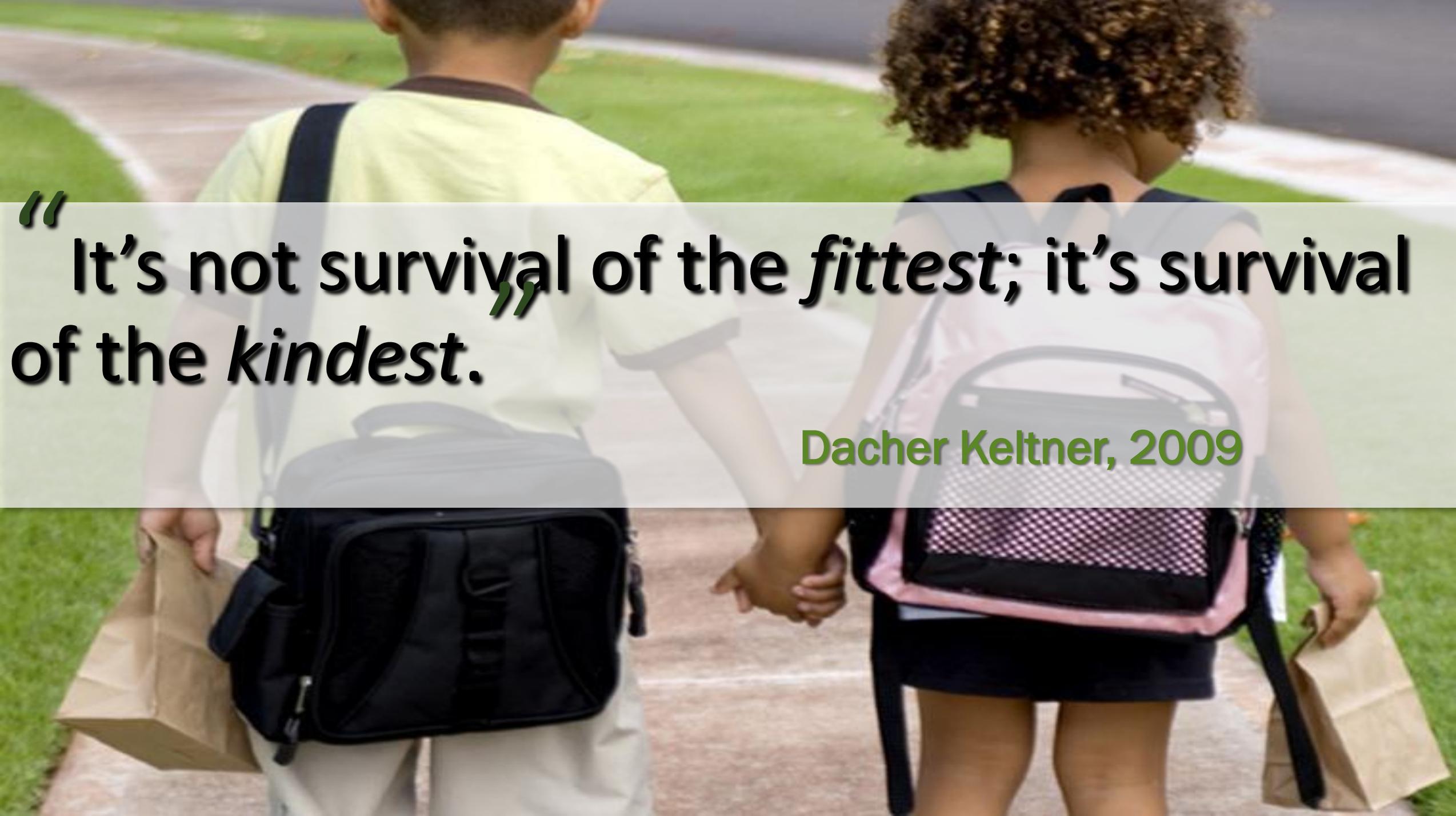
**Objective:** To test a novel intervention that assigned adolescents to volunteer with elementary school-aged children as a means of improving adolescents' cardiovascular risk profiles.

**Design:** Randomized controlled trial, with measurements taken at baseline and 4 months later (postintervention).

**Results:** No statistically significant group differences were found at baseline. Postintervention, adolescents in the intervention group showed significantly lower interleukin 6 levels ( $\log_{10}$  mean difference, 0.13; 95% CI, 0.004 to 0.251), cholesterol levels ( $\log_{10}$  mean difference, 0.03; 95% CI, 0.003 to 0.059), and body mass index (mean difference, 0.39; 95% CI, 0.07 to 0.71) compared with adolescents in the control group. Effects for C-reactive protein level were marginal ( $\log_{10}$  mean difference, 0.13; 95% CI,  $-0.011$  to 0.275). Preliminary analyses within the intervention group suggest that those who increased the most in empathy and altruistic behaviors, and who decreased the most in negative mood, also showed the greatest decreases in cardiovascular risk over time.

**Finding #4: SEL and Altruism: We have underestimated children's capacities for being good**



A photograph of two children walking away from the camera on a paved path. The child on the left is wearing a light green shirt and a black messenger bag, carrying a brown paper bag. The child on the right is wearing a white shirt and a black backpack with pink accents, also carrying a brown paper bag. They are holding hands. The background shows a grassy area and a road.

**“ It’s not survival of the *fittest*; it’s survival of the *kindest*. ”**

**Dacher Keltner, 2009**



# Altruistic Helping in Human Infants and Young Chimpanzees

Felix Warneken, *et al.*

*Science* **311**, 1301 (2006);

DOI: 10.1126/science.1121448

REPORTS

## Altruistic Helping in Human Infants and Young Chimpanzees

Felix Warneken\* and Michael Tomasello

Human beings routinely help others to achieve their goals, even when the helper receives no immediate benefit and the person helped is a stranger. Such altruistic behaviors (toward non-kin) are extremely rare evolutionarily, with some theorists even proposing that they are uniquely human. Here we show that human children as young as 18 months of age (prelinguistic or just-linguistic) quite readily help others to achieve their goals in a variety of different situations. This requires both an understanding of others' goals and an altruistic motivation to help. In addition, we demonstrate similar though less robust skills and motivations in three young chimpanzees.

Helping is an extremely interesting phenomenon both cognitively and motivationally. Cognitively, to help someone solve a problem, one must know something about the goal the other is attempting to achieve as well as the current obstacles to that goal. Motivationally, exerting effort to help another person—with no immediate benefit to oneself—is costly, and such altruism (toward non-kin) is extremely rare evolutionarily. Indeed, some researchers have claimed that

uations fell into four categories: out-of-reach objects, access thwarted by a physical obstacle, achieving a wrong (correctable) result, and using a wrong (correctable) means (Table 1) (movies S1 to S4). For each task, there was a corresponding control task in which the same basic situation was present but with no indication that this was a problem for the adult (14). This ensured that the infant's motivation was not just to reinstate the original situation or to have the adult repeat the action, but

each category (Fig. 1). They handed him several out-of-reach objects (but not if he had discarded them deliberately); they completed his stacking of books after his failed attempt (but not if his placement of the books appeared to meet his goal); they opened the door of a cabinet for him when his hands were full (but not if he struggled toward the top of the cabinet); and they retrieved an inaccessible object for him by opening a box using a means he was unaware of (but not if he had thrown the object inside the box on purpose). Analyzed by individual, 22 of the 24 infants helped in at least one of the tasks. It is noteworthy that they did so in almost all cases immediately (average latency = 5.2 s), before the adult either looked to them or verbalized his problem (84% of helping acts within the initial 10-s phase). Thus, the experimenter never verbally asked for help, and for the vast majority of helping acts, eye contact (as a subtle means of soliciting help) was also unnecessary.

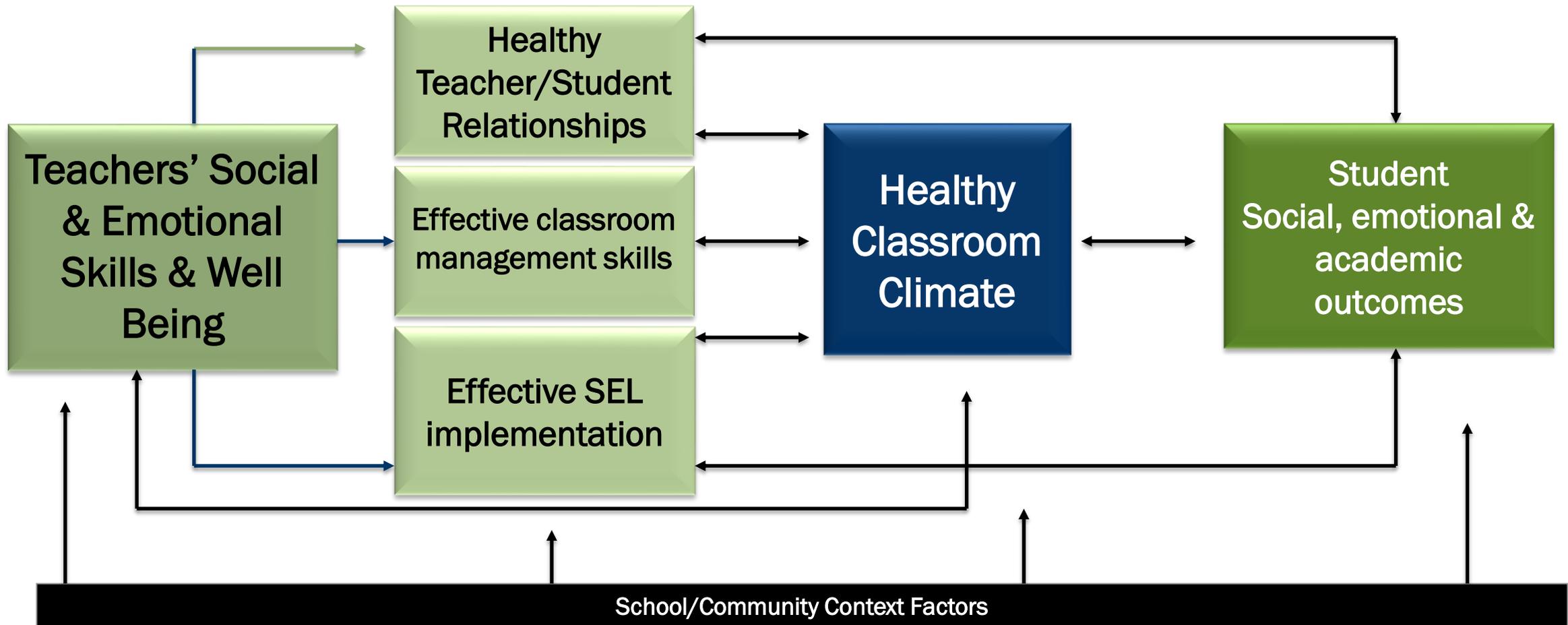
Experimental studies on altruistic behaviors in nonhuman primates are scarce. There are anecdotal reports of possible instances of helping (15–17) and some experiments demonstrating empathic intervention by various



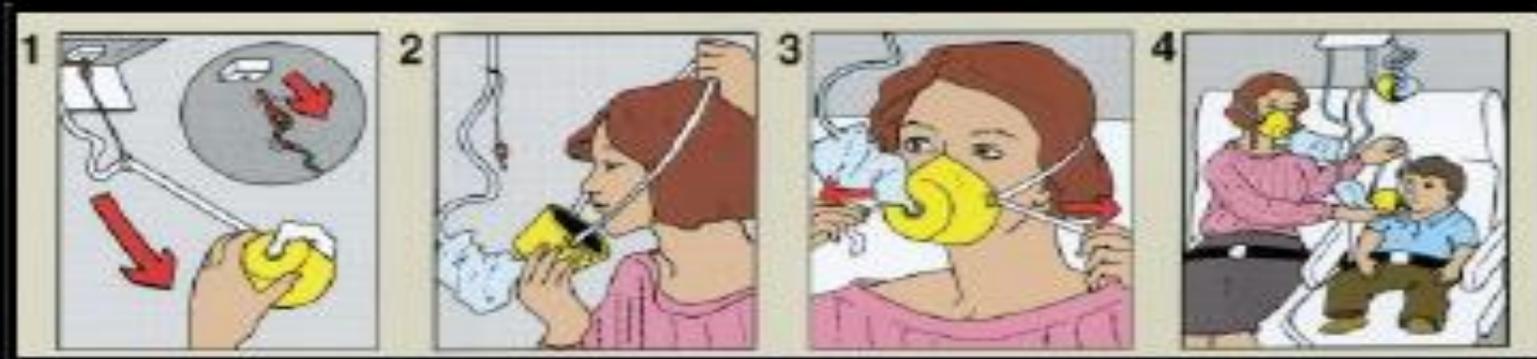
**Finding #5: To reach the students, CARE FOR Educators**

# The Prosocial Classroom:

## A Model of Teacher Social and Emotional Competence and Classroom and Child Outcomes



**First,**



**Then...**

# Teaching is one of the most stressful of all professions!

46% of teachers report high daily stress during the school year. That's tied with nurses for the highest rate among all occupational groups, and higher than doctors.

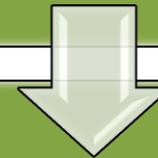


Gallup (2014). State of American Schools. Retrieved from <http://www.gallup.com/services/178709/state-america-schools-report.aspx>.



# The Burnout Cascade

Emotional Exhaustion



De-personalization



Lack of Accomplishment

50% leave within first 5 years of teaching (NEA, 2006)



<http://www.CARE4Teachers.com>

- Cultivating
- Awareness
- Resilience in
- Education



GARRISON INSTITUTE

# Impacts of the CARE for Teachers Program on Teachers' Social and Emotional Competence and Classroom Interactions

Patricia A. Jennings  
University of Virginia

Joshua L. Brown  
Fordham University

Jennifer L. Frank, Sebrina Doyle,  
and Yoonkyung Oh  
Pennsylvania State University

Regin Davis  
Columbia University

Damira Rasheed and Anna DeWeese  
Fordham University

Anthony A. DeMauro  
University of Virginia

Heining Cham  
Fordham University

Mark T. Greenberg  
Pennsylvania State University

Understanding teachers' stress is of critical importance to address the challenges in today's educational climate. Growing numbers of teachers are reporting high levels of occupational stress, and high levels of teacher turnover are having a negative impact on education quality. Cultivating Awareness and Resilience in Education (CARE for Teachers) is a mindfulness based professional development program

# **Teacher preparation makes a difference**

When teachers receive training in the behavioral and emotional factors that impact teaching and learning in the classroom, they feel better equipped to propose and implement positive, active classroom management strategies that deter students' aggressive behaviors and promote a positive classroom learning climate (Alvarez, 2007).

# ***SEL 2.0: Implementing SEL System-Wide***



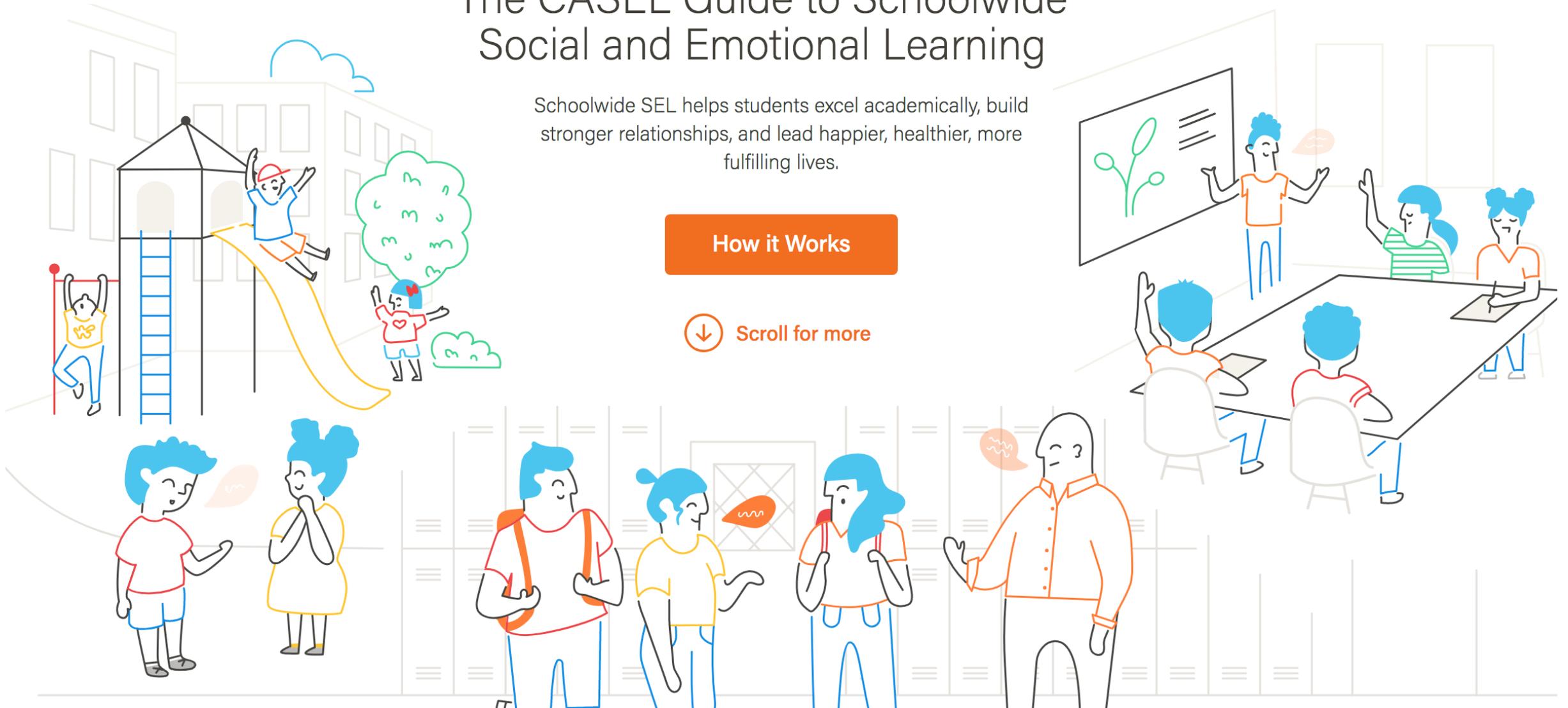


# The CASEL Guide to Schoolwide Social and Emotional Learning

Schoolwide SEL helps students excel academically, build stronger relationships, and lead happier, healthier, more fulfilling lives.

How it Works

↓ Scroll for more

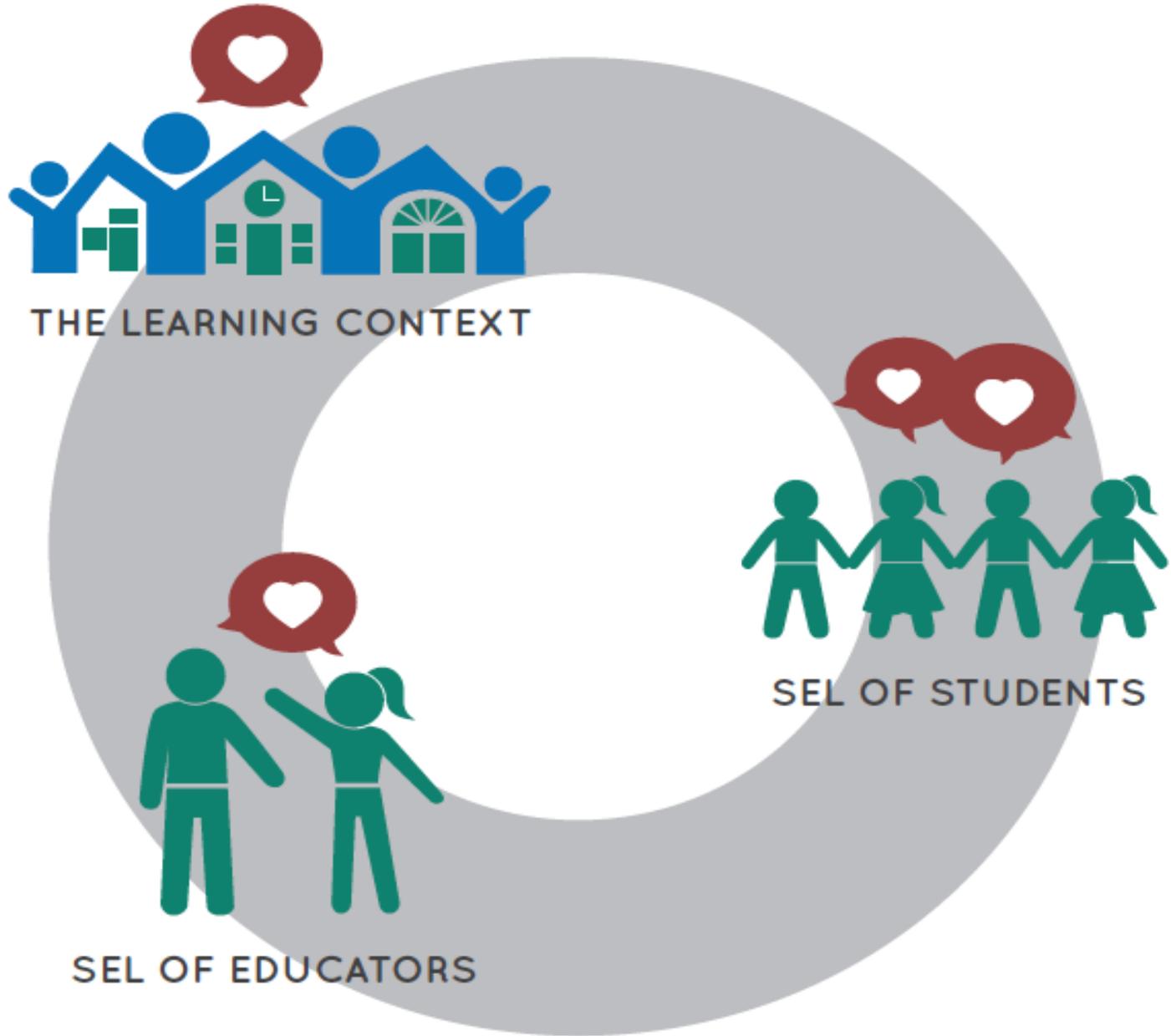


From *FRAGMENTATION*

to *COHERENCE*



# THREE ESSENTIAL INGREDIENTS OF SYSTEMIC SEL



---

# The Effects of School Climate, Socioeconomics, and Cultural Factors on Student Victimization in Israel

*Mona Khoury-Kassabri, Rami Benbenishty, and Ron Avi Astor*

---

The study reported in this article is based on a nationally representative sample of 10,400 students in grades 7 through 11 in 162 schools across Israel. The authors used hierarchical linear modeling to examine the differences between Jewish and Arab schools in the relationships between school-level variables—socioeconomic status (SES) of the school's neighborhood and students' families, school size and class size, school level (junior high and high), and school climate—and students' victimization reports (serious physical victimization, threats, moderate physical victimization, and verbal–social victimization). The results show that whereas school climate and school size seem to operate similarly across different cultural contexts, the SES of a school's neighborhood and students' families were associated with victimization for students in Arab schools only. Theoretical implications of these findings for school violence research in other cultures are discussed.

# Edutopia: <https://www.edutopia.org/>

THE RESEARCH IS IN

## Welcoming Students With a Smile

Greeting each student at the door with a positive message brings benefits for both students and teacher, according to a study.

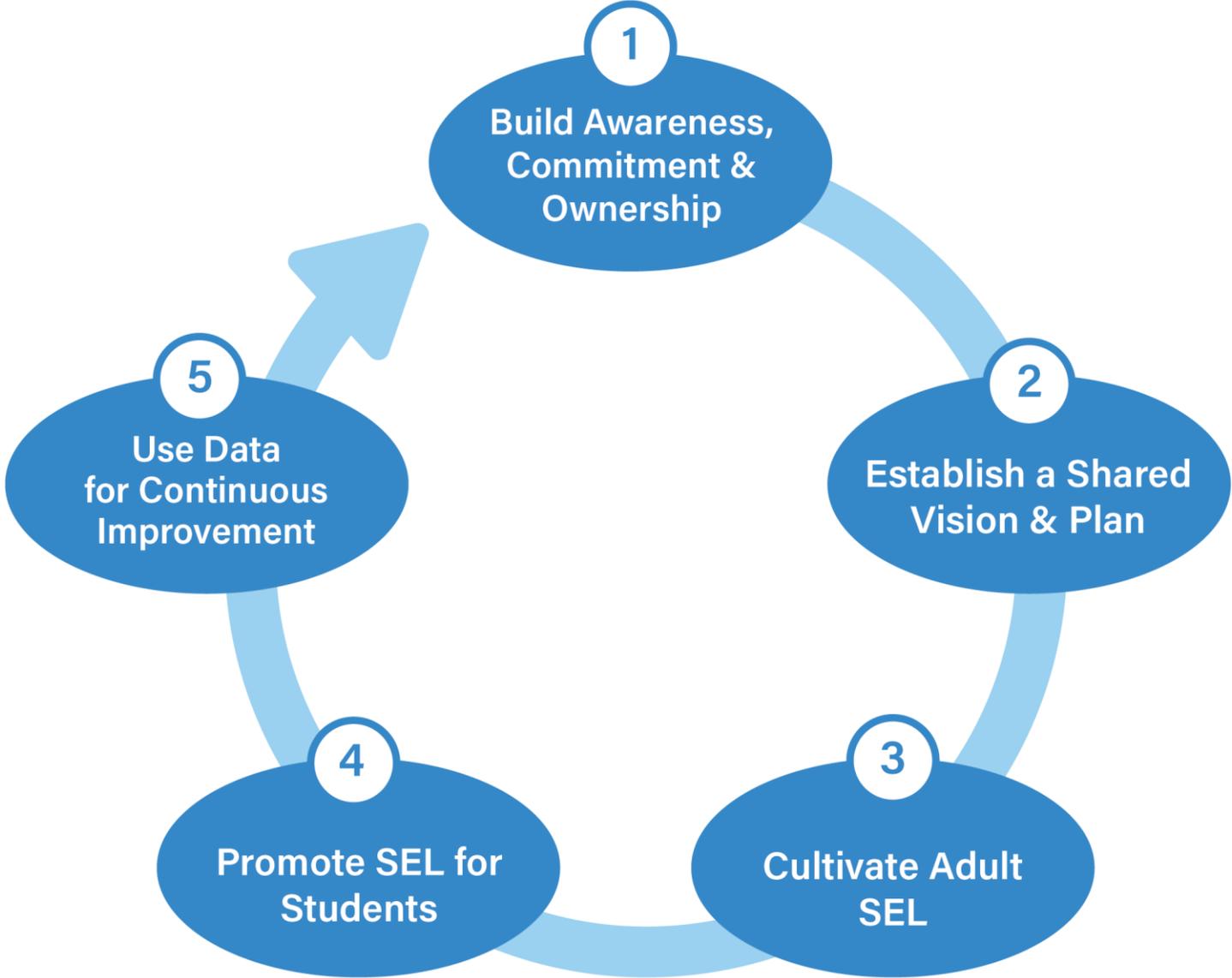
By [Youki Terada](#)

September 11, 2018



In the study, when teachers started class by welcoming students at the door, **academic engagement increased by 20 percentage points and disruptive behavior decreased by 9 percentage points**—potentially adding “an additional hour of engagement over the course of a five-hour instructional day,” according to the researchers.

# THE PROCESS OF CREATING SYSTEM-WIDE SEL



## **INDICATORS OF SCHOOLWIDE SEL**

Schoolwide SEL is a systemic approach to integrating academic, social, and emotional learning across all school contexts. This approach recognizes that in order to develop and sustain social and emotional competencies, schools must provide a learning environment that infuses SEL into all aspects of instruction and offers equitable outcomes for all students. Central to this system is high-quality professional learning and the use of data for continuous improvement. When fully implemented, schoolwide SEL contributes to more successful and equitable outcomes for young people, and is evidenced by the following indicators:

## CLASSROOM

**Explicit SEL instruction\***

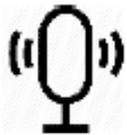
All students receive *explicit* SEL instruction and opportunities to practice SEL that are developmentally appropriate and culturally responsive.

**SEL integrated with instruction\***

In addition to explicit SEL instruction, SEL content is *integrated* into instruction. Use of interactive and collaborative pedagogies enables ongoing practice of SEL skills and strengthens teaching and learning of academic content.

**Supportive school and classroom climates\***

Schoolwide and classroom learning environments are supportive, culturally responsive, developmentally appropriate, and focused on building community. Collaboratively developed shared agreements provide guidance for how all staff, students, families, and stakeholders interact with one another. These agreements inform norms and routines throughout the school and set the tone for learning.

**Youth voice and engagement**

Staff engage students as problem-solvers and decision-makers by offering them opportunities to inform instruction and strengthen school climate. Students take on leadership roles within the school community and participate in meaningful service learning opportunities.



### Focus on adult SEL and relationships

Staff have regular opportunities to cultivate their own social, emotional, and cultural competence, collaborate with one another, build relational trust, and maintain a strong community. Staff focus on developing connections with students and providing them with opportunities to learn and practice relationship skills.



### Supportive discipline

Discipline policies and practices are instructive, restorative, developmentally appropriate, and equitably enforced.



### A continuum of integrated supports

SEL is seamlessly integrated into a continuum of academic and behavioral supports, which are available to ensure that all student needs are met.



### Systems for continuous improvement

School leadership team(s) intentionally plan for and communicate about SEL. School-level data are collected and used to continuously improve all SEL-related systems, practices, and policies with a focus on equity.



### **Authentic Family partnerships**

Families and school staff have regular and meaningful opportunities to build relationships and collaborate to support students' social, emotional, and academic development.



### **Aligned Community partnerships**

School staff and community partners align on common language, strategies, and communication around all SEL-related efforts and initiatives, including out-of-school time.

\*Schools can adopt evidence-based programs that address one or all of the three of the following: explicit SEL instruction, SEL integration, climate and culture.

## The Mindset of Teachers Capable of Fostering Resilience in Students

Robert Brooks  
Harvard Medical School  
Sam Goldstein  
George Mason University

Canadian Journal of  
School Psychology  
Volume 23 Number 1  
June 2008 114-126  
© 2008 Sage Publications  
10.1177/08822571508316597  
<http://jps.sagepub.com>  
hosted at  
<http://online.sagepub.com>

**Abstract:** The assumptions educators possess about themselves, their role as teachers, and their students' capabilities play a significant role in determining expectations, teaching practices, and ultimately student happiness and success. This article provides an overview of the application of resilience principles in the classroom from the perspective of the mindset of effective educators. In their efforts to nurture resilience in their students, effective educators appreciate the life-long impact they have on students, acknowledge that all students want to be successful, and appreciate that the foundation for successful learning in a safe and secure classroom climate is the relationship they forge with students. Ideas and strategies are offered to assist teachers in developing a mindset capable of fostering resilience in students.

**Résumé:** Les suppositions qu'ont les enseignants par rapport à eux-mêmes, à leur rôle et aux capacités de leurs étudiants jouent un rôle significatif quant à leurs attentes, à leurs façons d'enseigner et, en bout de ligne, au bonheur et au succès des étudiants. Cet article donne une vue d'ensemble de l'application des principes de résilience dans la classe en adoptant la perspective fournie par l'état d'esprit d'enseignants efficaces. Dans leurs efforts pour entretenir la résilience, les enseignants efficaces sont conscients de l'effet durable qu'ils ont sur leurs étudiants, ils reconnaissent que tous veulent réussir et ils se rendent compte que la base d'un apprentissage réussi dans un climat sûr passe par la relation qu'ils forment avec eux. On y présente également des idées et des stratégies pour aider les enseignants à développer un état d'esprit capable d'engendrer la résilience chez les étudiants.

**Keywords:** *mindset; resilience; classroom strategies*

Differing mindsets or assumptions that educators possess about themselves and their students play a significant role in determining their expectations, teaching practices, and relationships with students (Brooks, 1999, 2001a, 2001b, 2004; Brooks & Goldstein, 2001, 2003, 2004). These factors influence the role educators may play in fostering a resilient mindset in their students. Even those assumptions about which we may not be aware have a way of being expressed to others. For

- “Recognize that if educators are to effectively relate to students, they must be empathic, always attempting to perceive the world through the eyes of the student.”

# Brief intervention to encourage empathic discipline cuts suspension rates in half among adolescents

Jason A. Okonofua<sup>a,1</sup>, David Paunesku<sup>a</sup>, and Gregory M. Walton<sup>a</sup>

<sup>a</sup>Department of Psychology, Stanford University, Stanford, CA 94305

Edited by Susan T. Fiske, Princeton University, Princeton, NJ, and approved March 18, 2016 (received for review December 1, 2015)

Growing suspension rates predict major negative life outcomes, including adult incarceration and unemployment. Experiment 1 tested whether teachers ( $n = 39$ ) could be encouraged to adopt an empathic rather than punitive mindset about discipline—to value students' perspectives and sustain positive relationships while encouraging better behavior. Experiment 2 tested whether an empathic response to misbehavior would sustain students' ( $n = 302$ ) respect for teachers and motivation to behave well in class. These hypotheses were confirmed. Finally, a randomized field experiment tested a brief, online intervention to encourage teachers to adopt an empathic mindset about discipline. Evaluated at five middle schools in three districts ( $N_{\text{teachers}} = 31$ ;  $N_{\text{students}} = 1,682$ ), this intervention halved year-long student suspension rates from 9.6% to 4.8%. It also bolstered respect the most at-risk students, previously suspended students, perceived from teachers. Teachers' mindsets about discipline directly affect the quality of teacher-student relationships and student suspensions and, moreover, can be changed through scalable intervention.

may give rise to a self-perpetuating cycle of punishment and misbehavior (12).

Three experiments tested whether teachers can be encouraged to adopt an empathic mindset about discipline and examined its impact on students. This mindset prioritizes valuing and understanding students' experiences and negative feelings that give rise to misbehavior, sustaining positive relationships with misbehaving students, and working with students within trusting relationships to improve behavior (9). For example, perspective-taking, the cognitive component of empathy, may help teachers understand students' experiences and internal states (13) and thus respond more appropriately to misbehavior (e.g., with greater concern for the needs of the student) (12, 14). Notably, even as many teachers are exposed to a default punitive approach to discipline (5), teachers also have, as a central plank of their profession, the goal to build and sustain positive relationships with students, especially struggling students (15). The existence of this alternative mindset suggests that it may be possible through relatively modest means to encourage a different approach to student misbehavior. We

## Strategy: Implement the A, B, C's (Self-Determination Theory, Deci & Ryan, 2000)

- **A**utonomy (“self-rule,” self-directedness, regulating one’s own behavior and experience)
- **B**elonging (emotional and personal bonds between individuals)
- **C**ompetence (sense of accomplishment and effectance derived from the exercise of ones capacities under conditions of optimal challenge)

# Connectedness to Adults...

...at school predicted  
well-being on the MDI

...is more important to  
well-being than socio-  
economic status

Oberle, Schonert-Reichl et al., 2014





Thank you!