

Social Emotional Learning Benchmarks Workgroup

THEME: What's Been Done and How is it Being Done?

Renton Technical College, Rm H-102

3000 NE 4th Street

Renton, WA 98056

9:00 am - 4:00 pm

- 9:00–9:30 Introductions, Agenda Overview, and Approval of October Meeting Minutes
- 9:30-10:30 Teleconference: SEL Policies, Standards, and Guidelines—What are Other States Doing?
Linda Dusenbury, Research Consultant, CASEL
Roger Weissberg, Chief Knowledge Officer/Board Vice Chair, CASEL
- 10:30–11:30 Department of Early Learning: Standards and Professional Development
Nicole Rose, PreK-3/ECEAP Administrator
- 11:30-11:45 *Break*
- 11:45-12:00 *Public Comment*
- 12:00–1:00 Working Lunch: Homework Review—SEL Overview
- 1:00–2:00 Health and Physical Education K–12 Learning Standards
Marissa Rathbone, Program Supervisor, Health and Physical Education
- 2:00–2:45 Debrief: Recommendations for Development of Benchmarks
➤ What elements of today's presentations (what's being done and how it's being done) do you want to use in the work of this group?
- 2:45–3:15 Future Meeting Planning:
 - Revisit Timeline
 - December Meeting Agenda
- 3:15–3:30 Public Comment
- 3:30–4:00 Final announcements, Conclusion

Identifying State and National Examples targeted to Initial Benchmark Categories Synthesis

Guidelines Law/Policy	Descriptors	Context/How it is Used	What do you Find Useful
Illinois, Pennsylvania, Alaska, and Kansas SEL Comp.	SEL Comp. standards based on CASEL	State example of what we are looking at school wide	The SEL Comp./standards are already in place
Ruler	SEL Curriculum		Comprehensive, easy to communicate, offers school/family component
BSCA			
Teaching Tolerance	Cultural considerations		Provides research on cultural identity in schools
Second Step/Committee for Children	SEL Curriculum	School wide	The vignettes allow adult/peer modeling for students
Positive discipline	Working with students of trauma in the classroom	School wide and in classrooms	Include brainwork research for students to understand emotions
CASEL Guide	States that have SEL and indicators for K-12		Perhaps we as a Workgroup can do a thorough review of state SEL's to adopt sections in WA
ACE – Adverse Childhood Experience	Study on ACE showing a connection to poor health outcomes	Educate, plan programs, and develop outcomes	ACE's study results are used to inform policy and resource development
Early Learning and Development Guidelines	For children aged B-3 rd grade	Foundational guidelines for development	Guidelines can be used to assess and plan age appropriate activities for children B-3 rd
WA-Kids	Development alignment age for Pre K-Kindergarten		
PBIS	Positive Behavior Intervention Supports	Train staff/use to teach/model for students	School climate
CBO	Training for CBO's to link to work don't at school		
Compassionate Schools	A framework of professional development and Technical Assistance to help school staff	Provides context for staff; a team of 4-6 individuals that lead school staff	Can be a professional learning guide
Meta-Analysis	Research funding on SEL	Background	Foundation

Guidelines Law/Policy	Descriptors	Context/How it is Used	What do you Find Useful
WIOA Funding	Training and job search funding is available for low-income, unemployed adults, and youth 16-24 years old	Provide training for in demand occupations to fill open job positions in the current job market	Target specific populations: low-income, unemployed, and youth
National Construction Career Day	Opportunities for construction and apprenticeships to connect with high school students and educators	Career days where construction companies and apprenticeship programs gather to allow students hands-on opportunities with tools	Hands on approach, industry and student interaction, bridging the gap, not everyone needs to go to college
Social thinking	Curriculum focuses on externalizing feelings	Individual/small groups	Allows these really hard to reach student an opportunity to reflect and provide words to support their individual and unique needs
RCW 28A.320.127	Recognition of emotional behavioral stress	School district procedure	Plan for response
RCW 28A.300.285	Prevents bullying, harassment, and intimidation	In all levels of school	School accountability
Bellevue SEL	School district learning standards	Teachers in Bellevue	Model from real life
3DL Partnership	Local work looking at SEL and environmental/contextual issue		Strong focus on WA schools and communities
Yale Center for Emotional Intelligence	Programs used in a lot of WA and Puget Sound region schools		Regional presence in out school
Massachusetts Behavioral Health and Public schools Taskforce Report	Incorporate SEL but uses the lens of mental health and well being		Tied SEL into mental health and well-being. Good job of tying it into other priorities
Rebuilding for Learning	The PD focuses on team approach, but individual schools have struggled with operationalizing/evaluating	Trauma – informed comprehensive learning supports	Team model
Los Angeles Unified School District	Public – private partnership focused on community health	Provide physical and mental health services to entire community	Schools as valuable community partners health as overarching concept

Guidelines Law/Policy	Descriptors	Context/How it is Used	What do you Find Useful
Defunct Bill 5688	Previously established SEL skills	Teaching skills	Category of skills to strive for teaching universally
Children's Resilience Initiative	Utilizes ACE's research in district to address students SEL needs	Ass staff trained and respond to students from ACE's perspective	Gives permission for staff to set aside academics momentarily to address SEL
Collaborative Problem Solving	Provides model of problem solving between teacher and student	When a problem occurs	Allows teachers to access a simple model for problematic students

Brain Storm Synthesis

What benchmark categories do we need to define?	What's in them?	What are we missing?	Considerations?
Self-management	Cooperation	Culture/gender/ethnic	Ultimately, we must understand these skills will always be culturally and contextually embedded
Mindfulness	Negotiation of conflict	Relevant and informed	CASEL
Social Awareness	Self-advocacy	Context for skills use	3DL
Relationship skills		Skills reaching beyond school	CORE Districts
Self-regulations		Life-long learning	Coalition for Community Schools
Empathizing with others			Include resiliency skills
Understanding the nature of consequences			Professional development for staff
			Family/community engagement
			Applying culturally competent lens
			ACE's report results
			Illinois, Pennsylvania, and Kansas
			PBIS

How are SEL Standards Structured?

A Few State Examples

Illinois Learning Standards

Social/Emotional Learning (SEL)

The standards describe the content and skills for students in grades K - 12 for social and emotional learning. Each standard includes five benchmark levels that describe what students should know and be able to do in early elementary (grades K - 3), late elementary (grades 4 - 5), middle/junior high (grades 6-8), early high school (grades 9-10), and late high school (grades 11-12). These standards build on the Illinois Social/Emotional Development Standards of the Illinois Early Learning Standards.

These standards have been developed in accordance with Section 15(a) of Public Act 93-0495. This Act calls upon the Illinois State Board of Education to "develop and implement a plan to incorporate social and emotional development standards as part of the Illinois Learning Standards."

[Introduction](#)

Goals

- Goal 1 - Develop self-awareness and self-management skills to achieve school and life success.  [RTF](#)  [PDF](#)
- Goal 2 - Use social-awareness and interpersonal skills to establish and maintain positive relationships.  [RTF](#)  [PDF](#)
- Goal 3 - Demonstrate decision-making skills and responsible behaviors in personal, school, and community contexts.  [RTF](#)  [PDF](#)

[Acknowledgements](#)

Social Emotional Learning Standards

Goal 1: Develop self-awareness and self-management skills to achieve school and life success.	Why this goal is important: Several key sets of skills and attitudes provide a strong foundation for achieving school and life success. One involves knowing your emotions, how to manage them, and ways to express them constructively. This enables one to handle stress, control impulses, and motivate oneself to persevere in overcoming obstacles to goal achievement. A related set of skills involves accurately assessing your abilities and interests, building strengths, and making effective use of family, school, and community resources. Finally, it is critical for students to be able to establish and monitor their progress toward achieving academic and personal goals.
--	--

Learning Standard	Early Elementary	Late Elementary	Middle/Jr. High	Early H.S.	Late H.S.
A. Identify and manage one's emotions and behavior.	1A.1a. Recognize and accurately label emotions and how they are linked to behavior.	1A.2a. Describe a range of emotions and the situations that cause them.	1A.3a. Analyze factors that create stress or motivate successful performance.	1A.4a. Analyze how thoughts and emotions affect decision making and responsible behavior.	1A.5a. Evaluate how expressing one's emotions in different situations affects others.
	1A.1b. Demonstrate control of impulsive behavior.	1A.2b. Describe and demonstrate ways to express emotions in a socially acceptable manner.	1A.3b. Apply strategies to manage stress and to motivate successful performance.	1A.4b. Generate ways to develop more positive attitudes.	1A.5b. Evaluate how expressing more positive attitudes influences others.

Illinois Learning Standards

Stage A - Social Emotional Learning (SEL)

Goals, Standards and Descriptors

Goal 1 - Develop self-awareness and self-management skills to achieve school and life success.

1A — Identify and manage one's emotions and behavior.

1. Identify emotions (e.g., happy, surprised, sad, angry, proud, afraid) expressed in "feeling faces" or photographs.
2. Name the emotions felt by characters in stories.
3. Identify ways to calm yourself.
4. Describe a time you felt the same way a story character felt.
5. Discuss classroom and school rules.
6. Share feelings (e.g., through speaking, writing, drawing) in a range of contexts.

1B — Recognize personal qualities and external supports.

1. Identify things you like to do.
2. Identify the values that help you make good choices.
3. Identify the people who can give you the help you need.
4. Describe things you do well.
5. Identify reliable adults from whom you would seek help in an emergency.
6. Describe situations in which you feel confident.
7. Describe situations in which you feel you need help.
8. Demonstrate a special skill or talent you have.

1C — Demonstrate skills related to achieving personal and academic goals.

1. Recognize the relationship between what you want to accomplish and setting goals.
2. Explain the various aspects of being successful in school.
3. Describe a behavior you would like to change.
4. Give an example of an academic goal you could set for yourself.
5. Give an example of a personal goal you could set for yourself.
6. Divide a goal you have set into manageable steps.

Self-Management – Understanding and practicing strategies for managing thoughts and behaviors, reflecting on perspectives, and setting and monitoring goals

A. Understand and practice strategies for managing thoughts and behaviors.

K-2	<ol style="list-style-type: none"> 1. Identify and demonstrate techniques to manage common stress and emotions. 2. Identify and describe how feelings relate to thoughts and behaviors. 3. Describe and practice sending effective verbal and non-verbal messages. 4. Recognize behavior choices in response to situations.
3-5	<ol style="list-style-type: none"> 1. Identify and develop techniques to manage emotions. 2. Distinguish between facts and opinions. 3. Describe cause/effect relationships. 4. Identify and demonstrate civic responsibilities in a variety of situations (for example, bullying, vandalism, violence) 5. Describe consequences/outcomes of both honesty and dishonesty. 6. Describe and practice communication components (for example, listening, reflecting, responding). 7. Predict possible outcomes to behavioral choices.
6-8	<ol style="list-style-type: none"> 1. Identify multiple techniques to manage stress and maintain confidence. 2. Distinguish between facts and opinions, as well as logical and emotional appeals. 3. Recognize effective behavioral responses to strongly emotional situations. 4. Recognize different models of decision making (for example, authoritative, consensus, democratic, individual) 5. Recognize cause/effect relationships. 6. Recognize logical fallacies, bias, hypocrisy, contradiction, distortion, and rationalization. 7. Practice effective communication (for example, listening, reflecting, responding).
9-12	<ol style="list-style-type: none"> 1. Identify and evaluate techniques to successfully manage emotions, stress and maintain confidence. 2. Analyze accuracy of facts/information/interpretation. 3. Evaluate quality of support for opinions. 4. Evaluate logical and emotional appeals. 5. Analyze cause/effect relationships. 6. Analyze consequences/outcomes of logical fallacies, bias, hypocrisy, contradiction, ambiguity, distortion, and rationalization. 7. Apply effective listening skills in a variety of setting and situations. 8. Recognize barriers to effective listening (for example, environmental distractions, message problems, sender problems, receiver problems).

Policy 4373 Electronic Manual

WEST VIRGINIA MANUAL FOR EXPECTED BEHAVIOR IN SAFE AND SUPPORTIVE SCHOOLS (Policy 4373)

Introduction

Chapter 1: EXPECTED STUDENT DISPOSITIONS

Section 1. Rationale for Developing Valued Dispositions

Section 2. School and Community Social Skills Standards

Crosswalk for 21st Century Content Standards and Objectives for West Virginia Schools

Standard 1: Self-awareness and Self-management

Standard 2: Social-awareness and Interpersonal Skills

Standard 3: Decision-making Skills and Responsible Behaviors

Chapter 2: STUDENT RIGHTS AND RESPONSIBILITIES

Section 1. The Right to a Thorough and Efficient Education

Section 2. Student Inquiry and Expression

Section 3. Non-curriculum Related Student Groups

Section 4. Extra-Curricular Activities

Section 5. Privacy

Section 6. Protection from Unreasonable Searches and Seizures

Section 7. Child Abuse Prevention

Chapter 3: PLANNING FOR POLICY IMPLEMENTATION

Section 1. Conceptual Framework

Section 2. Responsibilities of the West Virginia Department of Education

Section 3. Responsibilities of the Regional Education Service Agencies

Section 4. Responsibilities of County Boards of Education

Section 5. Responsibilities of Schools

Chapter 4: INAPPROPRIATE BEHAVIOR AND MEANINGFUL INTERVENTIONS AND CONSEQUENCES

Section 1. Addressing Inappropriate Behavior with Meaningful Interventions and Consequences

Section 2. Inappropriate Behaviors: Codes, Definitions and Interventions and Consequences

Level 1 Inappropriate Behaviors

Level 2 Inappropriate Behaviors

Level 3 Inappropriate Behaviors

Level 4 Inappropriate Behaviors Prohibited

Section 3. Use of Physical Punishment

Standard 2: Social-awareness and Interpersonal Skills

Social-awareness involves recognition of the thoughts, feelings and perspectives of others, including those that are different from one's own. Interpersonal skills involve cooperating, communicating respectfully and constructively resolving conflicts with others. Both are essential for building and maintaining positive relationships that are essential to success in school and life.

Grades PK-1	Social-awareness and Interpersonal Skills
Objectives	Students will:
PK-1.2.01	Recognize and accept individual differences in others.
PK-1.2.02	Recognize that others may experience situations differently from oneself.
PK-1.2.03	Use listening skills to identify the feelings and perspectives of others.
PK-1.2.04	Describe positive qualities in others.
PK-1.2.05	Identify ways to work and play well with others.
PK-1.2.06	Demonstrate appropriate social classroom behavior.
PK-1.2.07	Identify problems and conflicts commonly experienced by peers.
PK-1.2.08	Identify approaches to resolving conflicts constructively.

Example Behaviors that Document Mastery of Social-awareness and Interpersonal Skills

Individual Behavior:	Initiative Interaction:	Responsive Interaction:
<ul style="list-style-type: none">• Speak in a tone of voice appropriate for the situation• Engage in age-appropriate transition activities• Demonstrate positive dispositions for interacting with peers and adults	<ul style="list-style-type: none">• Greet peers positively• Ask other children to play• Take turns in games and activities• Borrow from peers• Compliment others• Appropriately garner attention	<ul style="list-style-type: none">• Accept consequences for inappropriate behavior• Engage in turn-taking with peers• Smile when encountering acquaintances• Express empathy for others



Massachusetts Standards for Preschool and Kindergarten

Social and Emotional Learning, and Approaches to Play and Learning

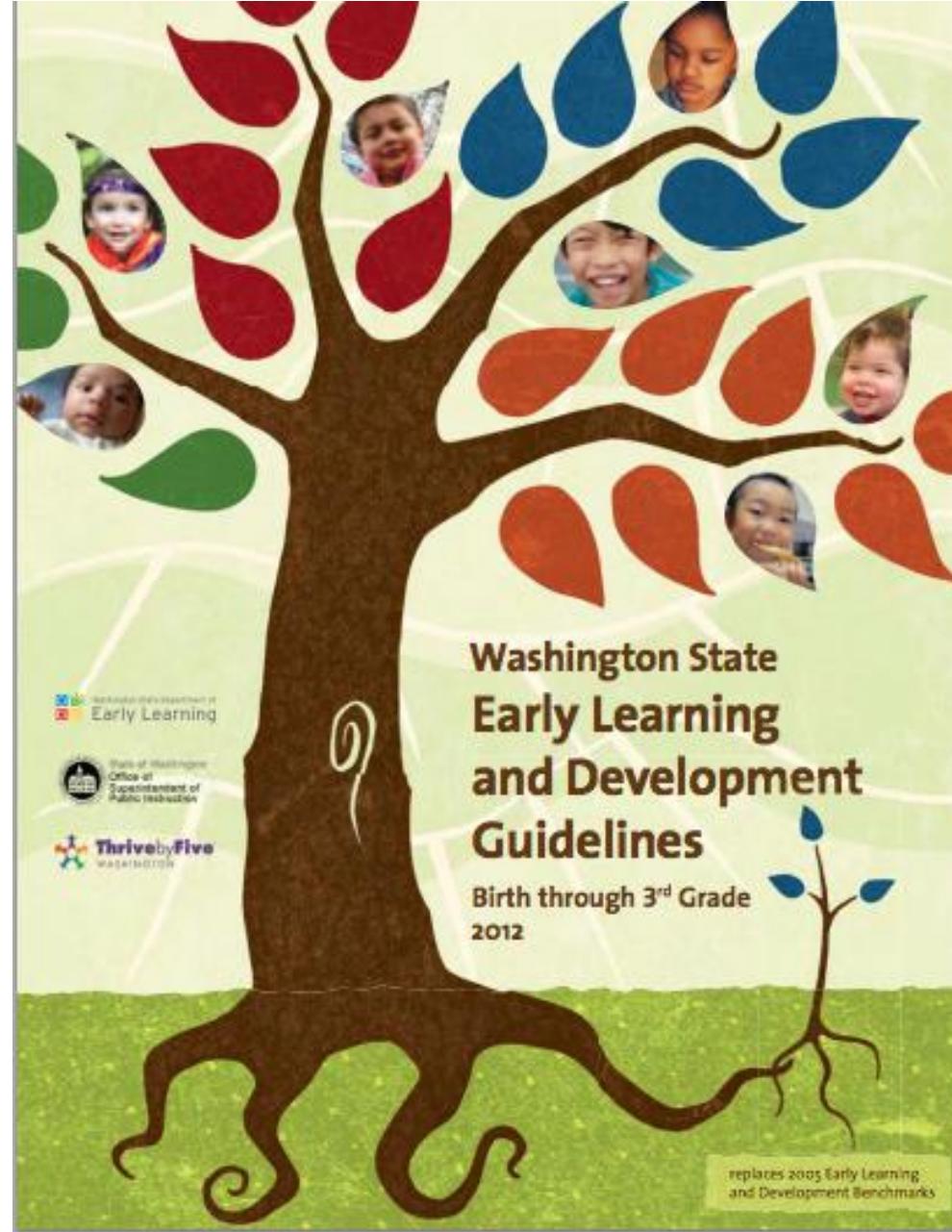
June 2015



SEL 6: RESPECT FOR OTHERS

Respect means seeing and honoring the value in others. Showing respect means acting in a way that demonstrates care about others' feelings and well-being through courtesy, consideration, and appreciation. Its foundation is in identifying and appreciating one's own strengths and vulnerabilities (Galinsky, 2010) and applying that understanding to other people. As children gradually begin to understand themselves in a broader context, they begin to recognize and respect differences such as race, culture, language, abilities, and family structures. Embracing differences and recognizing commonalities contributes to empathy, reduces bias, and greatly lessens the likelihood of bullying behaviors. Children gain knowledge of social conventions in various contexts through adult and peer modeling.

Standard SEL6: The child will recognize diversity and demonstrate respect for others.	
Examples of Evidence	
By the end of Preschool, a child may...	By the end of Kindergarten, a child may...
<ul style="list-style-type: none">» demonstrate awareness of commonalities and differences among people (e.g., gender, race, ability/disability, language, family structure).» demonstrate interest in or curiosity about others' families, languages, and cultures.» begin to understand that different people have different abilities.» begin to understand that different people may have different ideas, desires, and perspectives.» with some support, show respect for others by using social conventions (e.g., saying "please/thank you"; listening when others speak).» with support, balance own needs with others' needs (e.g., sharing materials, asking for a turn).	<ul style="list-style-type: none">» acknowledge and identify commonalities and differences among people (e.g., race, culture, language, abilities, etc.).» communicate differences in families, languages, and cultures, in positive ways.» identify and appreciate the abilities, skills, and qualities of others.» accept the validity of others' perspectives, ideas, and motivations (i.e., they are not "wrong," just different).» show respect for others by using social conventions (e.g., raising hand to speak, taking turns, respecting authority).» independently balance own needs with needs of others (e.g., sharing, dividing materials, giving up an object, moving to make space for another).
<p>Each child may require differing levels of support based on ability, learning style, culture, family, and experience to progress developmentally.</p>	



2. Building relationships

↓ Children may ...

Interactions with peers and others

- Work cooperatively with peers in small and large group activities. Understand there are differences in skill and ability among peers.
- Understand that there are different points of view among peers and others.
- Work independently and in a group.
- Have a better understanding of others' feelings.

Social behavior

- Understand respectful ways to communicate with others and respect personal space.
- Help self and others make responsible decisions.
- Be willing to stand up for others.

Problem solving, conflict resolution

- Understand and use basic steps for resolving conflict.

↓ Ideas to try with children ...

Interactions with peers and others

- Give child opportunities to practice working alone on a task, with someone else or with a group.

Social behavior

- Share examples of how friends can help each other make responsible decisions (e.g., encourage a friend not to cheat on homework).

Problem solving, conflict resolution

- Talk about using respectful communication (e.g., use appropriate words and respect others' space).
- Role-play positive ways to resolve conflict.



Policies, Standards and Guidelines to Support Social and Emotional Learning

Linda Dusenbury, Ph.D.
Consulting Senior Scientist

Roger Weissberg, Ph.D.
Chief Knowledge Officer

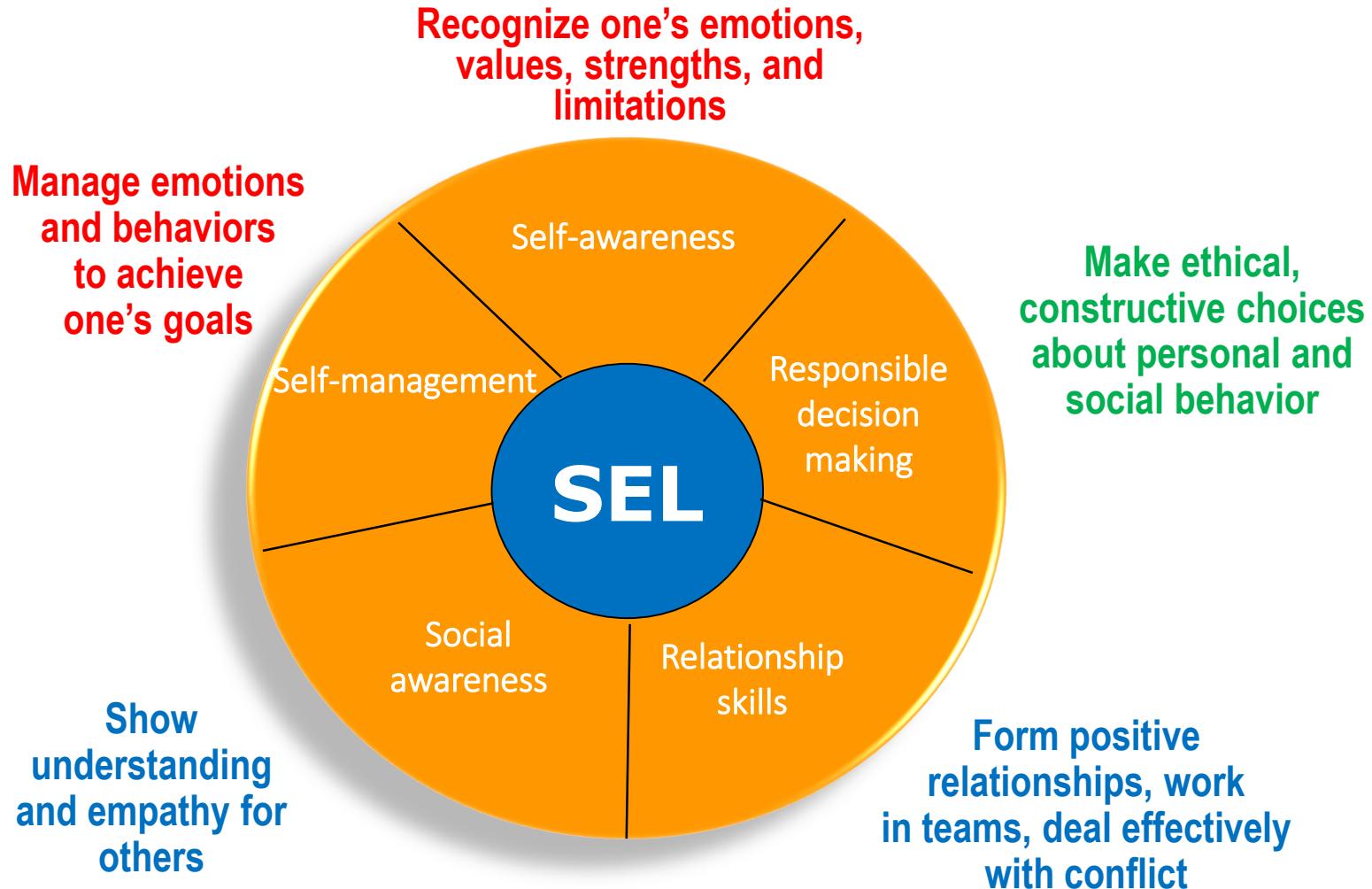


Overview of Presentation

1. Brief review of research on SEL
2. Overview and brief history of learning standards (and related policies) for SEL
3. Key elements of high quality standards for SEL
4. Results of CASEL State Scorecard Project
5. Review of other states' standards for SEL
6. Discussion

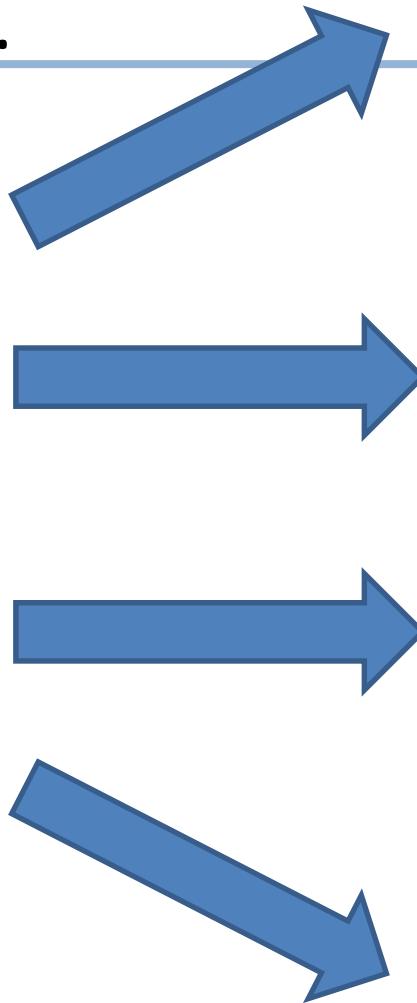


SEL is a Process of Acquiring and Applying the Knowledge, Skills, and Attitudes Related to Five Core Competencies





**Students who receive SEL
programming, compared with
controls, perform...**



**Social and
Emotional
Learning**

**9%ile Points Higher
in Prosocial
Behavior**

**9%ile Points Lower
in Conduct
Problems**

**10%ile Points
Lower in
Emotional Distress**

**11%ile Points
Higher in Academic
Achievement**

(Durlak, Weissberg, Dymnicki, Taylor, & Schellinger,
2011)



The Economic Value of SEL

Benefit-Cost Analysis of SEL:

- Programs: 4Rs, Positive Action, Life Skills Training, Second Step, Responsive Classroom, and Social and Emotional Training (Sweden).
- Conclusion: "...the weighted average benefit-cost ratio across all six interventions with prior evidence of effectiveness indicates that identified benefits outweigh the costs by a factor of 11:1, with an average net present value per 100 participants of \$618,380." (p. 46)

(Belfield, Bowden, Klapp, Levin, Shand & Zander, 2015)



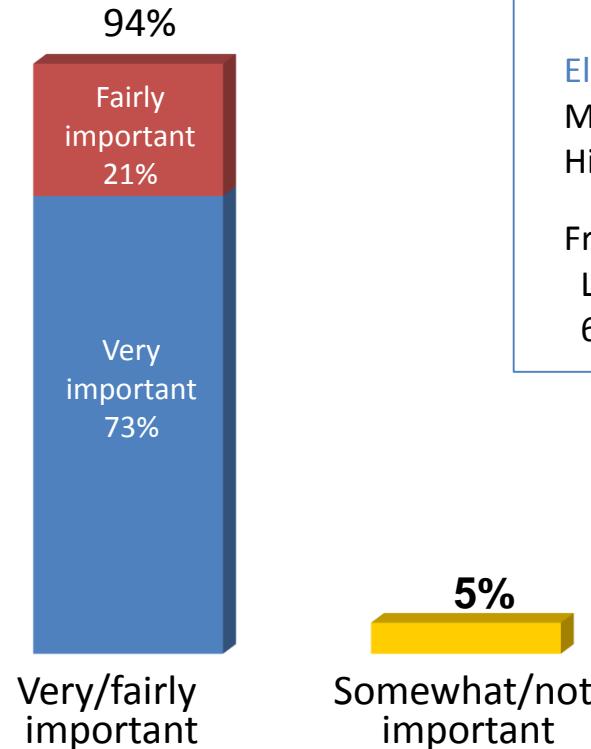
Nationally, Teachers Believe SEL Benefits Students in School, Work, and Life (Bridgeland et al., 2013)

- Students from all types of backgrounds, both affluent and poor would benefit from learning SEL skills in school 97%
- Preparing students for the workforce 87%
- Students becoming good citizens as adults 87%
- Students ability to move successfully through school and stay on track to graduate 80%
- Preparing students to get to/through college 78%



Teachers in Washington state overwhelmingly believe that SEL should part of students' in-school experience.

Thinking about this definition . . . how important is it for schools to promote development of these social and emotional skills as part of students' in-school experience?*



Very important to promote social/emotional skills

Elementary school teachers	83%	Men	56%
Middle school teachers	77%	Women	79%
High school teachers	51%		
Free/reduced lunch program:			
Less than 40% of students	75%	Western WA	76%
60% or more students	74%	Eastern WA	63%

* Social and emotional learning focuses on knowledge, attitudes, and skills in five competency areas:

1. Self-awareness, like knowing your strengths and weaknesses
2. Self-management, like being able to stay in control and persevere through challenges
3. Social awareness, like understanding and empathizing with others
4. Relationship skills, like being able to work in teams and resolve conflicts
5. Responsible decision making, like making ethical and safe choices



Examples of state and federal policies that support SEL

- [Illinois Children's Mental Health Act](#) (2003)
- [Kansas Character Development Programs Statute](#) (2013)
- [West Virginia Expected Behavior in Safe and Supportive Schools Policy 4373](#) (2012)
- [Massachusetts Guidelines on the Implementation of SEL](#)

- Federal Examples:
 - [HR 897 Jesse Lewis Empowering Educators Act](#) (Blumenthal and Murphy, April, 2015)
 - [HR 4509 Supporting Emotional Learning Act](#) (Davis and Ryan, April, 2014)
 - [HR 1875 Academic, Social and Emotional Learning Act](#) (Ryan, Petri, Loebsack and Cartwright, May, 2013)



A Guide to Federal Education Programs That Can Fund K-12 Universal Prevention and Social and Emotional Learning Activities

May 2014

ESEA Programs with *Explicit* Authority for Prevention-Related Activities

- Improving the Academic Achievement of the Disadvantaged, Title I, Part A
- Teacher and Principal Training and Recruiting Fund, Title II, Part A
- 21st Century Community Learning Centers, Title IV, Part B
- School Improvement Grants (SIG), Title I, Part A, Section 1003(g)
- Rural Education Initiative, Title VI, Part B, Subparts 1 and 2
- Indian Education Formula Grants, Title VII, Part A, Subpart 1
- Safe and Drug-Free Schools and Communities Act, Title IV, Part A
- McKinney-Vento Homeless Education Assistance Improvements Act of 2001, Subtitle B of Title VII of McKinney-Vento Homeless Assistance Act
- Promise Neighborhoods /Fund for the Improvement of Education, Title V, Part D
- Elementary and Secondary School Counseling Program, Title V, Part D
- Indian Education Special Programs and Projects to Improve Educational Opportunities for Indian Children, Title VII, Part A, Subpart 2
- Neglected, Delinquent and At Risk Youth, Title I, Part D

ESEA Programs with *Implicit* Authority for Prevention-Related Activities

- Migrant Education Program, Title I, Part C
- Dropout Prevention Act, Title I, Part H
- Alaska Native Education, Title VII, Part C



Why are standards important?

Learning standards create uniformity and coherence in education by establishing and communicating priorities, and providing a common language and structure for instruction within subject areas.

“...standards are the foundation upon which almost everything else rests—or should rest. They should guide state assessments and accountability systems; inform teacher preparation, licensure, and professional development; and give shape to curricula, textbooks, software programs, and more. Choose your metaphor: Standards are targets, or blueprints, or roadmaps.”

(p. 1, Carmichael, Martino, Porter-Magee, & Wilson, 2010)



Standards are one element of a coordinated approach to effective education that includes:

- Evidence-based curricula;
- Professional development for teachers; and
- Assessment that allows teachers to monitor student progress.



The history of SEL standards: Growing momentum

- 2004: Illinois became the first state to adopt comprehensive standards for SEL with developmental benchmarks, K-12.
- 2010: 48 states had adopted SEL standards at the preschool level.
- 2011: Washington state, Pennsylvania and Idaho had adopted comprehensive standards for SEL with developmental benchmarks, P-3.
- 2012: Kansas, Pennsylvania and West Virginia adopted comprehensive standards for SEL with developmental benchmarks, P-12.
- 2015: Massachusetts adopted comprehensive standards for SEL, P-K and is beginning systematic professional development.
- Additional states have drafted or are currently in the process of developing SEL standards, P-12 or for early grades.



Illinois' Student Learning Goals for SEL

Self	Other	Decision-making
Develop self-awareness and self-management skills to achieve school and life success.	Use social-awareness and interpersonal skills to establish and maintain positive relationships.	Demonstrate decision-making skills and responsible behaviors in personal, school, and community contexts.



State Scan

With funding from the Buena Vista Foundation and NoVo Foundation, CASEL is conducting a review of educational standards related to social and emotional learning from preschool to high school in all 50 states and the six territories. The purpose of the CASEL State Scan is to understand whether and how states currently address social and emotional learning in their learning standards—an important step toward achieving the goal that every child receives high quality education in social and emotional learning.

[» SEL IN YOUR STATE](#)

Related Documents

[State Scan of Social and Emotional Learning Standards, Preschool through High School](#)

The preliminary findings from the first year of...



Goals of the CASEL State Scan

- To identify and review state learning standards related to social and emotional learning
- To understand how state standards are developed.
- To promote development and adoption of well-articulated, comprehensive SEL standards.

[\(See CASEL State Scan Reports and Resources\)](#)



What are the key features of high quality SEL standards?*

- Free-standing, comprehensive standards with developmental benchmarks across grade level and SEL domains that provide simple, clear, concise, consistent statements grounded in research.
- Integrated with standards in other subject areas
- Guidance on how adults can support students through teaching practices
- Guidance on how to create a positive learning environment and school climate
- Guidelines on how to make instruction culturally and linguistically sensitive and relevant
- Tools to support high quality implementation, including evidence-based programs, assessment, and professional development

*Please see [handout](#) for examples. [Scorecard Project findings](#) for each state are also available.



Free-Standing Standards for SEL at the Preschool Level





Comments

- There is wide variability in the number of standards and benchmarks each state provides for SEL (from less than 10 to more than 500, for benchmarks).
- State preschool standards are constantly changing, reflecting the strong desire on the part of states to improve their guidelines at the early childhood level.



Guidelines for Adults and the Environment

Close to 90% of state preschool standards documents:

- provide **guidelines for caregivers** on how to support child development.
- provide **guidelines for creating a positive environment.**



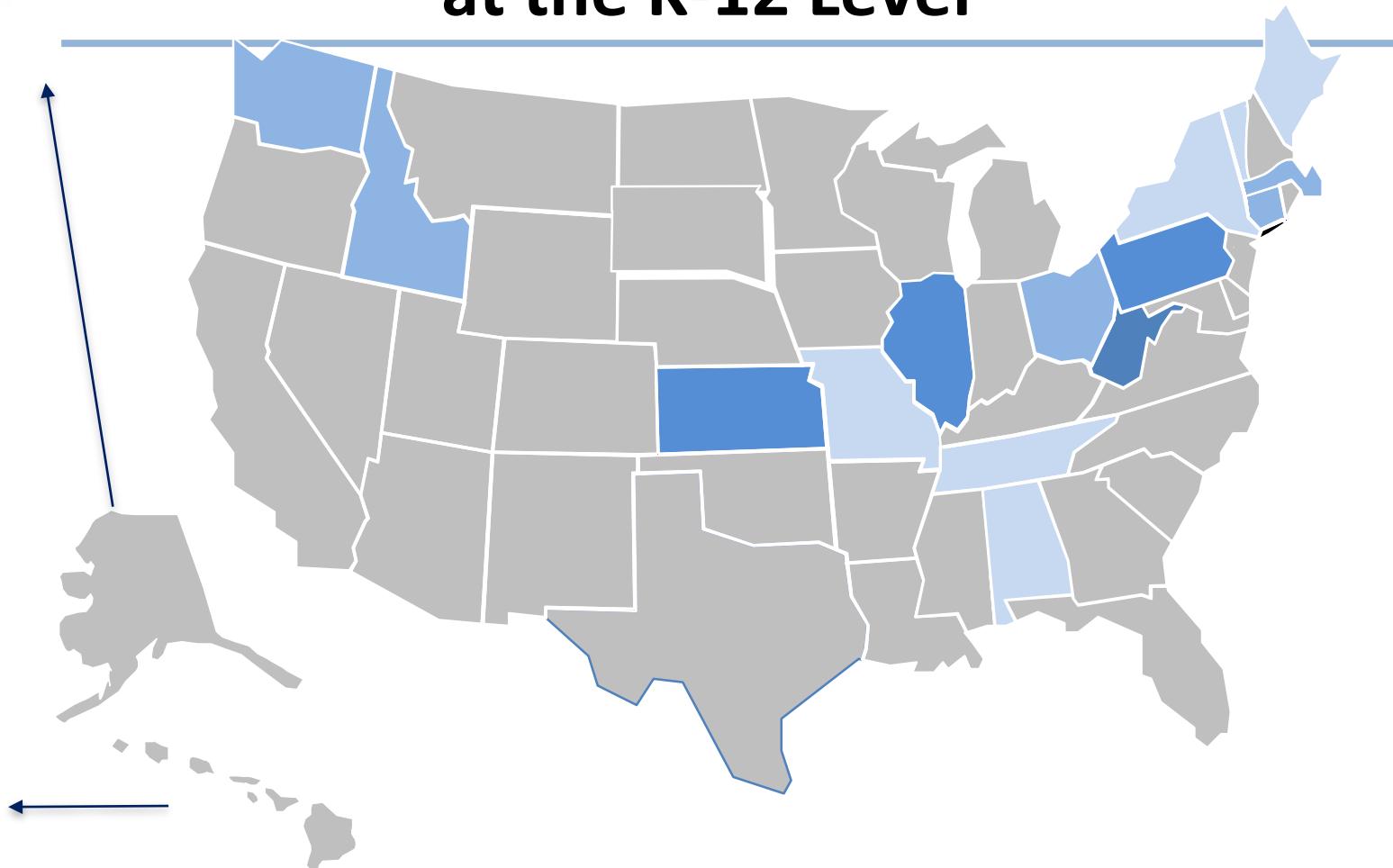
Cultural and Linguistic Relevance

Approximately 80% of state preschool standards documents:

- provide guidelines on how to make instruction and programming **culturally sensitive**.
- provide guidelines on how to make instruction and programming **linguistically appropriate**.



Free-Standing Standards for SEL at the K-12 Level





Findings from K-12 Review of Standards: 4 Approaches to K-12 Standards for SEL

- Comprehensive, free-standing K-12 standards for SEL:
 - [Illinois](#)
 - [Kansas](#)
 - [West Virginia](#)
 - (Additional states are in the process of developing)
- Comprehensive, free-standing standards for SEL, pre-school through early elementary
 - [Connecticut](#) (Kindergarten through grade 3)
 - [Idaho](#) (birth to grade 3)
 - [Ohio](#) (Kindergarten through grade 3)
 - [Massachusetts](#) (Preschool through Kindergarten)
 - [Washington](#) (birth to grade 3)
- Focused, free-standing standards on one or more dimensions of SEL (at least 4 states)
- SEL standards integrated into other sets of learning standards to some degree in all states.



Other States

- Three additional states have offered broad SEL standards, but did not provide developmental benchmarks for these standards (Maine, Missouri, Vermont)
- New York and Massachusetts offer guidelines to support implementation of education in SEL. Tennessee has developed a toolkit for SEL.



SEL Integrated into Other Sets of Standards

Virtually all states have SEL standards that are integrated to some degree across other sets of standards. (e.g., Common Core).

However, while some states have done a lot of work in this regard, in many states, this content is usually not comprehensive across all five SEL domains, and/or is scattered and diffuse. Further, the content may not be consistent across subject areas or grade levels, and development is not systematically and strategically supported.

To ensure that SEL standards are prioritized, CASEL recommends there also be free-standing standards for SEL.



Examples of National Learning Standards

- [Head Start Preschool Standards](#)
- [Common Core State Standards for English and Math](#)
- [National Standards for Social Studies](#)
- [National Standards for Science](#)
- [National Standards for Health Education](#)

(coming soon: CASEL Voluntary Model Standards for SEL; meanwhile most states currently developing SEL standards look at what other states and districts such as [Anchorage](#) have done.)



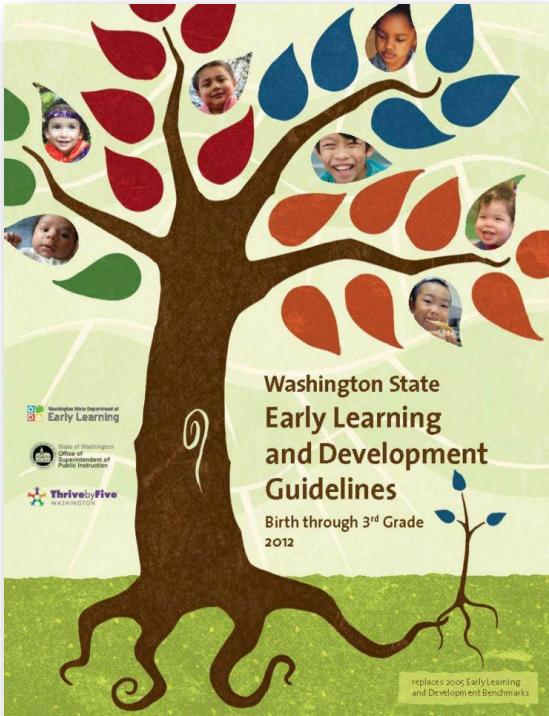
Resources Available on the CASEL State Policy Webpage

<http://www.casel.org/state-standards-for-social-and-emotional-learning>



Contact

Linda Dusenbury
lindadusenbury@gmail.com



The Washington State Early Learning and Development Guidelines

Social Emotional Learning Benchmarks Workgroup
November 30, 2015

Nicole Rose

DEL Assistant Director for Quality Practice and Professional Growth



The Guidelines are...

- A statewide resource for everyone who loves, cares for and educates young children.
- Information on ways to support and enhance children's development and learning by area:
 - About me and my family and culture
 - Building relationships
 - Touching, seeing, hearing and moving around
 - Growing up healthy
 - Communicating
 - Learning about my world

The Guidelines are NOT...

- An exhaustive guide to child development, which is unique to each child.
- An assessment tool or for use to determine children's eligibility for programs or services.
- An instrument to collect statewide data on the overall status of children in Washington.
- Permanent or unchanging: The Guidelines will be reviewed and updated every five years.

The Guidelines can be used to...

- **Parents:** Find out more about growth and learning at different ages, and get tips on ways to support development.
- **Caregiver or child care professional:** To work with a child's family, and to reach out to kindergarten and primary grade teachers.
- **Kindergarten through 3rd grade teacher or school-age caregiver:** To help you talk with child care and preschool teachers, and with parents.
- **Health care provider:** To talk with parents and caregivers about children's learning and development.

Why the Guidelines were updated

- Reviewed and revised to:
 - Reflect new brain/child development research.
 - Extend the guidelines through third grade and align with the K-3 learning expectations, including Common Core Standards.
 - Celebrate Washington's increasingly diverse population.
 - Be written in a simpler way that better supports parents as their child's first and most important teachers.

Reviewing and revising

- Year-long process, led by DEL, OSPI and Thrive by Five Washington
- Work group included individuals representing:
 - Parents
 - Early learning providers
 - K-3 teachers
 - Principals
 - Advocates
 - Tribes
 - State ethnic commissions
 - Special needs experts
- Broad public outreach from more than 400 individuals and organizations via survey, meetings

Reviewing and revising, cont'd

- Key resources considered:
 - *2005 Benchmarks*
 - Other states' early learning standards
 - Head Start and ECEAP standards
 - Washington's academic learning standards (grade level expectations) for grades K-3 in all subjects.

Reviewing and revising, cont'd

- Cultural competency expertise:
 - State contracted with national equity expert to review the draft document
 - Examples of key changes made as a result:
 - ✓ The five questions to reflect on at the beginning of each age/stage
 - ✓ Verbal/nonverbal language

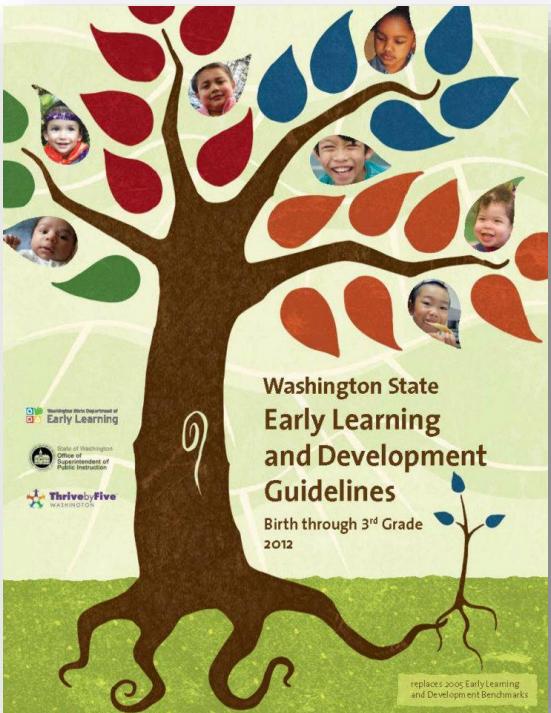
Ages and Stages of Development

- Young Infants (Birth to 11 Months)
- Older Infants (9 to 18 Months)
- Toddlers (16 to 36 Months)
- Ages 3 to 4 Years
- Ages 4 to 5 Years
- Ages 5 and Kindergarten
- First Grade
- Second Grade
- Third Grade

Social Emotional Domains

- About me and my family and culture
 - Family and culture
 - Self-concept
 - Self-management
- Building Relationships
 - Interactions with adults
 - Interactions with children
 - Social behavior

For more information and to get copies



To download:

www.del.wa.gov/development/guidelines

To request hard copies (English and Spanish):

communications@del.wa.gov

Social and Emotional Health

K-12 Health Education Learning Standards

SELB WORKGROUP

RENTON TECHNICAL COLLEGE

NOVEMBER 30, 2015



Meeting Targets

Share background on standards writing process

Review Draft Social and Emotional Health Standards and Outcomes

Solicit feedback from SELB

Answer Guiding Questions



Definitions

Essential Academic Learning Requirements (EALRs) – Required elements of instruction for teaching and learning as specified in the Basic Education Act ([RCW](#))

Standards – Required and broad-reaching expectations for teaching and learning

Outcomes – Grade-level expectations; what students should know and be able to do; age-appropriate guidance to reach standards

Core Idea – One of six subject areas within Washington's K-12 Health Education Learning Standards



Guiding Questions

1. How can new standards and outcomes positively impact the delivery of social and emotional health education?
2. What critical gaps exist in these draft Social and Emotional Health Education Standards?
3. How do these new Social and Emotional Health Education Standards impact and relate to the work of this group?
4. What can we provide (SELB Workgroup) to schools to strengthen implementation?



OSPI – Who We Are

Our mission:

- Every student ready for career, college, and life.

Performance Indicators:

- OSPI staff align their goals with research-based performance indicators.
- Goals are reviewed by the superintendent three times per year to ensure our work leads directly to student success.

Our vision:

- To provide funding, resources, tools, data and technical assistance that enable educators to ensure students succeed in our public schools, are prepared to access post-secondary training and education, and are equipped to thrive in their careers and lives.



Revising the K-12 Health and Physical Education Learning Standards

OSPI required to develop state learning standards (RCW 28A.150.210)

Revision schedule (7-8 years is typical)

Last adopted in 2008

Align with state laws

Adoption of common core

New national standard sets



District Requirements

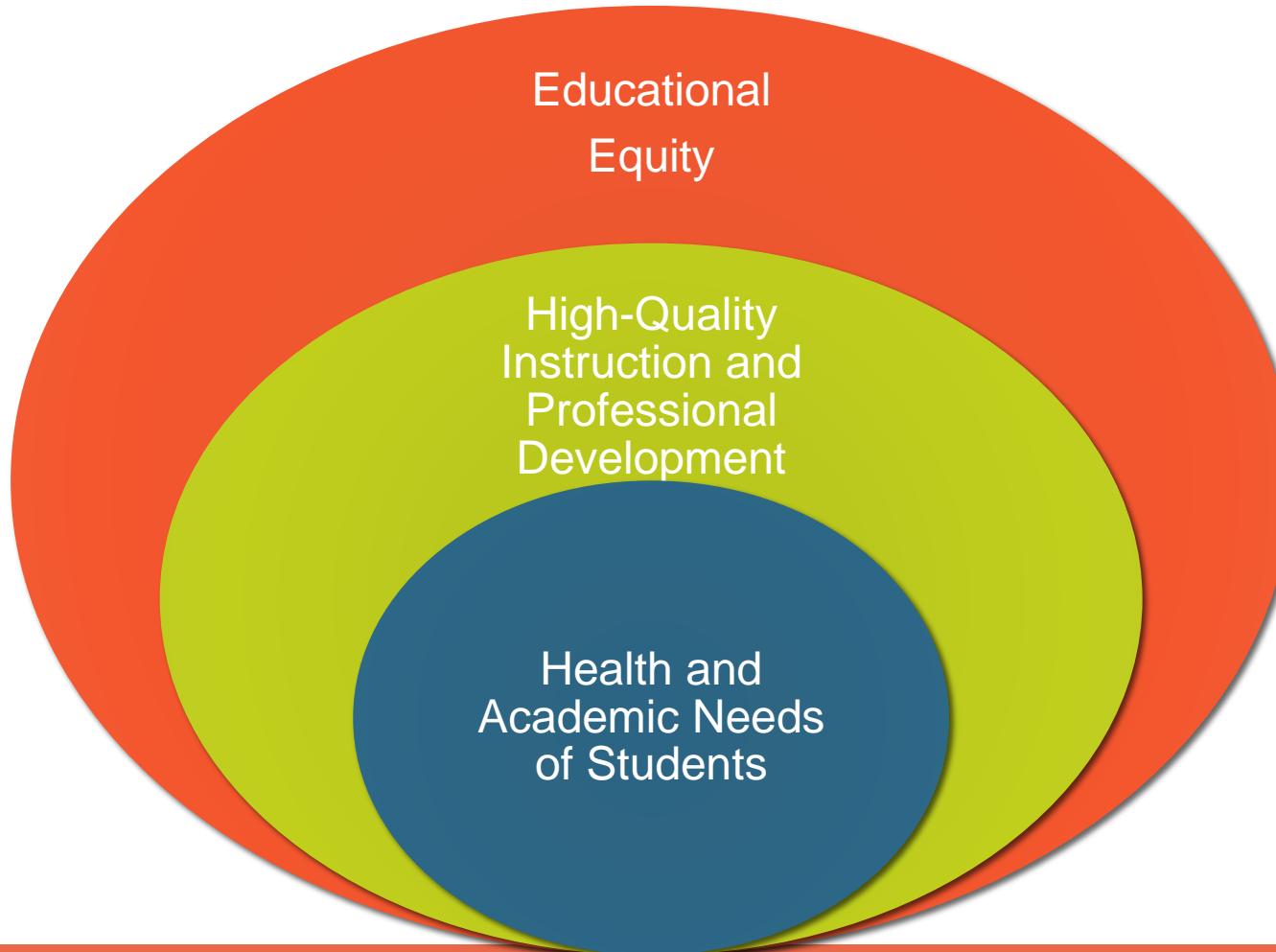


Basic Education Act – Each school district, with the involvement of parents and community members, shall be opportunities for every student to develop the knowledge to...know and apply the core concepts and principles

Graduation Requirement - .5 credits (semester) of Health Education



Big Picture



HPE Writing Team



Process 2014-2016

Monthly, two-day writing meetings

- September 2014 – July 2015

Virtual writing meetings

- May – August 2015

Curriculum Advisory Review Committee (CARC)

- November 2013 – January 2016

Bias & Sensitivity Reviews

- June – July 2015

Internal and Close Friends Review

- May – October 2015

Final review – HPE Writing Team Meeting

- October 2015

Public Comment Period

- December 2015 – January 2016



Positive feedback

"This document is structured really well. It's very clear."

"Core ideas are good."

"Nutrition is included in both PE and HE - yes!"

"Clean and much easier to follow strands/outcomes."

"Easy to follow - nice and broad to implement to various needs/districts."



Structure and Key Decisions



Adopted National Health Education Standards

Require implementation of Standards (formerly EALRs)

Grade-level outcomes to guide teaching and learning

Revised formatting

Separated Health and Physical Education

Six Core Ideas, including Social and Emotional Health



Other Considerations

National
standard set
alignments

Gradual
evolution

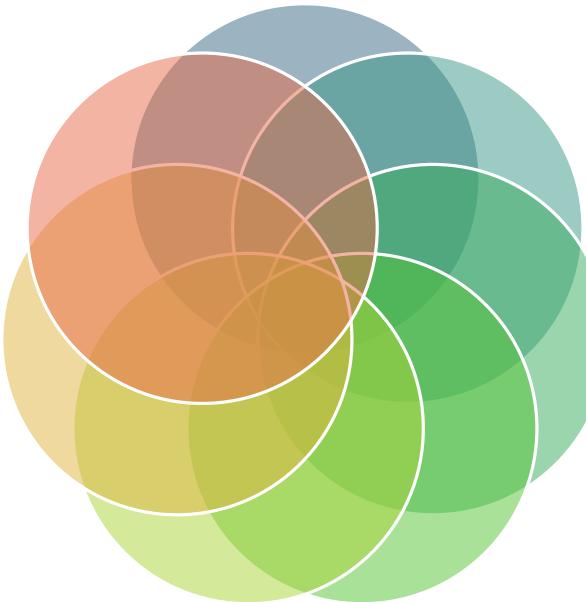
State
examples and
models

Front matter,
glossary,
appendices

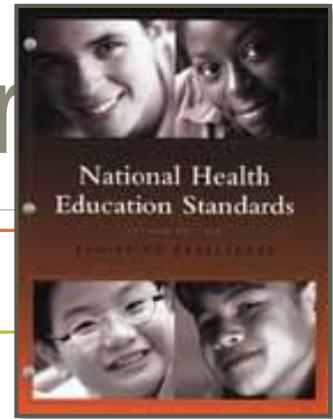
Depth of
Knowledge
(DOK)

Backwards
design

Current
research, laws,
and language



National Health Education Standards



Students will:

1. Comprehend concepts related to health promotion and disease prevention to enhance health.
2. Analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors.
3. Demonstrate the ability to access valid information and products and services to enhance health.
4. Demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.
5. Demonstrate the ability to use decision-making skills to enhance health.
6. Demonstrate the ability to use goal-setting skills to enhance health.
7. Demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks.
8. Demonstrate the ability to advocate for personal, family, and community health.



Core Idea Development: Social and Emotional Health

K-12 health education teacher expertise

Collaborative for Academic, Social and Emotional Learning (CASEL) Model

State and District Examples (e.g., Illinois, Bellevue, Oregon, California)

Health Education Textbooks

State law

2008 Washington State Health and Fitness EALRs



Key Features of Social Emotional Learning (SEL)

Free-standing

Comprehensive

Integrated

Supports teaching practices

Enhances school climate

Culturally sensitive

Linguistically appropriate

Strengthens implementation

Source: <http://www.casel.org/library/2014/2/10/key-features-of-high-quality-standards-for-sel/>



Topic Strands: Social and Emotional Health

ELEMENTARY (K-5)

Self-esteem

Body Image

Stress Management

Expressing Emotions

Harassment, Intimidation, and Bullying

SECONDARY (6-HS)

Self-esteem

Body Image and Eating Disorders

Stress Management

Expressing Emotions

Harassment, Intimidation, and Bullying

Emotional and Mental/Behavioral Health



Format

 **Anatomy:** Core Idea — **Health Education Core Idea: Wellness (W)**

Topic	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
1. Dimensions of Health	Recognize the meaning of healthy and unhealthy.	Understand what it means to be healthy. H1.W1.1	Describe what it means to be healthy. H1.W1.2	Recognize dimensions of health. H1.W1.3	Identify dimensions of health. H1.W1.4	Describe dimensions of health. H1.W1.5

Topic Strand Title Coding Outcome



SELB Review – Standards, Outcomes, and Glossary

Highlight – Highly support

Circle – Concerned; outside of field norms/language/expectations

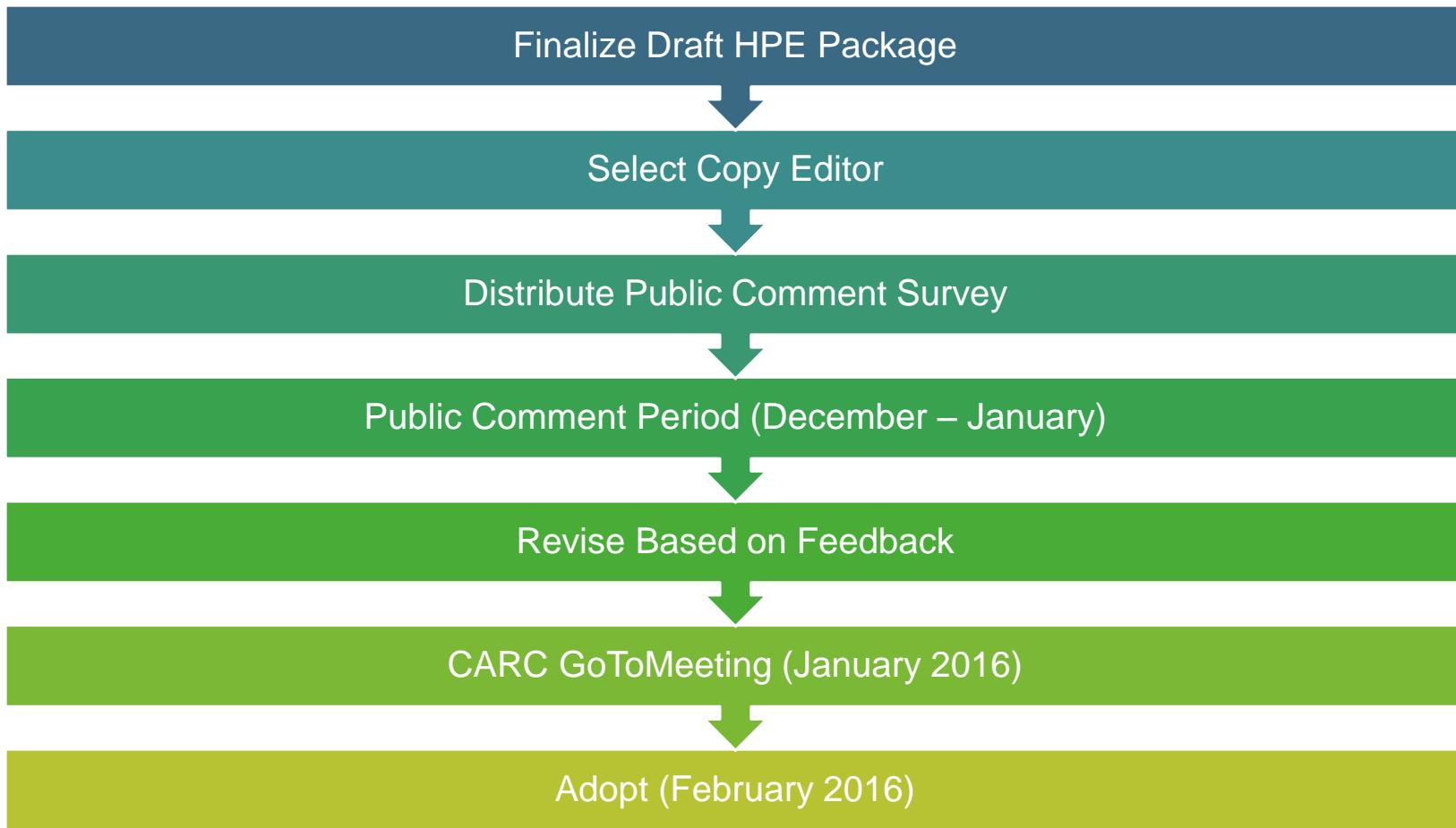
Underline – Questions

OR

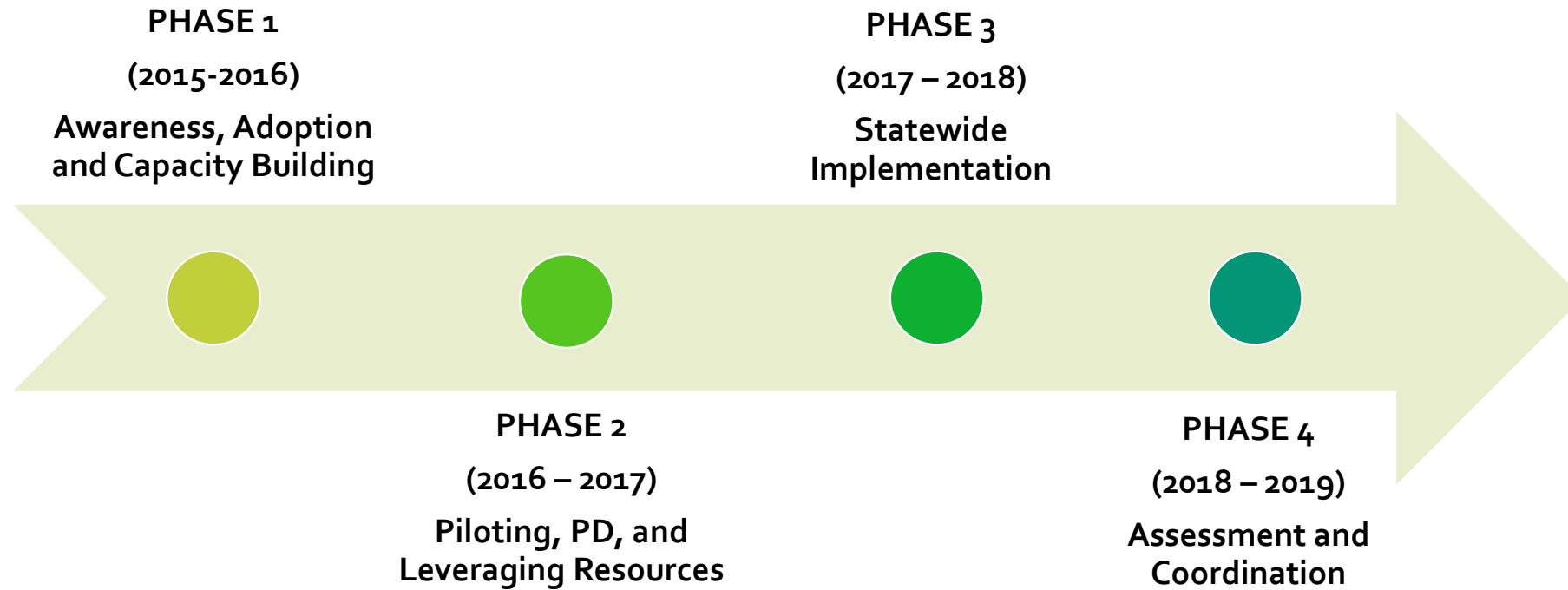
<http://sgiz.mobi/s3/Health-and-Physical-Education-Standards-Review-2015>



Next steps



Implementation Timeline



Guiding Questions

1. How can new standards and outcomes positively impact the delivery of social and emotional health education?
2. What critical gaps exist in these draft Social and Emotional Health Education Standards?
3. How do these new Social and Emotional Health Education Standards impact and relate to the work of this group?
4. What can we provide (SELB Workgroup) to schools to strengthen implementation?



Contacts

Marissa Rathbone, MAT
Program Supervisor
Health and Physical Education
Office of Superintendent of Public Instruction
360.725.4977
marissa.rathbone@k12.wa.us



What Does Evidence-Based Instruction in Social and Emotional Learning Actually Look Like in Practice?



A Brief on Findings from CASEL's Program Reviews

LINDA DUSENBURY, SOPHIA CALIN, CELENE DOMITROVICH, AND ROGER P. WEISSBERG

A Publication of the Collaborative for Academic, Social, and Emotional Learning

October 2015

Abstract

In this brief we use the CASEL reviews of evidence-based programs to answer the question, “What do teachers and other adults actually need to do in the classroom and school to help students achieve the goals laid out in social and emotional learning (SEL) standards?” Specifically, we identify and describe four approaches that have been successfully used to promote social and emotional development in students. One approach uses free-standing lessons that provide step-by-step instructions to teach students’ social and emotional competencies. The second approach uses general teaching practices to create classroom and schoolwide conditions that facilitate and support social and emotional development in students. A third approach integrates skill instruction or practices that support SEL within the context of an academic curriculum. The fourth approach provides school leaders with guidance on how to facilitate SEL as a schoolwide initiative. The identification of these four approaches and types of strategies that support each one should help school leaders and teachers develop a comprehensive plan for developing students’ social and emotional competencies.

Affiliations: Linda Dusenbury is a consultant to the Collaborative for Academic, Social, and Emotional Learning (CASEL) specializing in state standards for social and emotional learning (SEL) and reviews of SEL programs. Sophia Calin is a research specialist at CASEL. Celene Domitrovich is CASEL’s vice president of research. Roger P. Weissberg is CASEL’s chief knowledge officer and NoVo Foundation Endowed Chair in Social and Emotional Learning and UIC/LAS Distinguished Professor of Psychology and Education at the University of Illinois at Chicago (UIC).

Acknowledgements: We appreciate the financial support, thought partnership, and collaboration of the Einhorn Family Charitable Trust, Committee for Children, 1440 Foundation, and NoVo Foundation.

For more information go to casel.org.

In our work with states developing learning standards to articulate what students should know and be able to do in terms of their social and emotional development (Dusenbury et al., 2015), we have found that state teams often struggle with an immediate question from their stakeholders and constituents: How can teachers effectively promote or teach social and emotional competence to achieve these standards? Put another way: What do teachers and other adults actually need to do in the classroom and school to help students achieve the goals laid out in social and emotional learning (SEL) standards?

Several authors have begun to explore this question at different grade levels (e.g., Bierman, & Motamedi, 2015; Jagers, Harris, & Skoog, 2015; Rimm-Kaufman, & Hulleman, 2015; Williamson, Modecki, & Guerra, 2015). Denham (2015) has done the important work of identifying key developmental tasks related to social and emotional competence at different ages from preschool through high school (See Table 1 on the next page).

In the past 15 years CASEL has produced three separate guides to evidence-based programs designed to promote student social and emotional development (CASEL, 2003; CASEL 2013; CASEL, 2015) In 2003 CASEL published *Safe and Sound: An Educational Leader's Guide to Evidence-Based Social and Emotional Learning (SEL) Programs*, which reviewed 80 SEL programs. From these we identified 22 "SElect" programs that, according to rigorous research, led to positive outcomes in students' academic achievement and behavior. Ten years later we published the [*2013 Guide to Preschool and Elementary Programs*](#), in which we identified 23 SElect programs that produced meaningful outcomes in terms of student academic, social, and emotional behaviors. Most recently we released the [*2015 Guide to Middle and High School Programs*](#), which identified nine SElect programs. We believe our reviews of the actual content of evidence-based programs

can inform the answers to the important question of how adults can effectively promote student SEL in the classroom and school. The purpose of this brief is to draw on these previous reviews of evidence-based programs to identify and describe the most common strategies used to promote student SEL.

Four Strategies that Promote SEL

In all of CASEL's program reviews from preschool through high school, and across all the many programs we have reviewed, we have observed that evidence-based SEL programs use one or more of the following four approaches to promoting social and emotional competence across the five core competency clusters (i.e., self-awareness, self-management, social awareness, relationship skills, and responsible decision-making).

1. Free-standing lessons that provide explicit, step-by-step instructions to teach students social and emotional competencies across the five core competency clusters—on age-appropriate topics such as labeling feelings, coping with anxiety or stress, setting and achieving goals, developing empathy and compassion, communicating effectively, resolving conflict, being assertive, and making responsible decisions. Classroom activities develop specific skills using strategies that are sequenced within and across lessons (Durlak et al., 2011). They rely on active learning techniques, such as discussions, small-group work, and role plays, and appropriate levels of cognitive complexity for different grade levels (Bloom et al., 1956) to engage students (Alldrege, 2015). The most effective lessons provide explicit instruction and promote generalization by including opportunities for practicing skills beyond the lesson and throughout the day, or through connections during academic lessons. Some programs using this approach also help teachers build positive relationships with students and create a warm and inclusive classroom environment.

The Case for Social and Emotional Learning

Social and emotional learning (SEL) is the process through which children and adults acquire the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions. Social and emotional skills are critical to being a good student and citizen.

Extensive research, including a meta-analysis of 213 studies, has shown that programs designed to promote social and emotional competence in students produce important outcomes including improvements in standardized academic test scores that are, on average, 11 percentile points higher for students who received SEL programming compared to students who did not receive SEL (Durlak et al., 2011). In addition, high-quality instruction in SEL has been associated with reduced problem behaviors including conduct problems, drug use, and violence (e.g., Botvin et al., 1995; Farrell & Meyer, 2001). The cost-effectiveness of these approaches has also been established in a recent report finding that programs designed to promote social and emotional competence produce, on average, a benefit to cost ratio of 11:1 (Belfield et al., 2015).

- An SEL lesson conducted in a preschool classroom might teach children how to identify happy, sad, and angry feelings using puppets and include a discussion about the types of events that trigger these feelings. Preschool students might also receive a lesson on how to calm down and solve interpersonal conflicts using a few simple steps (e.g., stop and take a breath, say how you feel and why, let the other person say how they feel and why, and decide together what you can do).
- An SEL lesson in an elementary class might have a lesson on how to label feelings using words like “pleasant,” “happy,” “irritated,” or “angry.” Students might learn a variety of techniques for managing anxiety and stress such as deep breathing or yoga. Other activities might include reading a story and reflecting on the content to explore different perspectives and feelings of others. Students might also engage in activities that require them to work together as a class to set and achieve a community improvement goal. They might also learn steps for solving interpersonal problems.
- An SEL lesson in a middle or high school classroom might involve building students’ vocabulary for describing their feelings as well as a discussion of mixed emotions. Students might also explore the fact that different people can experience different feelings in a similar situation. SEL lessons geared for adolescents often include practical strategies for coping with stress, anxiety, or anger (e.g., deep breathing, mental rehearsal, muscle relaxation, or visualization). They might include a focus on personal competence. For example, students might be asked to identify a personal goal such as raising a grade in math or improving time running the 100-yard dash, including monitoring their progress toward achieving the goal over several weeks. As part of their goal-setting project students might also learn a variety of techniques for reinforcing themselves and maintaining a high level of motivation. SEL lessons at the secondary level also focus on building students’ interpersonal skills. Lessons on social awareness might involve opportunities for students to work with partners and engage in discussion in order to learn about different perspectives and to develop empathy and respect for others. They might learn specific social skills (e.g. listening) or a set of steps for a specific skill (e.g., how to begin, maintain, and end conversations; how to build positive relationships; how to resist unwanted peer pressure). Conflict resolution strategies at the secondary level tend to be more complex than at the elementary school level and may include multiple additional steps such as stop, calm down, identify the problem, identify alternative solutions, research and evaluate possible solutions, choose the best solution, try it out, and evaluate whether it was an effective solution.
- Across all developmental levels, the “free-standing lesson” approach also promotes SEL throughout the whole school and beyond. It fosters a positive school climate by providing teachers and staff with common language, goals, and strategies for SEL. Strategies that students learn as part of SEL are most effective when

Table 1. Developmental Tasks of Social and Emotional Competence Across the Grade Spans*

Preschool	<ul style="list-style-type: none"> • Become and be engaged, socially and academically, • Manage emotions (appropriately for a young child), especially with adult support. • Stay connected to adults, while beginning to develop peer relationships. • In play and learning, pay attention and follow directions, wait, sit still, and effectively join and leave groups.
Elementary	<ul style="list-style-type: none"> • Become increasingly successful at navigating peer relationships and friendships independent of adult support. • Show and share emotions appropriately, and with appropriate people.
Middle and High School	<ul style="list-style-type: none"> • Form closer relationships with peers of both genders. • Manage increasingly complex academic content and tasks, with increasing independence from adults. • Effectively manage transitions to middle and high school. • Increase independence from adults. • Begin preparing for adult roles (e.g., become more nurturing to younger children, begin preparing and practicing for work roles). • Develop an ethical value system that allows for responsible decision-making and responsible behavior toward self and others.

*Drawn from Denham (2015).

everyone in the building is familiar with them, so that they can support their use throughout the day and in real-life situations that occur outside lesson times and in settings other than the classroom. Across all developmental levels parents and caregivers also receive information about how they can reinforce student learning at home. They might also receive report cards that describe students' progress on social and emotional dimensions. Parents and community members might be invited to help or participate in lessons and activities, and students might be involved in service learning activities that give them an opportunity to practice new skills at the same time they make a positive contribution to their community.

2. General teaching practices that create classroom and schoolwide conditions that facilitate and support social and emotional development in students. Although SEL teaching practices are similar across the different developmental levels, the specific interactions and techniques teachers are encouraged to use vary according to the students' developmental stages. This approach includes general teaching practices designed to:

- Establish positive and predictable classroom environments using:
 - ⇒ Shared expectations or classroom rules that teachers and students develop together to establish positive social norms for the classroom (e.g., listen respectfully when others are speaking).
 - ⇒ Practices that reflect and communicate high expectations for achievement.
- Promote positive teacher-student relationships, including, for example:
 - ⇒ Routines and structures such as morning check-ins or conflict resolution/peace corners. At the middle or high school level a program might also use advisory periods to create small groups that stay together across grades.
 - ⇒ Practices that help establish positive and trusting relationships among teachers, students, and peers (e.g., welcoming students to the class by name and interacting with students in a respectful way that promotes trust and models desired behaviors).
 - ⇒ Strategies that help teachers learn how to use cooperative learning in a way that establishes trust between students and teachers, and also provides students with opportunities to develop positive relationship skills with peers.
- Provide ongoing instructional practices that support students' SEL, including guidance for teachers on:

- ⇒ How to ask questions in a way that will support and encourage students' authentic voice (e.g., "Tell me about your favorite passage in the poem, and why you liked it.").
- ⇒ How to create opportunities for students to explore their own interests and develop their own strengths (e.g., a kindergarten teacher might set up centers for different types of imaginative play; a third-grade teacher might have students create an art project that celebrates what they're passionate about; a middle school teacher might have students write an essay about their dreams for the future; and a high school teacher might help students identify community mentors for independent field work);
- ⇒ How to provide students with authentic feedback (e.g., a kindergarten teacher might observe, "I saw the way you waited your turn to hold the bunny just now. I know it can be hard to wait your turn, but you crossed your arms to keep your hands to yourself. I saw you take a breath to calm down. I was proud of you, and you should be proud of yourself." A high school teacher might offer, "I know how you feel about public speaking, but I saw the way you took a couple of deep breaths before you gave your report. Your delivery was easy to follow, and you didn't rush.")
- ⇒ How to create events or classroom traditions that involve family and community members in meaningful ways in the life of the classroom and school.
- ⇒ Instructional practices such as project-based learning, creating opportunities for students to develop and voice their own ideas and develop the skills needed to get along with others.
- ⇒ As students become older and more idealistic, how to effectively use community service and real-life application of developing skills and student voice in field-based learning activities.

3. Integration of skill instruction and practices that support SEL within the context of an academic curriculum. Examples of this type of program approach include:

- *4Rs* (Reading, Writing, Respect, and Resolution) is a program at the elementary level (K-8) that teaches SEL as part of a language arts curriculum that also promotes reading, writing, speaking, and listening. As described in the *2013 CASEL Guide*, *4Rs* provides grade-specific materials that include book talks, read-alouds, and interactive lessons to develop social and emotional skills.

- *The RULER Approach* to social and emotional learning is a schoolwide approach designed to promote emotional literacy. Key “anchor” skills include recognizing, understanding, labeling, expressing, and regulating emotions. As described in the *2013 CASEL Guide*, teachers learn and then teach the anchor skills to develop self-awareness, perspective-taking ability, and empathy to create a positive classroom and school climate. Teachers learn how to integrate the RULER approach into their standard curriculum, and they also provide students with a vocabulary that supports emotional literacy.
- At the middle school level, *Expeditionary Learning* promotes students’ social and emotional development through teaching practices and through integration with academic curricula. For example, the program offers an open-source English Language Arts curriculum designed to build cultural sensitivity and respect for diversity.
- *Facing History and Ourselves* is a social studies or history curriculum at the middle and high school level that focuses on historical examples of inter-group conflict involving racism and prejudice. The program helps students develop awareness of self and others and build relationship skills through classroom activities while at the same time learning social studies and history. The program promotes deep awareness and respect for diversity. Its teaching practices help teachers create a supportive and democratic classroom environment that fosters civic learning and social and ethical reflection.

4. Guidance to administrators and school leaders on how to facilitate SEL as a schoolwide initiative by restructuring the school’s organizational structures, operations, and academic, social, and emotional learning goals. Evidence-based programs that take this approach might also provide school leaders with a variety of resources and guidance on the following processes:

- How to form an SEL leadership team.

- How to create a schoolwide vision for SEL, including, for example, schoolwide goals and objectives, mission statements, and strategic plans.
- How to conduct a needs assessment to identify strengths and areas for improvement that are important to SEL implementation.
- How to develop learning standards and policies that will support students’ social and emotional development.
- How to select evidence-based programs to support SEL.
- How to integrate SEL programming into all aspects of the school’s functioning.
- How to plan for professional learning for all staff.
- How to use data to inform decisions that involve students’ academic, social, and emotional learning.
- How to monitor progress toward SEL goals.

In short, this fourth approach creates policies and organizational structures within a school or school system that support students’ social and emotional development.

Supporting SEL with Standards

The identification of these four approaches and the types of strategies that support each one should help school leaders and teachers develop a comprehensive plan to foster social and emotional learning at the same time it creates positive classroom conditions and school climates. Several states and school districts are laying the foundation for these strategies in their learning standards. For example, Kansas has developed instructional examples for [personal development](#), [social development](#) and [character development](#) from kindergarten through high school. Anchorage, Alaska has identified [“sample activities”](#) that correspond to each of their standards, from early elementary through high school. Many of the [Illinois performance descriptors](#) could also be used to develop instructional activities that support SEL. We look forward to using the findings from CASEL’s program reviews to identify and describe evidence-based practices in more detail and with examples based on actual school and classroom practice.

References

- Alldredge, S. (June 3, 2015) *What is powerful instruction?* Presentation at CASEL's Collaborating District Initiative (CDI) Consultant Meeting, Chicago, IL.
- Belfield, C., Bowden, B., Klapp, A., Levin, H., Shand, R., & Zander, S. (February, 2015). *The economic value of social and emotional learning*. Center for Benefit-Cost Studies in Education. Teachers College, Columbia University, New York (REVISED VERSION).
- Bierman, K. L., & Motamedi, M. (2015). SEL programs for preschool children. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook on social and emotional learning: Research and practice* (pp. 135-150). New York: Guilford.
- Bloom, B. S. (Ed.). Engelhart, M. D., Furst, E. J., Hill, W. H., Krathwohl, D. R. (1956). *Taxonomy of educational objectives, Handbook I: The cognitive domain*. New York: David McKay Co Inc.
- Botvin, G.J., Baker, E., Dusenbury, L., Botvin, E.M., Diaz, T. (1995). Long-term follow-up results of a randomized drug abuse prevention trial in a white middle-class population. *Journal of the American Medical Association*, 273, 1106-1112.
- Collaborative for Academic, Social and Emotional Learning (2003). [Safe and sound: An educational leaders' guide to evidence-based social and emotional learning \(SEL\) programs](#). Chicago, IL: Author.
- Collaborative for Academic, Social and Emotional Learning (2013). [The 2013 CASEL Guide: Effective social and emotional learning programs-preschool and elementary school edition](#). Chicago, IL: Author.
- Collaborative for Academic, Social and Emotional Learning (2015). [The 2015 CASEL Guide: Effective social and emotional learning programs-middle and high school edition](#). Chicago, IL: Author.
- Collaborative for Academic, Social and Emotional Learning (2015). *CASEL schoolkit: A guide for implementing school-wide academic, social, and emotional learning*. Chicago, IL: Author.
- Denham, S. (2015). Assessment of social and emotional learning in educational contexts. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook of social and emotional learning: Research and practice* (pp. 285-300). New York: Guilford.
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82, 405–432. doi:10.1111/j.1467-8624.2010.01564.x
- Dusenbury, L., Newman, J. Z., Weissberg, R. P., Goren, P., Domitrovich, C. E., & Mart, A. K. (2015). Developing a blueprint for preschool to high school education in social and emotional learning: The case for state learning standards. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook of social and emotional learning: Research and practice* (pp. 532-548). New York: Guilford Press.
- Farrell, A. D., Meyer, A. L., & White, K. S. (2001). Evaluation of Responding in Peaceful and Positive Ways (RIPP): A school-based prevention program for reducing violence among urban adolescents. *Journal of Clinical Child Psychology*, 30(4), 451-463.
- Jagers, R.J., Harris, A., & Skoog, A. (2015). A review of classroom-based SEL programs at the middle school level. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook of social and emotional learning: Research and practice* (pp. 167-180). New York: Guilford.
- Rimm-Kaufman, S., & Hulleman, C.S. (2015) SEL in elementary school settings: Identifying mechanisms that matter. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook of social and emotional learning: Research and practice* (pp. 151-166). New York: Guilford.
- Williamson, A.A., Modecki, K.L., & Guerra, N.G., (2015) SEL programs in high school. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook of social and emotional learning: Research and practice* (pp. 181-196). New York: Guilford.



What are the Key Features of High-Quality Standards for SEL?*

1. **Free-standing, comprehensive** standards for SEL are important because they establish social and emotional development as a clear priority in education. Comprehensive SEL standards include developmental benchmarks across five SEL domains (self-awareness, self-management, social awareness, relationship skills, and responsible decision making skills). High-quality, free-standing SEL standards and benchmarks provide simple, concise, consistent statements about what students should know and be able to do that are grounded in research.
 - See Illinois example of how preschool standards for SEL are organized beginning on page 93: http://www.isbe.state.il.us/earlychi/pdf/early_learning_standards.pdf
 - See Illinois example of K-12 standards and performance indicators for SEL: http://www.isbe.net/ils/social_emotional/standards.htm
 - See Kansas Example of K-12 standards for SEL (and character development) at <http://www.ksde.org/Agency/DivisionofLearningServices/CareerStandardsandAssessmentservices/ContentAreaM-Z/SchoolCounseling/Social,Emotional,andCharacterDevelopment.aspx>
 - See West Virginia example of K-12 standards for SEL at <http://wvde.state.wv.us/healthyschools/ElectronicManual4373New.html#SelfawarenessandSelfmanagement>
2. Ideally SEL standards should also be **integrated** and reflected in standards from other subject areas.
 - See example of how SEL is reflected in Common Core State Standards: <http://www.corestandards.org/ELA-Literacy/SL/6/1>
 - See example of how SEL is also reflected in National Health Education Standards: <http://www.cdc.gov/healthyyouth/sher/standards/4.htm>
 - See example of how “Emotional and Social Wellness” is integrated into Colorado Comprehensive Health Education Standards at http://www.cde.state.co.us/sites/default/files/documents/cohealthpe/documents/health_pe_standards adopted 12.10.09.pdf.
3. Standards are more likely to influence educational outcomes when **they also provide guidance on how adults can support students through teaching practices**.
 - See Washington State example of “Ideas to Try with Children” on page 72: <http://www.del.wa.gov/publications/development/docs/Guidelines.pdf>
 - See Kansas examples of “Instructional Examples” at [http://www.ksde.org/Portals/0/CSAS/Content%20Area%20\(M-Z\)/School%20Counseling/Soc_Emot_Char_Dev/PersonalDev_InstrExamples.pdf](http://www.ksde.org/Portals/0/CSAS/Content%20Area%20(M-Z)/School%20Counseling/Soc_Emot_Char_Dev/PersonalDev_InstrExamples.pdf) and [http://www.ksde.org/Portals/0/CSAS/Content%20Area%20\(M-Z\)/School%20Counseling/Soc_Emot_Char_Dev/Social%20Dev_InstrExamples.pdf](http://www.ksde.org/Portals/0/CSAS/Content%20Area%20(M-Z)/School%20Counseling/Soc_Emot_Char_Dev/Social%20Dev_InstrExamples.pdf)

4. Standards are strengthened when **they also provide guidance on how to create a positive learning environment and school climate** essential to social and emotional development.
 - See California discussion of well-designed environment (preschool) beginning on page 4: <http://www.cde.ca.gov/sp/cd/re/documents/preschoollf.pdf>
 - See Indiana discussion of positive environment (preschool) on page 11: <http://www.doe.in.gov/sites/default/files/curriculum/indianafoundations-february-2012.pdf>
 - See Illinois example for creating positive learning environment (k-12): <http://www.isbe.state.il.us/learningsupports/pdfs/learning-indicators/CL7.pdf>
5. Standards are enhanced when they also provide guidance on how to make instruction **culturally sensitive and linguistically appropriate**.
 - See Alaska discussion of “Supporting Individual Differences” on page 54: <http://www.eed.state.ak.us/publications/EarlyLearningGuidelines.pdf>
 - See Washington State discussion of “Children Can Learn More Than One Language” on page 8: <http://www.del.wa.gov/publications/development/docs/Guidelines.pdf>
6. Finally, standards are more likely to successfully impact educational practice when they provide tools that **support** high-quality implementation (see Connecticut example on page 4 of http://www.sde.ct.gov/sde/lib/sde/PDF/DEPS/Early/EarlyChildhood_SRBI_Manual.pdf), including evidence-based programs, assessment, and professional development
 - **Evidence-Based Programs.** See CASEL example of evidence-based preschool and elementary programs: <http://www.casel.org/guide>. See Connecticut example of selecting evidence-based program on page 4 of http://www.sde.ct.gov/sde/lib/sde/PDF/DEPS/Early/EarlyChildhood_SRBI_Manual.pdf
 - **Assessment.** See Indiana discussion of assessment on pages 7 and 8: <http://www.doe.in.gov/sites/default/files/curriculum/indianafoundations-february-2012.pdf>
 - For preschool and elementary school measures of SEL, see the CASEL Compendium of assessment measures at <http://www.casel.org/library/2013/11/4/compendium-of-preschool-through-elementary-school-socialemotional-learning-and-associated-assessment-measures>
 - For middle school measures, see the Raikes Foundation Report on Social-Emotional Learning Assessment Measures at <http://www.search-institute.org/sites/default/files/a/DAP-Raikes-Foundation-Review.pdf>
 - **Professional Development.** See New Jersey discussion of Professional Development (and assessment) on pages 30-34: <http://www.nj.gov/education/ece/guide/impguidelines.pdf> . See Massachusetts example of SEL in teacher education at <http://www.seltedconsortium.com/>

*These features are based on CASEL’s review of the research literatures on learning standards and SEL. Examples from states and other sources were identified as part of CASEL’s State Scan of Learning Standards for SEL. This handout was prepared for CASEL by Linda Dusenbury.



What are the Key Features of High-Quality Standards for SEL?*

1. **Free-standing, comprehensive** standards for SEL are important because they establish social and emotional development as a clear priority in education. Comprehensive SEL standards include developmental benchmarks across five SEL domains (self-awareness, self-management, social awareness, relationship skills, and responsible decision making skills). High-quality, free-standing SEL standards and benchmarks provide simple, concise, consistent statements about what students should know and be able to do that are grounded in research.
 - See Illinois example of how preschool standards for SEL are organized beginning on page 93: http://www.isbe.state.il.us/earlychi/pdf/early_learning_standards.pdf
 - See Illinois example of K-12 standards and performance indicators for SEL: http://www.isbe.net/ils/social_emotional/standards.htm
 - See Kansas Example of K-12 standards for SEL (and character development) at <http://www.ksde.org/Agency/DivisionofLearningServices/CareerStandardsandAssessmentservices/ContentAreaM-Z/SchoolCounseling/Social,Emotional,andCharacterDevelopment.aspx>
 - See West Virginia example of K-12 standards for SEL at <http://wvde.state.wv.us/healthyschools/ElectronicManual4373New.html#SelfawarenessandSelfmanagement>
2. Ideally SEL standards should also be **integrated** and reflected in standards from other subject areas.
 - See example of how SEL is reflected in Common Core State Standards: <http://www.corestandards.org/ELA-Literacy/SL/6/1>
 - See example of how SEL is also reflected in National Health Education Standards: <http://www.cdc.gov/healthyyouth/sher/standards/4.htm>
 - See example of how “Emotional and Social Wellness” is integrated into Colorado Comprehensive Health Education Standards at http://www.cde.state.co.us/sites/default/files/documents/cohealthpe/documents/health_pe_standards adopted 12.10.09.pdf.
3. Standards are more likely to influence educational outcomes when **they also provide guidance on how adults can support students through teaching practices**.
 - See Washington State example of “Ideas to Try with Children” on page 72: <http://www.del.wa.gov/publications/development/docs/Guidelines.pdf>
 - See Kansas examples of “Instructional Examples” at [http://www.ksde.org/Portals/0/CSAS/Content%20Area%20\(M-Z\)/School%20Counseling/Soc_Emot_Char_Dev/PersonalDev_InstrExamples.pdf](http://www.ksde.org/Portals/0/CSAS/Content%20Area%20(M-Z)/School%20Counseling/Soc_Emot_Char_Dev/PersonalDev_InstrExamples.pdf) and [http://www.ksde.org/Portals/0/CSAS/Content%20Area%20\(M-Z\)/School%20Counseling/Soc_Emot_Char_Dev/Social%20Dev_InstrExamples.pdf](http://www.ksde.org/Portals/0/CSAS/Content%20Area%20(M-Z)/School%20Counseling/Soc_Emot_Char_Dev/Social%20Dev_InstrExamples.pdf)

4. Standards are strengthened when **they also provide guidance on how to create a positive learning environment and school climate** essential to social and emotional development.
 - See California discussion of well-designed environment (preschool) beginning on page 4: <http://www.cde.ca.gov/sp/cd/re/documents/preschoollf.pdf>
 - See Indiana discussion of positive environment (preschool) on page 11: <http://www.doe.in.gov/sites/default/files/curriculum/indianafoundations-february-2012.pdf>
 - See Illinois example for creating positive learning environment (k-12): <http://www.isbe.state.il.us/learningsupports/pdfs/learning-indicators/CL7.pdf>
5. Standards are enhanced when they also provide guidance on how to make instruction **culturally sensitive and linguistically appropriate**.
 - See Alaska discussion of “Supporting Individual Differences” on page 54: <http://www.eed.state.ak.us/publications/EarlyLearningGuidelines.pdf>
 - See Washington State discussion of “Children Can Learn More Than One Language” on page 8: <http://www.del.wa.gov/publications/development/docs/Guidelines.pdf>
6. Finally, standards are more likely to successfully impact educational practice when they provide tools that **support** high-quality implementation (see Connecticut example on page 4 of http://www.sde.ct.gov/sde/lib/sde/PDF/DEPS/Early/EarlyChildhood_SRBI_Manual.pdf), including evidence-based programs, assessment, and professional development
 - **Evidence-Based Programs.** See CASEL example of evidence-based preschool and elementary programs: <http://www.casel.org/guide>. See Connecticut example of selecting evidence-based program on page 4 of http://www.sde.ct.gov/sde/lib/sde/PDF/DEPS/Early/EarlyChildhood_SRBI_Manual.pdf
 - **Assessment.** See Indiana discussion of assessment on pages 7 and 8: <http://www.doe.in.gov/sites/default/files/curriculum/indianafoundations-february-2012.pdf>
 - For preschool and elementary school measures of SEL, see the CASEL Compendium of assessment measures at <http://www.casel.org/library/2013/11/4/compendium-of-preschool-through-elementary-school-socialemotional-learning-and-associated-assessment-measures>
 - For middle school measures, see the Raikes Foundation Report on Social-Emotional Learning Assessment Measures at <http://www.search-institute.org/sites/default/files/a/DAP-Raikes-Foundation-Review.pdf>
 - **Professional Development.** See New Jersey discussion of Professional Development (and assessment) on pages 30-34: <http://www.nj.gov/education/ece/guide/impguidelines.pdf> . See Massachusetts example of SEL in teacher education at <http://www.seltedconsortium.com/>

*These features are based on CASEL’s review of the research literatures on learning standards and SEL. Examples from states and other sources were identified as part of CASEL’s State Scan of Learning Standards for SEL. This handout was prepared for CASEL by Linda Dusenbury.



The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions

Joseph A. Durlak

Loyola University Chicago

Roger P. Weissberg

Collaborative for Academic, Social, and

Emotional Learning (CASEL),

University of Illinois at Chicago

Allison B. Dymnicki and

Rebecca D. Taylor

University of Illinois at Chicago

Kriston B. Schellinger

Loyola University Chicago

Abstract

This article presents findings from a meta-analysis of 213 school-based, universal social and emotional learning (SEL) programs involving 270,034 kindergarten through high school students. Compared to controls, SEL participants demonstrated significantly improved social and emotional skills, attitudes, behavior, and academic performance that reflected an 11-percentile-point gain in achievement. School teaching staff successfully conducted SEL programs. The use of four recommended practices for developing skills and the presence of implementation problems moderated program outcomes. The findings add to the growing empirical evidence regarding the positive impact of SEL programs. Policymakers, educators, and the public can contribute to healthy development of children by supporting the incorporation of evidence-based SEL programming into standard educational practice.

Acknowledgements: This article is based on grants from the William T. Grant Foundation, the Lucile Packard Foundation for Children's Health, and the University of Illinois at Chicago awarded to the first and second authors. We also wish to express our appreciation to David DuBois, Mark Lipsey, Mark Greenberg, Mary Utne O'Brien, John Payton, and Richard Davidson, who provided helpful comments on an earlier draft. We offer additional thanks to Mark Lipsey and David Wilson for providing the macros used to calculate effects and conduct the statistical analyses. A copy of the coding manual used in this meta-analysis is available on request from the first author at jdurlak@luc.edu.

Affiliations: Joseph A. Durlak, Loyola University Chicago; Roger P. Weissberg, Collaborative for Academic, Social, and Emotional Learning (CASEL) and University of Illinois at Chicago; Allison B. Dymnicki, University of Illinois at Chicago; Rebecca D. Taylor, University of Illinois at Chicago; Kriston B. Schellinger, Loyola University Chicago.

This article was originally published in the peer-reviewed journal *Child Development* in January 2011 in a special issue focused on the theme "Raising Healthy Children." It is reprinted here with permission in a form adapted from the accepted version of the original article. We are grateful to the editors and publishers of *Child Development* for their permission to offer the article to interested researchers and colleagues.

The correct citation for the article is:

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D. & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82(1): 405–432.

Teaching and learning in schools have strong social, emotional, and academic components (Zins, Weissberg, Wang, & Walberg, 2004). Students typically do not learn alone, but rather in collaboration with their teachers, in the company of their peers, and with the encouragement of their families. Emotions can facilitate or impede children's academic engagement, work ethic, commitment, and ultimate school success. Because relationships and emotional processes affect how and what we learn, schools and families must effectively address these aspects of the educational process for the benefit of all students (Elias et al., 1997).

A key challenge for 21st-century schools involves serving culturally diverse students with varied abilities and motivations for learning (Learning First Alliance, 2001). Unfortunately, many students lack social-emotional competencies and become less connected to school as they progress from elementary to middle to high school, and this lack of connection negatively affects their academic performance, behavior, and health (Blum & Libbey, 2004). In a national sample of 148,189 sixth to twelfth graders, only 29% to 45% of surveyed students reported that they had social competencies such as empathy, decision making, and conflict resolution skills; and only 29% indicated that their school provided a caring, encouraging environment (Benson, 2006). By high school as many as 40% to 60% of students become chronically disengaged from school (Klem & Connell, 2004). Furthermore, approximately 30% of high school students engage in multiple high-risk behaviors (e.g., substance use, sex, violence, depression, attempted suicide) that interfere with school performance and jeopardize their potential for life success (Dryfoos, 1997; Eaton et al., 2008).

There is broad agreement among educators, policy-makers, and the public that educational systems should graduate students who are proficient in core academic subjects, able to work well with others from diverse backgrounds in socially and emotionally skilled ways, practice healthy behaviors, and behave responsibly and respectfully (Association for Supervision and Curriculum Development, 2007; Greenberg et al., 2003). In other words, schools have an important role to play in raising healthy children by fostering not only their cognitive development, but also their social and emotional development. Yet schools have limited resources to address all of these areas and are experiencing intense pressures to enhance academic performance. Given time constraints and competing demands, educators must prioritize and effectively implement evidence-based approaches that produce multiple benefits.

It has been posited that universal school-based efforts to promote students' social and emotional learning (SEL) represent a promising approach to enhance children's

success in school and life (Elias et al., 1997; Zins & Elias, 2006). Extensive developmental research indicates that effective mastery of social-emotional competencies is associated with greater well-being and better school performance whereas the failure to achieve competence in these areas can lead to a variety of personal, social, and academic difficulties (Eisenberg, 2006; Guerra & Bradshaw, 2008; Masten & Coathworth, 1998; Weissberg & Greenberg, 1998). The findings from various clinical, prevention, and youth-development studies have stimulated the creation of many school-based interventions specifically designed to promote young people's SEL (Greenberg et al., 2003). On the other hand, several researchers have questioned the extent to which promoting children's social and emotional skills will actually improve their behavioral and academic outcomes (Duncan et al., 2007; Zeidner, Roberts, & Matthews, 2002). This meta-analysis examines the effects of school-based SEL programming on children's behaviors and academic performance, and discusses the implications of these findings for educational policies and practice.

What is Social and Emotional Learning?

The SEL approach integrates competence-promotion and youth-development frameworks for reducing risk factors and fostering protective mechanisms for positive adjustment (Benson, 2006; Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2002; Guerra & Bradshaw, 2008; Weissberg, Kumpfer, & Seligman, 2003). SEL researchers and program designers build from Waters and Sroufe's (1983) description of competent people as those who have the abilities "to generate and coordinate flexible, adaptive responses to demands and to generate and capitalize on opportunities in the environment" (p. 80). Elias et al. (1997) defined SEL as the process of acquiring core competencies to recognize and manage emotions, set and achieve positive goals, appreciate the perspectives of others, establish and maintain positive relationships, make responsible decisions, and handle interpersonal situations constructively. The proximal goals of SEL programs are to foster the development of five inter-related sets of cognitive, affective, and behavioral competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision making (Collaborative for Academic, Social, and Emotional Learning, 2005). These competencies, in turn, should provide a foundation for better adjustment and academic performance as reflected in more positive social behaviors, fewer conduct problems, less emotional distress, and improved test scores and grades (Greenberg et al., 2003). Over time, mastering SEL competencies results in a developmental progression that leads to a shift from being predominantly controlled by external

factors to acting increasingly in accord with internalized beliefs and values, caring and concern for others, making good decisions, and taking responsibility for one's choices and behaviors (Bear & Watkins, 2006).

Within school contexts, SEL programming incorporates two coordinated sets of educational strategies to enhance school performance and youth development (Collaborative for Academic, Social, and Emotional Learning, 2005). The first involves instruction in processing, integrating, and selectively applying social and emotional skills in developmentally, contextually, and culturally appropriate ways (Crick & Dodge, 1994; Izard, 2002; Lemire & Arsenio, 2000). Through systematic instruction, SEL skills may be taught, modeled, practiced, and applied to diverse situations so that students use them as part of their daily repertoire of behaviors (Ladd & Mize, 1983; Weissberg, Caplan, & Sivo, 1989). In addition, many programs help students apply SEL skills in preventing specific problem behaviors such as substance use, interpersonal violence, bullying, and school failure (Zins & Elias, 2006). Quality SEL instruction also provides students with opportunities to contribute to their class, school, and community and experience the satisfaction, sense of belonging, and enhanced motivation that comes from such involvement (Hawkins, Smith, & Catalano, 2004). Second, SEL programming fosters students' social-emotional development through establishing safe, caring learning environments involving peer and family initiatives, improving classroom management and teaching practices, and whole-school community-building activities (Cook et al., 1999; Hawkins et al., 2004; Schaps, Battistich, & Solomon, 2004). Together these components promote personal and environmental resources so that students feel valued, experience greater intrinsic motivation to achieve, and develop a broadly applicable set of social-emotional competencies that mediate better academic performance, health-promoting behavior, and citizenship (Greenberg et al., 2003).

Recent Relevant Research Reviews

During the past dozen years there have been many informative research syntheses of school-based prevention and promotion programming. These reviews typically include some school-based, universal SEL program evaluations along with an array of other interventions that target the following outcomes: academic performance (Wang, Haertel, & Walberg, 1997; Zins et al., 2004), antisocial and aggressive behavior (Lösel, & Beelman, 2003; Wilson & Lipsey, 2007), depressive symptoms (Horowitz & Garber, 2006), drug use (Tobler et al., 2000), mental health (Durlak & Wells, 1997; Greenberg, Domitrovich, & Bumbarger, 2001); problem behaviors (Wilson, Gottfredson, & Najaka, 2001), or positive youth development (Catalano et al.,

2002). Although these reports differ substantially in terms of which intervention strategies, student populations, and behavioral outcomes are examined, they have reached a similar conclusion that universal school-based interventions are generally effective. However, no review to date has focused exclusively on SEL programs to examine their impact across diverse student outcomes.

The Current Meta-analysis: Research Questions and Hypotheses

This paper reports on the first large-scale meta-analysis of school-based programs to promote students' social and emotional development. In contrast to most previous reviews that focus on one major outcome (e.g., substance abuse, aggression, academic performance), we explored the effects of SEL programming across multiple outcomes: social and emotional skills, attitudes towards self and others, positive social behavior, conduct problems, emotional distress, and academic performance. Moreover, we were interested in interventions for the entire student body (universal interventions) and thus did not examine programs for indicated populations, that is, for students already demonstrating adjustment problems. These latter programs have been evaluated in a separate report (Payton et al., 2008).

The proliferation of new competence-promotion approaches led to several important research questions about school-based interventions to foster students' social and emotional development. For example, what outcomes are achieved by interventions that attempt to enhance children's emotional and social skills? Can SEL interventions promote positive outcomes and prevent future problems? Can programs be successfully conducted in the school setting by existing school personnel? What variables moderate the impact of school-based SEL programs? Next, we address these questions and offer hypotheses about expected findings.

The findings from several individual studies and narrative reviews indicate that SEL programs are associated with positive results such as improved attitudes about the self and others, increased prosocial behavior, lower levels of problem behaviors and emotional distress, and improved academic performance (Catalano et al., 2002; Greenberg et al., 2003; Zins et al., 2004). Thus, our first hypothesis was that our meta-analysis of school-based SEL programs would yield significant positive mean effects across a variety of skill, attitudinal, behavioral, and academic outcomes (*Hypothesis #1*).

Ultimately, interventions are unlikely to have much practical utility or gain widespread acceptance unless they are effective under real-world conditions. Thus, we investigated whether SEL programs can be incorporated into rou-

tine educational practice; that is, can they be successfully delivered by existing school staff during the regular school day? In our analyses, we separated interventions conducted by regular school staff and those administered by non-school personnel (e.g., university researchers, outside consultants). We predicted that programs conducted by classroom teachers and other school staff would produce significant outcomes (*Hypothesis #2*).

Many school-based SEL programs involve the delivery of classroom curricula designed to promote social-emotional competencies in developmentally and culturally appropriate ways (Collaborative for Academic, Social, and Emotional Learning (CASEL), 2005). There are also multi-component programs that supplement classroom programming with school-wide components (Greenberg et al., 2003). We expected that interventions that combined components within and outside of the daily classroom routine would yield stronger effects than those that were only classroom based (*Hypothesis #3*). This expectation is grounded in the premise that the broader ecological focus of multi-component programs that extends beyond the classroom should better support and sustain new skill development (Tolan, Guerra, & Kendall, 1995).

We also predicted that two key variables would moderate student outcomes: the use of recommended practices for developing skills and adequate program implementation. Extensive research in school, community, and clinical settings has led several authors to offer recommendations on what procedures should be followed for effective skill training. For example, there is broad agreement that programs are likely to be effective if they use a sequenced step-by-step training approach, use active forms of learning, focus sufficient time on skill development, and have explicit learning goals (Bond & Hauf, 2004; Durlak, 1997; Dusenbury & Falco, 1995; Gresham, 1995). These four recommended practices form the acronym SAFE (for sequenced, active, focused, and explicit, see Method). A meta-analysis of after-school programs that sought to develop personal and social skills found that program staff who followed these four recommended practices were more effective than those who did not follow these procedures (Durlak, Weissberg, & Pachan, in press). Moreover, the literature suggests that these recommended practices are important in combination with one another rather than as independent factors. In other words, sequenced training will not be as effective unless active forms of learning are used and sufficient time is focused on reaching explicit learning goals. Therefore, we coded how many of the four practices were used in SEL interventions and expected to replicate the previous finding that staff using all four practices would be more successful than those who did not (*Hypothesis #4*).

For example, new behaviors and more complicated

skills usually need to be broken down into smaller steps and sequentially mastered, suggesting the benefit of a co-ordinated sequence of activities that links the learning steps and provides youth with opportunities to connect these steps (Sequenced). Gresham (1995) has noted that it is "...important to help children learn how to combine, chain and sequence behaviors that make up various social skills" (p. 1023). Lesson plans and program manuals are often used for this purpose.

An effective teaching strategy for many youth emphasizes the importance of active forms of learning that require youth to act on the material (Active). "It is well documented that practice is a necessary condition for skill acquisition" (Salas & Cannon-Bower, 2001, p. 480). Sufficient time and attention must also be devoted to any task for learning to occur (Focus). Therefore, some time should be set aside primarily for skill development. Finally, clear and specific learning objectives over general ones are preferred because it is important that youth know what they are expected to learn (Explicit).

Finally, there is increasing recognition that effective implementation influences program outcomes (Durlak & DuPre, 2008) and that problems encountered during program implementation can limit the benefits that participants might derive from intervention. Therefore, we hypothesized that SEL programs that encountered problems during program implementation would be less successful than those that did not report such problems (*Hypothesis #5*).

In sum, this paper describes the results of a meta-analysis of school-based universal SEL programs for school children. We hypothesized that (a) SEL programs would yield significant mean effects across skill, attitudinal, behavioral, and academic domains, (b) teachers would be effective in administering these programs, and (c) multi-component programs would be more effective than single-component programs. We also expected that program outcomes would be moderated by (d) the use of recommended training practices (SAFE practices) and (e) reported implementation problems.

Method

Literature Search

Four search strategies were used in an attempt to secure a systematic, nonbiased, representative sample of published and unpublished studies. First, relevant studies were identified through computer searches of *PsycInfo*, *Medline*, and *Dissertation Abstracts* using the following search terms and their variants: *social and emotional learning*, *competence*, *assets*, *health promotion*, *prevention*, *positive youth development*, *social skills*, *self-esteem*, *empathy*, *emotional intelligence*, *problem solving*, *conflict resolution*,

coping, stress reduction, children, adolescents, intervention, students, and schools. Second, the reference lists of each identified study and of reviews of psychosocial interventions for youth were examined. Third, manual searches were conducted in 11 journals producing relevant studies between the years from January 1, 1970 through December 31, 2007. These were the *American Educational Research Journal*, *American Journal of Community Psychology*, *Child Development*, *Journal of Research in Adolescence*, *Journal of Consulting and Clinical Psychology*, *Journal of Primary Prevention*, *Journal of School Psychology*, *Journal of Youth and Adolescence*, *Prevention Science*, *Psychology in the Schools*, and *School Psychology Review*. Fourth, searches were made of organization web sites promoting youth development and social-emotional learning, and researchers who presented relevant work at national prevention and community conferences were contacted for complete reports. The final study sample has little overlap with previous meta-analyses of school-based preventive interventions. No more than 12% of the studies in any of the previous reviews (Durlak & Wells, 1997; Horowitz & Garber, 2007; Lösel & Beelman, 2003; Tobler et al., 2000; Wilson et al., 2001; Wilson & Lipsey, 2007) were part of our study sample and 63% of the studies we reviewed were not included in any of these previous reviews. This is due to a number of reasons including (a) 36% of studies in the current review were published in the past decade, (b) previous reviews have focused primarily on negative outcomes, and not on positive social-emotional skills and attitudes, and (c) other studies have not included such a broad range of age groups (i.e., kindergarten through high school students).

Inclusion Criteria

Studies eligible for review were (a) written in English, (b) appeared in published or unpublished form by December 31, 2007, (c) emphasized the development of one or more SEL skills, (d) targeted students between the ages of 5 and 18 without any identified adjustment or learning problems, (e) included a control group, and (f) reported sufficient information so that effect sizes (ESs) could be calculated at post and, if follow-up data were collected, at least six months following the end of intervention.

Exclusion Criteria

We excluded studies targeting students who had pre-existing behavioral, emotional, or academic problems. Additionally, we excluded programs whose primary purpose was to promote achievement through various types of educational curricula, instructional strategies, or other forms of academic assistance, as well as interventions that fo-

cused solely on outcomes related to students' physical health and development (e.g., programs to prevent AIDS/HIV, pregnancy, drug use, or those seeking to develop healthy nutrition and exercise patterns). Finally, we excluded small group out-of class programs that were offered during study hall, gym class, or in school after the school day ended. Although some of these programs technically qualify as universal interventions, they differed in several respects from the other reviewed interventions. For example, they did not involve entire classes but were limited to those students who volunteered (thus introducing the possibility of self-selection bias) and they usually had much smaller sample sizes and were briefer in duration.

Dealing with Multiple Cohorts or Multiple Publications on the Same Cohort

Multiple interventions from the same report were coded and analyzed separately if the data related to distinct intervention formats (e.g., classroom versus multi-component) and contained separate cohorts, or if a single report reported the results for an original cohort and a replication sample. Multiple papers evaluating the same intervention but containing different outcome data at post or follow-up for the same cohort were combined into a single study.

Independent Variables: Intervention Formats

The major independent variables were intervention format, the use of four recommended practices related to skill development (SAFE practices), and reported implementation problems. The intervention format used to promote students' social and emotional development was categorized in the following three mutually exclusive ways based on the primary change agent and whether multi-component strategies were used to influence students.

Class by teacher. The most common strategy (53% of interventions) involved classroom-based interventions administered by regular classroom teachers (Class by Teacher). These usually took the form of a specific curriculum and set of instructional strategies (e.g., behavioral rehearsal, cooperative learning) that sought to develop specific social and emotional skills.

Class by non-school personnel. These interventions were similar to Class by Teacher approaches with the major difference being that non-school personnel, such as university researchers or outside consultants, administered the intervention.

Multi-component programs. These approaches typically had two components, and often supplemented teacher-administered classroom interventions with a parent com-

ponent and/or school-wide initiatives. In some projects, parents worked with their child to complete skill-related homework assignments or attended parent discussion and training groups (e.g., Kumpfer, Alvarado, Tait, & Turner, 2002). Others involved school-wide organizational changes. For example, these efforts might begin with the formation of a planning team that develops new policies and procedures to reorganize school structures and then institutes practices to encourage and support students' social and emotional development (e.g., Cook, Murphy, & Hunt, 2000; Flay, Allred, & Ordway, 2001; Hawkins et al., 2004).

Potential Moderators of Outcome: SAFE and Implementation

SAFE interventions were coded dichotomously (yes/no) according to whether or not each of four recommended practices identified by the acronym *SAFE* was used to develop students' skills: (a) Does the program use a connected and coordinated set of activities to achieve their objectives relative to skill development? (*Sequenced*); (b) Does the program use active forms of learning to help youth learn new skills? (*Active*); (c) Does the program have at least one component devoted to developing personal or social skills? (*Focused*); and, (d) Does the program target specific SEL skills rather than targeting skills or positive development in general terms? (*Explicit*). Reports rarely contained data on the extent to which each of the above four practices were used (e.g., how often or to what degree active forms of learning were used) and, therefore, dichotomous coding was necessary. For example, any time spent on active learning (e.g., role playing or behavioral rehearsal) was credited as long as it afforded students the opportunity to practice or rehearse SEL skills. Further details on these practices are available in the coding manual and in Durlak et al. (in press). Programs that followed or failed to follow all four practices were called *SAFE* and Other programs respectively.

Program implementation. First, we noted whether authors monitored the process of implementation in any way. If the answer was affirmative, we then coded reports (yes/no) for instances of implementation problems (e.g., when staff failed to conduct certain parts of the intervention or unexpected developments altered the execution of the program). Thus, a program was only coded as having no implementation problems if implementation was monitored and authors reported no problems or that the program was delivered as intended.

Methodological Variables

To assess how methodological features might influence outcomes, three variables were coded dichotomously

(randomization to conditions, use of a reliable outcome measure and use of a valid outcome measure; each as yes or no). An outcome measure's reliability was considered acceptable if kappa or alpha statistics were ≥ 0.60 , reliability calculated by product moment correlations was ≥ 0.70 , and level of percentage agreement by raters was ≥ 0.80 . A measure was considered valid if the authors cited data confirming the measure's construct, concurrent, or predictive validity. Reliability and validity were coded dichotomously because exact psychometric data were not always available. Additionally, we coded attrition as a continuous variable in two ways: (a) as total attrition from the combined intervention and control group sample from pre to post; and (b) as differential attrition, assessed as the percentage of attrition from the control group subtracted from the attrition percentage of the intervention group.

Dependent Variables: Student Outcomes

The dependent variables used in this meta-analysis were six different student outcomes: (a) social and emotional skills, (b) attitudes toward self and others, (c) positive social behaviors, (d) conduct problems, (e) emotional distress, and (f) academic performance.

Social and emotional skills. This category includes evaluations of different types of cognitive, affective, and social skills related to such areas as identifying emotions from social cues, goal setting, perspective taking, interpersonal problem solving, conflict resolution, and decision making. Skill assessments could be based on the reports from the student, teacher, parent, or independent rater. However, all the outcomes in this category reflected skill acquisition or performance assessed in test situations or structured tasks (e.g., interviews, role-plays, or questionnaires). In contrast, teacher ratings of students' behaviors manifested in daily situations (e.g., a student's ability to control their anger or work well with others) were placed in the positive social behavior category below.

Attitudes toward self and others. This category combines positive attitudes about the self, school, and social topics. It included self-perceptions (e.g., self-esteem, self-concept, and self-efficacy), school bonding (e.g., attitudes toward school and teachers), and conventional (i.e., prosocial) beliefs about violence, helping others, social justice, and drug use. All the outcomes in this category were based on student self-reports. We combined these three outcomes to avoid extremely small cell sizes for subsequent analyses.

Positive social behavior. This category included outcomes such as getting along with others derived from the student, teacher, parent, or an independent observer. These outcomes reflect *daily behavior* rather than performance in hypothetical situations, which was treated as a

social and emotional skill outcome. For example, teacher ratings of social skills drawn from Elliott and Gresham's Social Skills Rating Scale (Elliot, Gresham, Freeman, & McCloskey, 1988) were put into the positive social behavior outcome category.

Conduct problems. This category included measures of different types of behavior problems, such as disruptive class behavior, noncompliance, aggression, bullying, school suspensions, and delinquent acts. These measures, such as the Child Behavior Checklist (Achenbach, 1991), could also come from student self-reports, teacher or parent ratings, or independent observers, or, in the case of school suspensions, *only* from school records.

Emotional distress. This category consisted of measures of internalized mental health issues. These included reports of depression, anxiety, stress, or social withdrawal, which could be provided by students, teachers, or parents on measures such as the Children's Manifest Anxiety Scale (Kitano, 1960).

Academic performance. Academic performance included standardized reading or math achievement test scores from such measures as the Stanford Achievement Test or the Iowa Test of Basic Skills, and school grades in the form of students' overall GPA or their grades in specific subjects (usually reading and/or math). Only data drawn from school records were included. Teacher-developed tests, teacher ratings of academic competence, and IQ measures such as the Stanford Binet were not included.

Coding Reliability

A coding system available from the first author was developed to record information about each report such as its date of appearance and source, characteristics of the participants, methodological features, program procedures, and measured outcomes. Trained research assistants working in pairs but at different time periods and on different aspects of the total coding system completed the coding. Reliability of coding was estimated by having pairs of students independently code a randomly selected 25% sample of the studies. Kappa coefficients corrected for chance agreement were acceptable across all codes reported in this review (mean kappa was 0.69). Raters' agreements on continuous variables were all above 0.90. Any disagreements in coding were eventually resolved through discussion.

Calculation of Effects and General Analytic Strategies

Hedge's g (Hedges & Olkin, 1985) was the index of effect adjusted whenever possible for any pre-intervention differences between intervention and control groups (e.g., Wilson et al., 2001; Wilson & Lipsey, 2007). All effect sizes

(ESs) were calculated such that positive values indicated a favorable result for program students over controls. When means and standard deviations were not available, we used estimation procedures recommended by Lipsey and Wilson (2001). If the only information in the report was that the results were nonsignificant and attempts to contact authors did not elicit further information, the ES was conservatively set at zero. There were 45 imputed zeros among the outcomes and subsequent analyses indicated these zeros were not more likely to be associated with any coded variables.

One ES per study was calculated for each outcome category. In addition, we corrected each ES for small sample bias, weighted ESs by the inverse of their variance prior to any analysis, and calculated 95% confidence intervals around each mean. When testing our hypotheses, a 0.05 probability level was used to determine statistical significance. A mean ES is significantly different from zero when its 95% confidence intervals do not include zero. The method of examining overlapping confidence intervals (Cumming & Finch, 2005) was used to determine if the mean ESs from different groups of studies differed significantly. Finally, the method used for all analyses was based on a random effects model using maximum likelihood estimation procedure (Lipsey & Wilson, 2001).

The significance of the heterogeneity of a group of ESs was examined through the Q statistic. A significant Q value suggests studies are not drawn from a common population whereas a nonsignificant value indicates the opposite. In addition, we used the I^2 statistic (Higgins, Thompson, Deeks, & Altman, 2003) which reflects the degree (as opposed to the statistical significance) of heterogeneity among a set of studies along a 0 to 100% scale.

Results

Descriptive Characteristics of Reviewed Studies

The sample consisted of 213 studies that involved 270,034 students. Table 1 summarizes some of the features of these investigations. Most papers (75%) were published during the last two decades. Almost half (47%) of the studies employed randomized designs. More than half the programs (56%) were delivered to elementary-school students, just under a third (31%) involved middle-school students, and the remainder included high school students. Although nearly one third of the reports contained no information on student ethnicity (31%) or socioeconomic status (32%), several interventions occurred in schools serving a mixed student body in terms of ethnicity (35%) or socioeconomic status (25%). Just under half of the studies were conducted in urban schools (47%). The majority of SEL programs were classroom-based, either delivered

TABLE 1**Descriptive characteristics of 213 school-based universal interventions with outcomes at post.**

General Publication Features	N	%
Date of report		
1955-1979	18	9
1980-1989	35	16
1990-1999	83	39
2000-2007	77	36
Source of report		
Published article/books	172	81
Unpublished reports	41	19
Randomization		
Yes	99	47
No	114	53
Mean Percent of Attrition		11
Implementation		
Not reported on	91	43
No significant problems reported	74	35
Significant problems reported	48	22
Use of Reliable Outcome Measures		
Yes	550	76
No	176	24
Use of Valid Outcome Measures		
Yes	369	51
No	357	49
Source of Outcome Data	N	%
Child	382	53
Other (parent, teacher, observer, school records)	422	47
Educational level of Participants		
Elementary School (grades K-5)	120	56
Middle School (grade 6-8)	66	31
High School (grades 9-12)	27	13
Intervention Features		
Intervention Format		
Classroom by Teacher	114	53
Classroom by Non-School Personnel	44	21
Multi-Component	55	26

Continued on next page

TABLE 1 (CONT'D.)

Use of Recommended Training Procedures		
Intervention rated as SAFE	176	83
Intervention not rated as SAFE	37	17
Number of Sessions		
Mean Number of Sessions	40.8	
Median Number of Sessions	24	
Locale of Intervention		
United States	186	87
Outside the United States	27	13
General Area of School		
Urban	99	47
Suburban	35	16
Rural	31	15
Combination of areas	30	14
Did not report	18	8

by teachers (53%) or non-school personnel (21%), and 26% were multi-component programs. About 77% of the programs lasted for less than a year, 11% lasted 1 to 2 years, and 12% lasted more than 2 years.

SEL Programs Significantly Improve Students' Skills, Attitudes, and Behaviors

The grand study-level mean for all 213 interventions was 0.30 (CI = 0.26 to 0.33) which was statistically significant from zero. The Q value of 2,453 was significant ($p < .001$) and the I^2 was high (91%) indicating substantial heterogeneity among studies and suggesting the existence of one or more variables that might moderate outcomes.

Table 2 presents the mean effects and their 95% confidence intervals obtained at post across all reviewed programs in each outcome category. All six means (range from 0.22 to 0.57) are significantly greater than zero and confirm our first hypothesis. Results (based on 35 to 112 interventions depending on the outcome category) indicated that, compared to controls, students demonstrated enhanced SEL skills, attitudes, and positive social behaviors following intervention and also demonstrated fewer conduct problems and had lower levels of emotional distress. Especially noteworthy from an educational policy perspective, academic performance was significantly improved. The overall mean effect did not differ significantly for test scores and grades (mean ES = 0.27 and 0.33, respectively). Although only a subset of studies collected

information on academic performances, these investigations tended to contain large sample sizes that involved a total of 135,396 students.

Follow-up Effects

Thirty-three of the studies (15%) met the criteria of collecting follow-up data at least six months after the intervention ended. The average follow-up period across all outcomes for these 33 studies was 92 weeks (median = 52 weeks; means range from 66 weeks for SEL skills to 150 weeks for academic performance). The mean follow-up ESs remained significant for all outcomes in spite of reduced numbers of studies assessing each outcome: SEL skills (ES = 0.26; $k = 8$), attitudes (ES = 0.11; $k = 16$), positive social behavior (ES = 0.17; $k = 12$), conduct problems (ES = 0.14; $k = 21$), emotional distress (ES = 0.15; $k = 11$), and academic performance (ES = 0.32; $k = 8$). Given the limited number of follow-up studies, all subsequent analyses were conducted at post only.

School Staff Can Conduct Successful SEL Programs

Table 2 presents the mean effects obtained for the three major formats and supports the second hypothesis that school staff can conduct successful SEL programs. Classroom by Teacher programs were effective in all six outcome categories, and Multi-component programs (also conducted by school staff) were effective in four outcome

Table 2

Mean Effects and .05 Confidence Intervals at Post for Total Sample and Each Intervention Format

		Outcomes					
		SEL skills	Attitudes	Positive social behavior	Conduct problems	Emotional distress	Academic performance
Group							
Total sample	ES	0.57*	0.23*	0.24*	0.22*	0.24*	0.27*
	CI	0.48 to 0.67	0.16 to 0.30	0.16 to 0.32	0.16 to 0.29	0.14 to 0.35	0.15 to 0.39
	N	68	106	86	112	49	35
Class by Teacher	ES	0.62*	0.23*	0.26*	0.20*	0.25*	0.34*
	CI	0.41 to 0.82	0.17 to 0.29	0.15 to 0.38	0.12 to 0.29	0.08 to 0.43	0.16 to 0.52
	N	40	59	59	53	20	10
Class by Nonschool Personnel	ES	0.87*	0.14*	0.23	0.17*	0.21	0.12
	CI	0.58 to 1.16	0.02 to 0.25	-0.04 to 0.50	0.02 to 0.33	-0.01 to 0.43	-0.19 to 0.43
	N	21	18	11	16	14	3
Multicomponent	ES	0.12	0.23*	0.19	0.26*	0.27*	0.26*
	CI	-0.35 to 0.60	0.15 to 0.31	-0.02 to 0.39	0.17 to 0.34	0.07 to 0.47	0.16 to 0.36
	N	7	26	16	43	15	22

* $p \leq .05$.

categories. In contrast, classroom programs delivered by non-school personnel produced only three significant outcomes (i.e., improved SEL skills and prosocial attitudes, and reduced conduct problems). Student academic performance significantly improved only when school personnel conducted the intervention.

The prediction that multi-component programs would be more effective than single-component programs was not supported (see Table 2). Multi-component program effects were comparable to but not significantly higher than those obtained in Classroom by Teacher programs in four outcome areas (i.e., attitudes, conduct problems, emotional distress and academic performance). They did not yield significant effects for SEL skills or positive social behavior, whereas Class by Teacher programs did.

What Moderates Program Outcomes?

We predicted that the use of the four SAFE practices to develop student skills and reported implementation problems would moderate program outcomes, and in separate analyses we divided the total group of studies according to these variables. Both hypotheses regarding program moderators received support and the resulting mean ESs are presented in Table 3. Programs following all four recommended training procedures (i.e., coded as SAFE) produced significant effects for all six outcomes whereas programs not coded as SAFE achieved significant effects in only three areas (i.e., attitudes, conduct problems, and academic performance). Reported implementation problems also moderated outcomes. Whereas programs that encountered implementation problems achieved significant effects in only two outcome categories (i.e., attitudes

and conduct problems), interventions without any apparent implementation problems yielded significant mean effects in all six categories.

Q Statistics and I^2 values related to moderation. Table 4 contains the values for Q and I^2 when studies were divided to test the influence of our hypothesized moderators. We used I^2 to complement the Q statistic because the latter has low power when the number of studies is small and conversely may yield statistically significant findings when there are a large number of studies even though the amount of heterogeneity might be low (Higgins et al., 2003). To support moderation, I^2 values should reflect low *within-group* but high *between-group* heterogeneity. This would suggest that the chosen variable creates subgroups of studies each drawn from a common population, and that there are important differences in ESs between groups beyond what would be expected based on sampling error. I^2 values range from 0 to 100%, and based on the results of many meta-analyses, values around 15% reflect a mild degree of heterogeneity, between 25 to 50% a moderate degree, and values $\geq 75\%$ a high degree of heterogeneity (Higgins et al., 2003).

The data in Table 4 support the notion that both SAFE and implementation problems moderate SEL outcomes. For example, based on I^2 values, initially dividing ESs according to the six outcomes does produce the preferred low overall degree of within-group heterogeneity (15%) and high between-group heterogeneity (88%); for two specific outcomes, however, there is a mild (positive social behaviors, 32%) to moderately high (skills, 65%) degree of within-group heterogeneity. When the studies are further divided by SAFE practices or by implementation problems, the overall within group variability remains low (12% and

Table 3
Findings for Moderator Analyses at Post by Outcome Category for Total Sample

	Outcomes					
	Skills	Attitudes	Social behavior	Conduct problems	Emotional distress	Academic performance
Moderators						
Recommended training practices (SAFE)						
Met SAFE criteria	ES CI <i>N</i>	0.69* 0.52 to 0.86 63	0.24* 0.18 to 0.29 80	0.28* 0.18 to 0.38 73	0.24* 0.18 to 0.31 88	0.28* 0.14 to 0.42 33
Did not meet SAFE criteria	ES CI <i>N</i>	0.01 −0.57 to 0.60 5	0.16* 0.07 to 0.25 26	0.02 −0.21 to 0.26 13	0.16* 0.04 to 0.28 24	0.18 −0.02 to 0.37 16
Implementation						
Not mentioned	ES CI <i>N</i>	0.58* 0.33 to 0.83 29	0.17* 0.09 to 0.24 46	0.32* 0.17 to 0.47 33	0.24* 0.13 to 0.34 35	0.21* 0.04 to 0.38 22
No problems	ES CI <i>N</i>	0.86* 0.59 to 1.12 26	0.29 _a * 0.21 to 0.37 36	0.31* 0.17 to 0.45 34	0.27* 0.18 to 0.36 45	0.35* 0.16 to 0.54 16
Implementation problems	ES CI <i>N</i>	0.35 −0.01 to 0.71 13	0.19 _a * 0.10 to 0.28 24	0.01 −0.18 to 0.19 19	0.15* 0.05 to 0.25 32	0.15 −0.08 to 0.38 11
						0.14 −0.01 to 0.28 9

Note. Means with subscript a differ significantly from each other at the .05 level.

* $p \leq .05$.

13%, respectively), the within-group heterogeneity for both skills and social behaviors is no longer significant according to Q statistics, I^2 values drop to low levels ($<15\%$) and remain low for the other outcomes as well, and heterogeneity levels attributed to differences between groups are high or moderate (I^2 values of 79% and 63% for SAFE and implementation respectively). In other words, the use of all four SAFE practices and reported implementation problems to subdivide groups provided a good fit for the obtained data.

These latter findings are consistent with the mean differences between groups on many outcomes for the SAFE and implementation data presented in Table 3. SAFE and implementation problems were not significantly correlated ($r = -0.07$). However, it was not possible to explore their potential interactions as moderators because only 57% of the studies monitored implementation and subdividing the studies created extremely small cell sizes that would not support reliable results.

Inspection of the distribution of the moderator variables in the different cells in Table 3 indicated that SAFE practices and implementation problems were more common for some intervention formats. Compared to teacher-led programs, multi-component programs were less likely to meet SAFE criteria (65% vs. 90%) and were more likely to have implementation problems (31% versus 22% respectively). This creates a confound, in that multi-component programs were less likely to contain features

that were significantly associated with better results for most outcomes, and may explain why the hypothesized superiority of multi-component programs was not confirmed.

Ruling Out Rival Hypotheses

After our primary analyses were conducted (see Table 2), we examined other possible explanations for these results. Additional analyses were conducted by collapsing across the three intervention formats and analyzing effects for the six outcome categories at post. First, we separately analyzed the impact of six methodological features (i.e., use of randomized designs, total and differential attrition, use of a reliable or valid outcome measure, and source of data: students versus all others). We also analyzed outcomes as a function of students' mean age, the duration of intervention (in both weeks and number of sessions), and the school's geographical location (i.e., urban, suburban, or rural). We compared ESs for the three largest cells containing ethnicity data (Caucasian, $k = 48$, African American, $k = 19$, and Mixed, $k = 75$). We also examined if published reports yielded higher ESs than unpublished reports. Finally, we assessed if the three major intervention formats differed on any of the above variables (in addition to SAFE criteria and implementation problems) that might suggest the need for additional data analysis, but this latter procedure did not reveal any major differences across formats.

TABLE 4

Q statistics and I² values (in per cent) for Study Groupings for Moderator Analyses

Grouping Variable	Values across All Outcomes				Values within Each Outcome						
	Q		I ²								
	Between	Within	Within	Between	Skills	Attitudes	Positive	Conduct	Emotional	Academic	
All Six Outcomes	41.6*	530.2*	15%	88%							
For Each Outcome					193.9*	56.7*	125.3*	83.2	50.9	20.1	
Q Within					65%	0%	32%	0%	6%	0%	
I ² Within											
SAFE practices	4.8*	74.8	12%	79%							
For Each Outcome					74.8	121.3	97.0	116.0	47.2	38.1	
Q within					12%	14%	13%	5%	0%	13%	
I ² Within											
Implementation	5.3*	75.0	13%	63%							
For Each Outcome					75.0	121.4	96.2	115.2	46.8	38.6	
Q Within					13%	15%	14%	5%	0 %	17%	
I ² Within											

* = $p \leq .05$

Findings. Among the 72 additional analyses we conducted (12 variables crossed with six outcomes) there were only four significant results, a number expected based on chance. Among the methodological variables the only significant finding was that for positive social behavior: outcome data from other sources yielded significantly *higher* effects than those from student self-reports. The other three significant findings were all related to the skill outcome category. Students' mean age and program duration were significantly and negatively related to skill outcomes ($r_s = -.27$ and $-.25$) and published studies yielded significantly higher mean ESs for skills than unpublished reports. We also looked for potential differences within each of our outcome categories for ESs that were and were not adjusted for pre-intervention differences. The pattern of our major findings were similar (i.e., on such variables as teacher-effectiveness, use of SAFE practices, and implementation).

Effect of nested designs. In addition, all of the reviewed studies employed nested group designs in that the interventions occurred in classrooms or throughout the school. In such cases, individual student data are not independent. Although nested designs do not affect the magnitude of ESs, the possibility of Type I error is increased. Because few authors employed proper statistical procedures to account for this nesting or clustering of data, we re-analyzed the outcome data in Table 2 for all statistically significant findings following recommendations of the Institute for Education Sciences (2008a). These re-analyses

changed only one of the 24 findings in Table 2. The mean effect for Class by Non-school Personnel (0.17) was no longer statistically significant for conduct problems.

Possible publication bias. Finally, we used the trim and fill method (Duval & Tweedie, 2000) to check for the possibility of publication bias. Because the existence of heterogeneity can lead the trim and fill method to underestimate the true population effect (Peters, Sutton, Jones, Abrams & Rushton, 2007), we focused our analyses on the homogeneous cells contained in Table 3 (e.g., the 112, 49, and 35 interventions with outcome data on conduct problems, emotional distress and academic performance, respectively, and so on). The trim and fill analyses resulted in only slight reductions in the estimated mean effects with only one exception (skill outcomes for SAFE programs; original mean = 0.69; trim and fill estimate = 0.45). However, all the estimated means from the trim and fill analysis remained significantly different from zero. In sum, the results of additional analyses did not identify other variables that might serve as an alternative explanation for the current results.

Interpreting Obtained ESs in Context

Aside from SEL skills (mean ES = 0.57), the other mean ESs in Table 2 might seem "small." However, methodologists now stress that instead of reflexively applying Cohen's (1988) conventions concerning the magnitude of obtained effects, findings should be interpreted in the context of

prior research and in terms of their practical value (Durlak, 2009; Hill, Bloom, Black, & Lipsey, 2007). Table 5 presents the overall mean ESs obtained in the current review along with those obtained on similar outcomes from other meta-analyses of psychosocial or educational interventions for school-age youth, including several school-based prevention meta-analyses. Inspection of Table 5 indicates that SEL programs yield results that are similar to or, in some cases, higher than those achieved by other types of universal interventions in each outcome category. In particular, the post-mean ES for academic achievement tests (0.27) is comparable to the results of 76 meta-analyses of strictly educational interventions (Hill et al., 2007).

It is also possible to use Cohen's U_3 index to translate the mean ES on measures of academic performance into a percentile rank for the average student in the intervention group compared to the average control student who, by definition, ranks at the 50th percentile (Institute for Education Sciences, 2008b). A mean ES of 0.27 translates into a percentile difference of 11%. In other words, the average member of the control group would demonstrate an 11 percentile gain in achievement if they had participated in an SEL program. While higher ESs in each outcome area would be even more desirable, in comparison to the results of previous research, current findings suggest that SEL programs are associated with gains across several important attitudinal, behavioral, and academic domains that are comparable to those of other interventions for youth.

Discussion

Current findings document that SEL programs yielded significant positive effects on targeted social-emotional competencies and attitudes about self, others, and school. They also enhanced students' behavioral adjustment in the form of increased prosocial behaviors and reduced conduct and internalizing problems, and improved academic performance on achievement tests and grades. While gains in these areas were reduced in magnitude during follow-up assessments and only a small percentage of studies collected follow-up information, effects nevertheless remained statistically significant for a minimum of six months after the intervention. Collectively, these results build on positive results reported by other research teams that have conducted related reviews examining the promotion of youth development or the prevention of negative behaviors (Catalano et al., 2002; Greenberg et al., 2001; Hahn et al., 2007; Wilson et al., 2001; Wilson & Lipsey, 2007).

The current meta-analysis differs in emphasis from previous research syntheses by focusing exclusively on universal school-based social-emotional development programs and evaluating their impact on positive social be-

havior, problem behaviors, and academic performance. Not surprisingly, the largest effect size occurred for social-emotional skill performance (mean ES = 0.69). This category included assessments of social-cognitive and affective competencies that SEL programs targeted such as emotions recognition, stress-management, empathy, problem-solving, or decision-making skills. While it would be theoretically interesting to examine the impact of teaching various social versus emotional skills, SEL program designers typically combine rather than separate the teaching of these skills because they are interested in promoting the integration of emotion, cognition, communication, and behavior (Crick & Dodge, 1994; Lemerise & Arsenio, 2000). Thus, attempts to foster discrete emotions skills without also teaching social-interaction skills could be shortsighted from an intervention standpoint. However, for research and theoretical purposes, research designs that examine the relative contribution of different intervention components can help to determine which specific skills or combination of skills lead to different outcomes at different developmental periods (Collins, Murphy, Nair, & Strecher, 2005).

Another important finding of the current meta-analysis is that classroom teachers and other school staff effectively conducted SEL programs. This result suggests that these interventions can be incorporated into routine educational practices and do not require outside personnel for their effective delivery. It also appears that SEL programs are successful at all educational levels (elementary, middle, and high school) and in urban, suburban, and rural schools, although they have been studied least often in high schools and in rural areas.

Although based on a small subset of all reviewed studies, the 11-percentile gain in academic performance achieved in these programs is noteworthy, especially for educational policy and practice. Results from this review add to a growing body of research indicating that SEL programming enhances students' connection to school, classroom behavior, and academic achievement (Zins et al., 2004). Educators who are pressured by the *No Child Left Behind* legislation to improve the academic performance of their students might welcome programs that could boost achievement by 11 percentile points.

There are a variety of reasons that SEL programming might enhance students' academic performance. Many correlational and longitudinal studies have documented connections between social-emotional variables and academic performance (e.g., Caprara et al., 2000; Wang et al., 1997). Compelling conceptual rationales based on empirical findings have also been offered to link SEL competencies to improved school attitudes and performance (Zins et al., 2004). For example, students who are more self-aware and confident about their learning capacities try harder

TABLE 5

Comparing current effect sizes to previous meta-analytic findings for school age populations.

Outcomes	Mean Post Effects	
	Current Review	Other Reviews
Skills	0.57	0.40 ^a
Attitudes	0.23	0.09 ^b
Positive Social Behaviors	0.24	0.39 ^a 0.37 ^c 0.15 ^d
Conduct Problems	0.22	0.26 ^a 0.28 ^c 0.21 ^d 0.17 ^e 0.30 ^f
Emotional Distress	0.24	0.21 ^b 0.24 ^c 0.17 ^g
Academic Performance	0.27	0.29 ^b 0.11 ^d 0.30 ^f 0.24 ^h

Note. Results from other meta-analyses are from outcome categories most comparable to those in the current review and values are drawn from weighted random effects analyses whenever possible.

^a Lösel & Beelmann, 2003 ^b Haney & Durlak, 1998; ^c = Wilson & Lipsey, 2007

^d = DuBois et al., 2002 ^e = Wilson et al., 2001; ^f = Durlak & Wells, 1997

^g = Horowitz & Garber, 2007 ^h = Hill, Bloom, Black, & Lipsey, 2007

and persist in the face of challenges (Aronson, 2002). Students who set high academic goals, have self-discipline, motivate themselves, manage their stress, and organize their approach to work learn more and get better grades (Duckworth & Seligman, 2005; Elliot & Dweck, 2005). Also, students who use problem-solving skills to overcome obstacles and make responsible decisions about studying and completing homework do better academically (Zins & Elias, 2006). Further, new research suggests that SEL programs may affect central executive cognitive functions, such as inhibitory control, planning, and set-shifting that are the result of building greater cognitive-affect regulation in pre-frontal areas of the cortex (Greenberg, 2006).

In addition to person-centered explanations of behavior change, researchers have highlighted how interpersonal, instructional, and environmental supports produce better school performance through the following means: (a) peer and adult norms that convey high expectations and support for academic success; (b) caring teacher-student relationships that foster commitment and bonding to school; (c) engaging teaching approaches such as proac-

tive classroom management and cooperative learning; and (d) safe and orderly environments that encourage and reinforce positive classroom behavior (e.g., Blum & Libbey, 2004; Hamre & Pianta, 2006; Hawkins et al., 2004; Jennings & Greenberg, 2009). It is likely that some combination of improvements in student social-emotional competence, the school environment, teacher practices and expectations, and student-teacher relationships contribute to students' immediate and long-term behavior change (Catalano et al., 2002; Schaps et al., 2004).

As predicted, two variables moderated positive student outcomes: SAFE practices and implementation problems, suggesting that beneficial programs must be both well-designed and well-conducted. In the former case, current data replicate similar findings regarding the value of SAFE practices in after-school programs. In that review, programs that followed the same SAFE procedures were effective in multiple outcome areas, whereas those that failed to do so were not successful in any area (Durlak et al., in press). Moreover, these findings are consistent with several other reviews which conclude that more successful

youth programs are interactive in nature, use coaching and role-playing, and employ a set of structured activities to guide youth toward achievement of specific goals (Dubois et al., 2002; Tobler et al., 2000).

Developing an evidence-based intervention is an essential but insufficient condition for success; the program must also be well-executed. Although many studies did not provide details on the different types of implementation problems that occurred or what conditions were in place to insure better implementation, our findings confirm the negative influence of implementation problems on program outcomes that has been reported in meta-analyses of other youth programs (Dubois et al., 2002; Smith, Schneider, Smith, & Ananiadou, 2004; Tobler et al., 2000; Wilson, Lipsey, & Derson, 2003).

Contrary to our hypothesis, we did not find the expected additional benefit of multi-component programs over single-component (i.e., classroom-only) programs, a finding that has been reported in other reviews of prevention and youth-development interventions (Catalano et al., 2002; Greenberg et al., 2001; Tobler et al., 2000). In the current meta-analysis, this may be due to the fact that compared to classroom-only programs, multi-component programs were *less* likely to follow SAFE procedures when promoting student skills and were *more* likely to encounter implementation problems. It is probable that the presence of one or both of these variables reduced program impact for many multi-component interventions. For example, many multi-component programs involved either or both a parent and school-wide component and these additional elements require careful planning and integration. Others have found that more complicated and extensive programs are likely to encounter problems in implementation (Durlak & Dupre, 2008; Wilson & Lipsey, 2007; Wilson et al., 2003). It is also important to point out that few studies compared directly the effects of classroom-based programming with classroom programming plus coordinated school-wide and parent components (e.g., Flay et al., 2004). An important priority for future research is to determine through randomized trials the extent to which additional components add value to classroom training.

How much confidence can be placed in the current findings? Our general approach and analytic strategy had several strengths: the careful search for relevant published and unpublished studies, testing of a priori hypotheses, and subsequent analyses ruling out plausible alternative explanations for the findings. We also re-analyzed our initial findings to account for nested designs that could inflate Type I error rates. Furthermore, we used only school records of grades and standardized achievement test scores as measures of academic performance, not students' self-reports, and when examining follow-up re-

sults, we required data collection to be at least six months post-intervention. Overall, findings from the current meta-analysis point to the benefits of SEL programming. Nevertheless, current findings are not definitive. Duncan et al.'s (2007) longitudinal research presented an alternative perspective in pointing out that attention skills, but not social skills, predict achievement outcomes. They noted, however, that social-emotional competencies may predict other mediators of schools success such as self-concept, school adjustment, school engagement, motivation for learning, and relationships with peers and teachers. Future research on SEL programming can be improved in several ways to shed light on if and how newly-developed SEL skills in school children relate to their subsequent adjustment and academic performance.

Limitations and Future Research Directions

More data across multiple outcome areas are needed. Only 16% of the studies collected information on academic achievement at post, and more follow-up investigations are needed to confirm the durability of program impact. Although all reviewed studies targeted the development of social and emotional skills in one way or another, only 32% assessed skills as an outcome. This is essential in order to confirm that the program was successful at achieving one of its core proximal objectives. Because there is no standardized approach in measuring social and emotional skills, there is a need for theory-driven research that not only aids in the accurate assessment of various skills but also identifies how different skills are related (Dirks, Treat, & Weersing, 2007). More rigorous research on the presumed mediational role of SEL skill development is also warranted. Only a few studies tested and found a temporal relationship between skill enhancement and other positive outcomes (e.g., Ngwe, Liu, Flay, Segawa & Aban-Aya Co-Investigators, 2004). In addition, conducting subgroup analyses can determine if certain participant characteristics are related to differential program benefits. For example, factors such as ethnicity, developmental level, socioeconomic status, or gender may each influence who receives more or less benefit from intervention (Reid, Eddy, Fetrow, & Stoolmiller, 1999; Taylor Liang, Tracy, Williams, & Seigle, 2002; Wilson & Lipsey, 2007).

In addition to person-centered explanations for why SEL programming promotes positive outcomes, our findings indicate that it is important to attend to systemic and environmental factors (Greenberg et al., 2003). Programs that occur in classrooms or throughout the school are likely to be impacted by the organizational and ecological features of these environments. A few prevention and promotion studies have begun to explore the importance of classroom, school, and neighborhood context on program outcomes to illustrate

how a broader ecological perspective can enhance our understanding of program effects (Aber, Jones, Brown, Chaudry, & Samples, 1998; Boxer, Guerra, Huesmann, & Morales, 2005; Metropolitan Area Child Study Research Group, 2002; Tolan et al., 1995). As a final example, analyses of the effects of the Child Development Project have indicated that improvements in the psychosocial environment of the school that were obtained during intervention mediated almost all of the positive student outcomes (Solomon, Battistich, Watson, Schaps, & Lewis, 2000).

More attention should focus on other potential moderators of program outcomes. We evaluated the composite effects of following four recommended practices (Sequential, Active, Focused, and Explicit) relating to effective skill training because previous authors have emphasized that these factors act in combination to produce better results. However, it is possible that some practices may be more important than others depending on the nature and number of targeted skills and the developmental abilities of students. For example, younger students may need more time to acquire more complex skills. Moreover, the four practices we evaluated do not capture every aspect of effective skill development such as procedures to encourage generalization of newly-learned skills and training that is developmentally and culturally appropriate (Dusenbury & Falco, 1995; Gresham, 1995). We could not examine these other features due to lack of information in study reports, but their impact on skill development merits future attention. Furthermore, it would be preferable to evaluate SAFE practices as continuous rather than dichotomous variables. That is, program staff can be compared in terms of how much they focus on skill development and the extent of their use of active learning techniques instead of viewing these practices as all-or-none phenomena. An observational system has been developed to assess the use of SAFE practices as continuous variables in youth settings (Pechman, Russell & Birmingham, 2008).

Although current results support the impact of implementation on outcomes, 43% of the studies did not monitor implementation in any way and thus were excluded from that analysis. Assessing implementation should be seen as a fundamental and necessary aspect of any future program evaluations and efforts should be undertaken to evaluate the multiple ecological factors that can hinder or promote effective delivery of new programs (Durlak & Dupre, 2008; Greenhalgh et al., 2005).

Raising Healthy Children: Implications for Policy and Practice

Overall, research on school-based mental-health and competence promotion has advanced greatly during the past 15 years. The Institute of Medicine's (1994) first report on prevention concluded there was not enough evi-

dence to consider mental health promotion as a preventive intervention. However, the new Institute of Medicine (2009) report on prevention represents a major shift in thinking about promotion efforts. Based on its examination of recent outcome studies, the new Institute of Medicine (2009) report indicated that the promotion of competence, self-esteem, mastery, and social inclusion can serve as a foundation for both prevention and treatment of mental, emotional, and behavioral disorders. The Report of the Surgeon General's Conference on Children's Mental Health expressed similar sentiments about the importance of mental-health promotion and SEL for optimal child development and school performance by proclaiming: "Mental health is a critical component of children's learning and general health. Fostering social and emotional health in children as a part of healthy child development must therefore be a national priority" (U. S. Public Health Service, 2000, p. 3).

Although more research is needed to advance our understanding of the impacts of SEL programming, it is also important to consider next steps for practice and policy at the federal, state, and local levels. At the federal level, there is bipartisan sponsorship of HR 4223, the Academic, Social, and Emotional Learning Act. This bill authorizes the Secretary of Education to award a five-year grant to establish a national technical assistance and training center for social and emotional learning that provides technical assistance and training to states, local educational agencies, and community-based organizations to identify, promote, and support evidence-based SEL standards and programming in elementary and secondary schools.

A recent review of U.S. school practices found that 59% of schools already have in place programming to address the development and support of children's social and emotional competencies (Foster et al., 2005). Furthermore, there are active efforts in some states (e.g., Illinois, New York) and countries (e.g., Singapore) to establish and implement SEL standards for what students should know and be able to do. For example, as the result of recent legislative action, Illinois became the first state to require every school district to develop a plan for the implementation of SEL programming in their schools. In addition, the Illinois State Board of Education recently incorporated SEL skills as part of their student learning standards, identifying three broad learning goals: (a) develop self-awareness and self-management skills to achieve school and life success; (b) use social-awareness and interpersonal skills to establish and maintain positive relationships; and (c) demonstrate decision-making skills and responsible behaviors in personal, school, and community contexts (see http://isbe.net/ilssocial_emotional/standards.htm). Increasingly, policy-makers at the local, state, and national level are embrac-

ing a vision of schooling in which SEL competencies are important.

Unfortunately, surveys indicate that many schools do not use evidence-based prevention programs or use them with poor fidelity (Gottfredson & Gottfredson, 2002; Ringwalt et al., 2009). This may occur for a variety of reasons: schools may not be aware of effective programs, fail to choose them from among alternatives, do not implement the interventions correctly, or do not continue programs even if they are successful during a pilot or demonstration period. In other words, there is a wide gap between research and practice in school-based prevention and promotion just as there is with many clinical interventions for children and adolescents (Weisz, Sandler, Durlak, & Anton, 2005).

If effective programs are to be used more widely, then concerted efforts are needed to help schools through the multiple steps of the diffusion process. These steps include the dissemination of information about available programs, adoption of programs that fit best with local settings, proper implementation of newly-adopted programs, effective program evaluation to assess progress toward desired goals, and methods to sustain beneficial interventions over the long term (Wandersman & Florin, 2003). A variety of efforts are needed to develop state and local capacity to encourage widespread evidence-based

programming (Fixsen et al., 2005). It is especially important to document the costs and benefits of prevention programming. Recent analyses suggest that some SEL programs (e.g., Hawkins et al., 2004) are a good financial investment; however, future studies must include more cost analyses in their evaluation designs (Aos, Lieb, Mayfield, Miller, & Pennucci, 2004). With adequate funding, capacity can be built through providing policy supports, professional development, and technical assistance to promote educator knowledge and motivation for the best ways to identify, select, plan, implement, evaluate, and sustain effective SEL interventions (Devaney, O'Brien, Resnik, Keister, & Weissberg, 2006; Osher, Dwyer, & Jackson, 2004). Effective leadership and planning also promote quality program implementation through assuring adequate financial, personnel, and administrative support as well as providing professional development and technical assistance (Devaney et al., 2006; Kam, Greenberg, & Walls, 2003). Along with this effective planning and programming, there is a need to establish assessment and accountability systems for SEL programs in relation to student outcomes (Greenberg et al., 2003; Marzano, 2006). Addressing these issues will increase the likelihood that more evidence-based programs will be effectively implemented and sustained in more schools, which, in turn, will support the healthy academic, social, and emotional development of more children.

References

References marked with an asterisk were included in the meta-analysis.

- *Aber, J. L., Brown, J., & Jones, S. M. (1999). *Resolving Conflict Creatively: Year 1 impact on teacher-reported aggressive and prosocial behavior and child academic achievement*. New York, NY: Columbia University, National Center for Children in Poverty.
- *Aber, J. L., Jones, S. M., Brown, J. L., Chaudry, N., & Samples, F. (1998). Resolving conflict creatively: Evaluating the developmental effects of a school-based violence prevention program in neighborhood and classroom context. *Development and Psychopathology*, 10, 187-213.
- Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist/4-18 and the 1991 profile*. Unpublished manuscript, Department of Psychiatry, University of Vermont.
- *Adalbjarnardottir, S. (1993). Promoting children's social growth in the schools: An intervention study. *Journal of Applied Developmental Psychology*, 14, 461-484.
- *Allen, G. J., Chinsky, J. M., Larcen, S. W., Lochman, J. E., & Selinger, H. V. (1976). *Community psychology and the schools: A behaviorally-oriented multilevel preventive approach*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- *Allred, C. G. (1984). The development and evaluation of positive action: A systematic elementary school self-concept enhancement curriculum, 1977-1983. *Dissertation Abstracts International*, 45 (11), 3244A. (UMI No. 8427771)
- Aos, S., Lieb, R., Mayfield, J., Miller, M., & Pennucci, A. (2004). Benefits and costs of prevention and early intervention programs for youth. Olympia: Washington State Institute for Public Policy.
- Aronson, J. (Ed.). (2002). *Improving academic achievement: Impact of psychological factors on education*. New York: Academic Press.
- *Artley, C. W. (1985). Modification of children's behavior. *Dissertation Abstracts International*, 46 (11), 3288A. (UMI No. 8524311)
- Association for Supervision and Curriculum Development. (2007). *The learning compact redefined: A call to action – A report of the Commission on the Whole Child*. Alexandria, VA: Author.
- *Ayotte, V., Saucier, J. F., Bowen, F., Laurendeau, M. C., Fourrier, M., & Blais, J. G. (2003). Teaching multiethnic urban adolescents how to enhance their competencies: Effects of a middle school primary prevention program on adaptation. *Journal of Primary Prevention*, 24, 7-23.
- *Baker, B. B., & Butler, J. N. (1984). Effects of preventive cognitive self-instruction training on adolescent attitudes, experiences, and state anxiety. *Journal of Primary Prevention*, 5, 17-26.
- *Battistich, V., Schaps, E., Watson, M., Solomon, D., & Lewis, C. (2000). Effect of the Child Development Project on students' drug use and other problem behaviors. *The Journal of Primary Prevention*, 21, 75-99.
- *Battistich, V., Schaps, E., & Wilson, N. (2004). Effects of an elementary school intervention on students' "connectedness" to school and social adjustment during middle school. *The Journal of Primary Prevention*, 24, 243-262.
- *Battistich, V., Solomon, D., Watson, M., Solomon, J., & Schaps, E. (1989). Effects of an elementary school program to enhance prosocial behavior on children's cognitive social problem-solving skills and strategies. *Journal of Applied Developmental Psychology*, 10, 147-169.
- *Bauer, N.S., Lozano, P., & Rivara, F.P. (2007). The effectiveness of the Olweus Bullying Prevention Program in public middle schools: A controlled trial. *Journal of Adolescent Health*, 40, 266-274.
- Bear, G. G., & Watkins, J. M. (2006). Developing self-discipline. In G. G. Bear & K. M. Minke (Eds.), *Children's needs III: Development, prevention, and intervention* (pp. 29-44). Bethesda, MD: National Association of School Psychologists.
- *Beets, M. W., Flay, B. R., Vuchinich, S., Snyder, F. J. Acock, A., Li, K., K., et al. (In press). Preventing substance use, violent behaviors, and sexual activity among elementary school students: Effects of the Positive Action program Hawaii. *American Journal of Public Health*.
- Benson, P. L. (2006). *All kids are our kids: What communities must do to raise caring and responsible children and adolescents* (2nd ed). San Francisco: Jossey-Bass.
- *Bhadwal, S. C., & Panda, P. K. (1992). The composite effect of a curricular programme on the test anxiety of rural primary school students: A one-year study. *Educational Review*, 44, 205-220.
- Blum, R. W., & Libbey, H. P. (2004). School connectedness – Strengthening the health and education outcomes for teenagers. *Journal of School Health*, 74(4), 229-299.
- Bond, L. A., & Hauf, A. M. C. (2004). Taking stock and putting stock in primary prevention: Characteristics of effective programs. *Journal of Primary Prevention*, 24, 199-221.
- *Bosworth, K., Espelage, D., DuBay, T., Daytner, G., & Karageorge, K. (2000). Preliminary evaluation of a multimedia violence prevention program for adolescents. *American Journal of Health Behavior*, 24, 268-280.

- *Botvin, G. J., Baker, E., Dusenbury, L., Botvin, E. M., & Diaz, T. (1995). Long-term follow-up results of a randomized drug abuse prevention trial in a white middle-class population. *The Journal of the American Medical Association*, 273, 1106-1112.
- *Botvin, G. J., Baker, E., Dusenbury, L., Tortu, S., & Botvin, E. M. (1990). Preventing adolescent drug abuse through a multimodal cognitive-behavioral approach: Results of a 3-year study. *Journal of Consulting and Clinical Psychology*, 58, 437-446.
- *Botvin, G. J., Baker, E., Filazzola, A. D., & Botvin, E. M. (1990). A cognitive-behavioral approach to substance abuse prevention: One-year follow-up. *Addictive Behaviors*, 15, 47-63.
- *Botvin, G. J., Baker, E., Renick, N. L., Filazzola, A. D., & Botvin, E. M. (1984). A cognitive-behavioral approach to substance abuse prevention. *Addictive Behaviors*, 9, 137-147.
- *Botvin, G. J., Epstein, J. A., Baker, E., Diaz, T., & Ifill-Williams, M. (1997). School-based drug abuse prevention with inner-city minority youth. *Journal of Child and Adolescent Substance Abuse*, 6, 5-19.
- *Botvin, G. J., Griffin, K. W., Diaz, T., & Ifill-Williams, M. (2001). Preventing binge drinking during early adolescence: One- and two-year follow-up of a school-based preventive intervention. *Psychology of Addictive Behaviors*, 15, 360-365.
- *Botvin, G. J., Griffin, K. W., Diaz, T., Scheier, L. M., Williams, C., & Epstein, J. A. (2000). Preventing illicit drug use in adolescents: Long-term follow-up data from a randomized control trial of a school population. *Addictive Behaviors*, 25, 769-774.
- *Botvin, G. J., Griffin, K. W., & Ifill-Williams, M. (2001). Drug abuse prevention among minority adolescents: Post-test and one year follow-up of a school-based preventive intervention. *Prevention Science*, 2, 1-13.
- *Botvin, G. J., Griffin, K. W., & Nichols, T. D. (2006). Preventing youth violence and delinquency through a universal school-based prevention approach. *Prevention Science*, 7, 403-408.
- *Botvin, G. J., Griffin, K. W., Paul, E., & Macaulay, A. P. (2003). Preventing tobacco and alcohol use among elementary school students through life skills training. *Journal of Child and Adolescent Substance Abuse*, 12, 1-17.
- *Botvin, G. J., Schinke, S. P., Epstein, J. A., & Diaz, T. (1994). Effectiveness of culturally focused and generic skills training approaches to alcohol and drug abuse prevention among minority youths. *Psychology of Addictive Behaviors*, 8, 116-127.
- *Botvin, G. J., Schinke, S. P., Epstein, J. A., Diaz, T., & Botvin, E. M. (1995). Effectiveness of culturally focused and generic skills training approaches to alcohol and drug abuse prevention among minority adolescents: Two-year follow-up results. *Psychology of Addictive Behaviors*, 9, 183-194.
- Boxer, P., Guerra, N. G., Huesmann, L. R., & Morales, J. (2005). Proximal peer-level effects of a small-group selected prevention on aggression on elementary school children: An investigation of the peer contagion hypothesis. *Journal of Abnormal Child Psychology*, 33, 325-338
- *Boyle, M. H., Cunningham, C. E., Heale, J., Hundert, J., McDonald, J., Offord, D. R., et al. (1999). Helping children adjust – A Tri-Ministry study: II. Evaluation methodology. *Journal of Child Psychology and Psychiatry*, 40, 1051-1060.
- *Caplan, M., Weissberg, R. P., Grober, J., Sivo, P. J., Grady, K., & Jacoby, C. (1992). Social competence promotion with inner-city and suburban young adolescents: Effects on social adjustment and alcohol use. *Journal of Consulting and Clinical Psychology*, 60, 56-63.
- Caprara, G. V., Barbaranelli, C., Pastorelli, C., Bandura, A., & Zimbardo, P. G. (2000). Prosocial foundations of children's academic achievement. *Psychological Science*, 11, 302-306.
- Catalano, R. F., Berglund, M. L., Ryan, J. A. M., Lonczak, H. S., & Hawkins, J. D. (2002). Positive youth development in the United States: Research findings on evaluations of positive youth development programs. *Prevention & Treatment*, 5, Article 15. Retrieved August, 1, 2002, from <http://journals.apa.org/prevention/volume5/pre0050015a.html>.
- *Cauce, A. M., Comer, J. P., & Schwartz, D. (1987). Long term effects of a systems-oriented school prevention program. *American Journal of Orthopsychiatry*, 57, 127-131.
- *Cecchini, T. B. (1997). An interpersonal and cognitive-behavioral approach to childhood depression: A school-based primary prevention study. *Dissertation Abstracts International*, 58 (12), 6803B. (UMI No. 9820698)
- *Chalmers-MacDonald, J. H. (2006). The effects of a culture based social skills program on the prosocial behaviour of elementary school boys and girls. *Dissertation Abstracts International*, 66 (07), 3995B. (UMI No. 3184225)
- *Ciechalski, J. C., & Schmidt, M. W. (1995). The effects of social skills training on students with exceptionalities. *Elementary School Guidance and Counseling*, 29, 217-222.
- *Cochrane, L., & Saroyan, A. (1997). *Finding evidence to support violence prevention program*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- *Coleman, J. K. (2000). A controlled evaluation of the effects of Classroom Coping Skills training on children's aggressive and externalizing behaviors. *Dissertation Abstracts International*, 61 (07), 3836B. (UMI No. 9978898)
- Collaborative for Academic, Social, and Emotional Learning [CASEL]. (2005). *Safe and sound: An educational leader's guide to evidence-based social and emotional learning programs – Illinois edition*. Chicago, IL: Author.
- Collins, L. M., Murphy, S. A., Nair, V. N., & Strecher, V. J. (2005). A strategy for optimizing and evaluating behavioral interventions. *Annals of Behavioral Medicine*, 30, 65-73.
- *Conduct Problems Prevention Research Group. (1999). Initial impact of the fast track prevention trial for conduct problems II. Classroom effects. *Journal of Consulting and Clinical Psychology*, 67, 648-657.
- *Cook, T. D., Habib, F., Phillips, M., Settersten, R. A., Shagle, S. C., & Degirmencioglu, S. M. (1999). Comer's school development program in Prince George's County, Maryland: A theory-based evaluation. *American Educational Research Journal*, 36, 543-597.
- *Cook, T. D., Murphy, R. F., & Hunt, H. D. (2000). Comer's school development program in Chicago: A theory-based evaluation. *American Educational Research Journal*, 37, 535-597.
- *Cowen, E. L., Izzo, L. D., Miles, H., Telschow, E. F., Trost, M. A., & Zax, M. (1963). A preventive mental health program in the school setting: Description and evaluation. *The Journal of Psychology*, 56, 307-356.
- *Cowen, E. L., Zax, M., Izzo, L. D., & Trost, M. A. (1966). Prevention of emotional disorders in the school setting: A further investigation. *Journal of Consulting Psychology*, 30, 381-387.
- Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin*, 115, 74-101.
- Cumming, G., & Finch, S. (2005). Inference by eye: Confidence intervals and how to read pictures of data. *American Psychologist*, 60, 170-180.
- *Cunningham, E.G., Brandon, C. M., & Frydenberg, E. (2002). Enhancing coping resources in early adolescence through a school-based program teaching optimistic thinking skills. *Anxiety, Stress, and Coping*, 15, 369-381.
- Devaney, E., O'Brien, M. U., Resnik, H., Keister, S., & Weissberg, R. P. (2006). *Sustainable schoolwide social and emotional learning: Implementation guide and toolkit*. Chicago, IL: Collaborative for Academic, Social, and Emotional Learning.
- *Diguiseppe, R., & Kassinove, H (1976). Effects of a rational-emotive school mental health program on children's emotional adjustment. *Journal of Community Psychology*, 4, 382-387.
- Dirks, M. A., Treat, T. A., & Weersing, V. R. (2007). Integrating theoretical, measurement, and intervention models of youth social competence. *Clinical Psychology Review*, 27, 327-347.
- Dryfoos, J. G. (1997). The prevalence of problem behaviors: Implications for programs. In R. P. Weissberg, T. P. Gullotta, R. L. Hampton, B. A. Ryan, & G. R. Adams (Eds.), *Healthy children 2010: Enhancing children's wellness* (pp. 17-46). Thousand Oaks, CA: Sage.
- DuBois, D. L., Holloway, B. E., Valentine, J. C., & Cooper, H. (2002). Effectiveness of mentoring programs for youth: A meta-analytic review. *American Journal of Community Psychology*, 30, 157-198.
- *Dubow, E. F., Schmidt, D., McBride, J., Edwards, S., & Merk, F. L. (1993). Teaching children to cope with stressful experiences: Initial implementation and evaluation of a primary prevention program. *Journal of Clinical Child Psychology*, 22, 428-440.
- Duckworth, A. S., & Seligman, M. E. P. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological Science*, 16, 939-944.
- Duncan, G. J., Dowsett, C. J., Claessens, A., Magnuson, K., Huston, A. C., Klebanov, P., et al. (2007). School readiness and later achievement. *Developmental Psychology*, 43, 1428-1446.
- *Durant, R. H., Barkin, S., & Krowchuk, D. P. (2001). Evaluation of a peaceful conflict resolution and violence prevention curriculum for sixth-grade students. *Journal of Adolescent Health*, 28, 386-393.
- Durlak, J. A. (2009). How to select, calculate, and interpret effect sizes. *Journal of Pediatric Psychology*, 34, 917-928.
- Durlak, J. A. (1997). *Successful prevention programs for children and adolescents*. New York: Plenum.
- Durlak, J. A., & Dupre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. *American Journal of Community Psychology*, 41, 327-350.
- Durlak, J. A., Weissberg, R. P., & Pachan, M. (in press). A meta-analysis of after-school programs that seek to promote personal and social skills in children and adolescents. *American Journal of Community Psychology*.
- Durlak, J. A., & Wells, A. M. (1997). Primary prevention mental health programs for children and adolescents: A meta-analytic review. *American Journal of Community Psychology*, 25, 115-152.

- Dusenbury, L., & Falco, M. (1995). Eleven components of effective drug abuse prevention curricula. *Journal of School Health*, 65, 420-425.
- Duval, S., & Tweedie, R. (2000). Trim and fill: A simple funnel-plot-based method of testing and adjusting for publication bias in meta-analysis. *Biometrics*, 56, 455-463.
- Eaton, D. K. et al. (2008). Youth risk behavior surveillance -- United States, 2007. *MMWR Surveillance Summaries*. 57(SS04): 1-131.
- Eisenberg, N. (Ed.). (2006). Volume 3: Social, emotional, and personality development. In W. Damon & R. M. Lerner (Series Eds.), *Handbook of child psychology* (6th ed.). New York: Wiley.
- *Eiserman, W. D. (1990). *An evaluation of the first year pilot implementation of Positive Action at Montclair Elementary*. Unpublished summary report, Educational Research and Development Center, The University of West Florida.
- *Elias, M. J. (2002). *Evidence of effectiveness articles: The Social Decision Making/Problem Solving Program*. Unpublished technical report, University of Medicine & Dentistry of New Jersey.
- *Elias, M. J., Gara, M. A., Schuyler, T. F., Branden-Muller, L. R., & Sayette, M. A. (1991). The promotion of social competence: Longitudinal study of a preventive school-based program. *American Journal of Orthopsychiatry*, 61, 409-417.
- *Elias, M. J., Gara, M., Ubriaco, M., Rothbaum, P. A., Clabby, J. F., & Schuyler, T. (1986). Impact of a preventive social problem solving intervention on children's coping with middle school stressors. *American Journal of Community Psychology*, 14, 259-275.
- Elias, M. J., Zins, J. E., Weissberg, R. P., Frey, K. S., Greenberg, M. T., Haynes, N. M., Kessler, R., Schwab-Stone, M. E., & Shriver, T. P. (1997). *Promoting social and emotional learning: Guidelines for educators*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Elliot, A. J., & Dweck, C. S. (Eds.). (2005). *Handbook of competence and motivation*. New York: Guilford Press.
- *Elliott, S.N. (1995, June). *Final evaluation report: The Responsive Classroom approach: Its effectiveness and acceptability*. Washington, DC: Author.
- *Elliott, S. N. (1997). *The Responsive Classroom approach: Its effectiveness and acceptability in promoting social and academic competence*. University of Wisconsin, Madison, Prepared for The Northeast Foundation for Children.
- Elliott, S. N., Gresham, F. M., Freeman, T., & McCloskey, G. (1988). Social Skills Rating Scales. *Journal of Psychoeducational Assessment*, 6, 152-161.
- *Enright, R. D. (1980). An integration of social cognitive development and cognitive processing: Educational applications. *American Educational Research Journal*, 17, 21-41.
- *Facing History and Ourselves. (1998). *Improving inter-group relations among youth: A study of the processes and outcomes of Facing History and Ourselves*. Carnegie Corporation Initiative on Race and Ethnic Relations. Chicago, IL: Author.
- *Farrell, A. D., & Meyer, A. L. (1997). The effectiveness of a school-based curriculum for reducing violence among urban sixth-grade students. *American Journal of Public Health*, 87, 979-984.
- *Farrell, A., Meyer, A., Sullivan, T., & Kung, E. (2003). Evaluation of the Responding in Peaceful and Positive ways seventh grade (RIPP-7) universal violence prevention program. *Journal of Child and Family Studies*, 12, 101-120.
- *Farrell, A. D., Meyer, A. L., & White, K. S. (2001). Evaluation of Responding in Peaceful and Positive ways (RIPP): A school-based prevention program for reducing violence among urban adolescents. *Journal of Clinical Child Psychology*, 30, 451-463.
- *Farrell, A., Valois, R., Meyer, A., & Tidwell, R. (2003). Impact of the RIPP violence prevention program on rural middle school students. *The Journal of Primary Prevention*, 24, 143-167.
- *Felner, R. D., Brand, S., Adan, A. M., Mulhall, P. F., Flowers, N., Sartain, B., et al. (1993). Restructuring the ecology of the school as an approach to prevention during school transitions: Longitudinal follow-ups and extensions of the School Transitional Environment Project (STEP). *Prevention in Human Services*, 10, 103-136.
- *Felner, R. D., Ginter, M., & Primavera, J. (1982). Primary prevention during school transitions: Social support and environmental structure. *American Journal of Community Psychology*, 10, 277-290.
- Fixsen, D. L., Naoom, S. F., Blasé, K. A., Friedman, R. M., & Wallace, F. (2005). *Implementation research: A synthesis of the literature*. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute, The National Implementation Research Network (FMHI Publication #231). Retrieved November 1, 2006, from http://nirn.fmhi.usf.edu/resources/publications/Monograph/pdf/monograph_full.pdf
- *Flay, B., Acock, A., Vuchinich, S., & Beets, M. (2006). *Progress report of the randomized trial of Positive Action in Hawaii: End of third year of intervention (Spring, 2005)*. Unpublished manuscript, Oregon State University.
- *Flay, B. R., Allred, C. G., & Ordway, N. (2001). Effects of the positive action program on achievement and discipline: Two matched-control comparisons. *Prevention Science*, 2, 71-89.

- *Flay, B. R., Graumlich, S., Segawa, E., Burns, J. L., & Holliday, M. Y. (2004). Effects of 2 prevention programs on high-risk behaviors among African American youth. *Archives of Pediatric Adolescent Medicine*, 158, 377-384.
- *Foshee, V. A., Bauman, K. E., Arriaga, X. B., Helms, R. W., Koch, G. G., & Linder, G. F. (1998). An evaluation of Safe Dates, an adolescent dating and violence prevention program. *American Journal of Public Health*, 88, 45-50.
- *Foshee, V. A., Bauman, K. E., Ennett, S. T., Linder, F., Benefield, T., & Suchindran, C. (2004). Assessing the long-term effects of the Safe Dates program and a booster in preventing and reducing adolescent dating violence victimization and perpetration. *American Journal of Public Health*, 94, 619-624.
- *Foshee, V.A., Bauman, K.E., Ennett, S.T., Suchindran, C., Benefield, T., & Linder, G.F. (2005). Assessing the effects of the dating violence prevention program "Safe Dates" using random coefficient regression modeling. *Prevention Science*, 6, 245-258.
- *Foshee, V. A., Bauman, K. E., Greene, W. F., Koch, G. G., Linder, G. F., & MacDougall, J. E. (2000). The Safe Dates program: 1-year follow-up results. *American Journal of Public Health*, 90, 1619-1622.
- Foster, S., Rollefson, M., Doksum, T., Noonan, D., Robinson, G., & Teich, J. (2005). *School mental health services in the United States, 2002-2003*. DHHS Pub. No. (SMA) 05-4068. Rockville, MD: Center for Mental Health Services, Substance Abuse and Mental Health Services Administration.
- *Frey, K.S., Hirschstein, M.K., Snell, J.L., Van Schoiack Edstrom, L., Mackenzie, E.P., & Broderick, C.J. (2005). Reducing playground bullying and supporting beliefs: An experimental trial of the Steps to Respect program. *Developmental Psychology*, 41, 479-490.
- *Frey, K.S., Nolen, S.B., Van Schoiack Edstrom, L., & Hirschstein, M.K. (2005). Effects of a school-based social-emotional competence program: Linking children's goals, attributions, and behavior. *Journal of Applied Developmental Psychology*, 26, 171-200.
- *Frey, K. S., Nolen, S. B., Van Schoiack Edstrom, L., & Hirschstein, M. (2001, June). *Second Step: Effects of a social competence program on social goals and behavior*. Poster session presented at the annual meeting of the Society for Prevention Research, Washington, DC.
- *Gainer, P. S., Webster, D. W., & Champion, H. R. (1993). A youth violence prevention program. *Violence Prevention*, 128, 303-308.
- *Garaigordobil, M., & Echebarria, A. (1995). Assessment of a peer-helping game program on children's development. *Journal of Research in Childhood Education*, 10, 63-69.
- *Gesten, E. L., Rains, M. H., Rapkin, B. D., Weissberg, R. P., Flores de Apodaca, R., Cowen, E. L., et al. (1982). Training children in social problem-solving competencies: A first and second look. *American Journal of Community Psychology*, 10, 95-115.
- *Gosin, M. N., Dustman, P. A., Drapeau, A. E., & Harthun, M. L. (2003). Participatory action research: Creating an effective prevention curriculum for adolescents in the Southwestern US. *Health Education Research*, 18, 363-379.
- *Gottfredson, D. C. (1986). An empirical test of school-based environmental and individual interventions to reduce the risk of delinquent behavior. *Criminology*, 24, 705-731.
- *Gottfredson, D. C. (1988). An evaluation of an organization development approach to reducing school disorder. *Evaluation Review*, 11, 739-763.
- Gottfredson, D. C., & Gottfredson, G. D. (2002). Quality of school-based prevention programs: Results from a national survey. *Journal of Research in Crime and Delinquency*, 39, 3-35.
- *Gottfredson, D. C., Gottfredson, G. D., & Hybl, L. G. (1993). Managing adolescent behavior: A multiyear, multischool study. *American Educational Research Journal*, 30, 179-215.
- *Gottfredson, G. D., Jones, E. M., & Gore, T. W. (2002). Implementation and evaluation of a cognitive-behavioral intervention to prevent problem behavior in a disorganized school. *Prevention Science*, 3, 43-56.
- Greenberg, M. T. (2006). Promoting resilience in children and youth: Preventive interventions and their interface with neuroscience. *Annals of the New York Academy of Science*, 1094, 139-150.
- Greenberg, M. T., Domitrovich, C., & Bumbarger, B. (2001). The prevention of mental disorders in school-aged children: Current state of the field. *Prevention & Treatment*, 4, Article 1. Retrieved March 1, 2002 from <http://journals.apa.org/prevention/volume4/pre0040001a.html>.
- *Greenberg, M. T., & Kusche, C. A. (1998). Preventive intervention for school-age deaf children: The PATHS curriculum. *Journal of Deaf Studies and Deaf Education*, 3, 49-63.
- *Greenberg, M. T., Kusche, C. A., Cook, E. T., & Quamma, J. P. (1995). Promoting emotional competence in school-aged children: The effects of the PATHS curriculum. *Development and Psychopathology*, 7, 117-136.
- Greenberg, M. T., Weissberg, R. P., O'Brien, M. U., Zins, J. E., Fredericks, L., Resnik, H., & Elias, M. J. (2003). Enhancing school-based prevention and youth development through coordinated social, emotional, and academic learning. *American Psychologist*, 58, 466-474.

- Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., Kyriakidou, O., & Peacock, R. (2005). *Diffusion of innovations in health service organizations: A systematic literature review*. Oxford: Blackwell.
- Gresham, F. M. (1995). Best practices in social skills training. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology-III* (pp. 1021-1030). Washington, DC: National Association of School Psychologists.
- *Griffin, K. W., Botvin, G. J., & Nichols, T. R. (2003). *Long-term follow-up effects of a school-based drug abuse prevention program on adolescent risky driving*. Manuscript submitted for publication.
- *Grossman, D. C., Neckerman, H. J., Koepsell, T. D., Liu, P. Y., & Asher, K. N. (1997). Effectiveness of a violence prevention curriculum among children in elementary school. *Journal of the American Medical Association*, 277, 1505-1611.
- Guerra, N. G., & Bradshaw, C. P. (2008). Linking the prevention of problem behaviors and positive youth development: Core competencies for positive youth development and risk prevention. In N. G. Guerra & C. P. Bradshaw (Eds.), *Core competencies to prevent problem behaviors and promote positive youth development*, 122, 1-17.
- Hahn, R. et al. (2007). Effectiveness of universal school-based programs to prevent violent and aggressive behavior: A systematic review. *American Journal of Preventive Medicine*, 33, (Suppl. 2S), 114-129.
- Hamre, B. K., & Pianta, R. C. (2006). Student-teacher relationships. In G. G. Bear & K. M. Minke (Eds.), *Children's needs III: Development, prevention, and intervention* (pp. 59-71). Bethesda, MD: National Association of School Psychologists.
- *Hansen, W.B. & Dusenbury, L. (2004). All Stars Plus: A competence and motivation enhancement approach to prevention. *Health Education*, 104, 371-381.
- *Harrington, N. G., Giles, S. M., Hoyle, R. H., Feeney, G. J., & Yungbluth, S. C. (2001). Evaluation of the All Stars character education and problem behavior prevention program: Effects on mediator and outcome variables for middle school students. *Health Education and Behavior*, 28, 533-546.
- *Harris, P. A. (1998). Teaching conflict resolution skills to children: A comparison between a curriculum based and a modified peer mediation program. *Dissertation Abstracts International*, 59 (09), 3397A. (UMI No. 9905455)
- *Hausman, A., Pierce, G., & Briggs, L. (1996). Evaluation of a comprehensive violence prevention program: Effects on student behavior. *Journal of Adolescent Health*, 19, 104-110.
- *Hawkins, J. D., Catalano, R. F., Kosterman, R., Abbott, R., & Hill, K. G. (1999). Preventing adolescent health-risk behaviors by strengthening protection during childhood. *Archives of Pediatrics and Adolescent Medicine*, 153, 226-234.
- Hawkins, J. D., Smith, B. H., & Catalano, R. F. (2004). Social development and social and emotional learning. In J. E. Zins, R. P. Weissberg, M. C. Wang, & H. J. Walberg (Eds.), *Building academic success on social and emotional learning: What does the research say?* (pp. 135-150). New York: Teachers College Press.
- *Haynes, L. A., & Avery, A. W. (1979). Training adolescents in self-disclosure and empathy skills. *Journal of Counseling Psychology*, 26, 526-530.
- *Heckenlaible-Gotto, M. J. (1996). Classroom-based social skills training program: Impact on social behavior and peer acceptance of first grade students. *Dissertation Abstracts International*, 57 (03), 1025A. (UMI No. 9619573)
- Hedges, L. V., & Olkin, I. (1985). *Statistical methods for meta-analysis*. NY: Academic Press.
- *Heinemann, G. H. (1990). The effects of the Lions-Quest "Skills for Adolescence" program on self-esteem development and academic achievement at the middle school level. *Dissertation Abstracts International*, 51 (06), 1890A. (UMI No. 9033128)
- *Hennessey, B. A. (2004). *Promoting social competence in school-aged children: The effects of the Open Circle program*. Unpublished manuscript.
- *Hepler, J. B., & Rose, S. F. (1988). Evaluation of a multi-component group approach for improving the social skills of elementary school children. *Journal of Social Service Research*, 11, 1-18.
- *Hiebert, B., Kirby, B., & Jaknavorian, A. (1989). School-based relaxation: Attempting primary prevention. *Canadian Journal of Counseling*, 23, 273-287.
- Higgins, J. P., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. *British Medical Journal*, 327, 557-560.
- Hill, C. J., Bloom, H. S., Black, A. R., & Lipsey, M. W. (2007). Empirical benchmarks for interpreting effect sizes in research. Retrieved December 6, 2007, from <http://www.mdrc.org/publications/459/full.pdf>
- Horowitz, J. L., & Garber, J. (2006). The prevention of depressive symptoms in children and adolescents: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, 74, 401-415.
- *Houtz, J. C., & Feldhusen, J. C. (1976). The modification of fourth graders' problem solving abilities. *The Journal of Psychology*, 93, 229-237.

- *Hudgins, E. W. (1979). Examining the effectiveness of affective education. *Psychology in the Schools*, 16, 581-585.
- *Hundert, J., Boyle, M. H., Cunningham, C. E., Duku, E., Heale, J., McDonald, J. et al. (1999). Helping children adjust – A Tri-Ministry Study: II. Program effects. *Journal of Child Psychology and Psychiatry*, 40, 1061-1073.
- *Hunter, L. (1998). Preventing violence through the promotion of social competence and positive interethnic contact: An evaluation of three elementary school-based violence prevention instructional approaches. *Dissertation Abstracts International*, 59 (08), 2851A. (UMI No. 9900664)
- *Ialongo, N., Poduska, J., Werthamer, L., & Kellam, S. (2001). The distal impact of two first-grade preventive interventions on conduct problems and disorder in early adolescence. *Journal of Emotional & Behavioral Disorders*, 9, 146-161.
- *Ialongo, N. S., Werthamer, L., Kellam, S. G., Brown, C. H., Wang, S., & Lin, Y. (1999). Proximal impact of two first-grade preventive interventions on the early risk behaviors for later substance abuse, depression, and antisocial behavior. *American Journal of Community Psychology*, 27, 599-641.
- Institute for Education Sciences. (2008a). *Technical details of WWC-conducted computations*. Retrieved June 1, 2008 from http://ies.ed.gov/ncee/wwc/pdf/conducted_computations.pdf
- Institute for Education Sciences. (2008b). *What Works Clearinghouse procedures and standards workbook, Version 2.0*, December, 2008. Retrieved June 1, 2009 from <http://ies.ed.gov/ncee/wwc/references/idocViewer/Doc.aspx?docid=198tocid=1>
- Institute of Medicine. (1994). *Reducing risks for mental disorders: Frontiers for preventive intervention research*. Washington, DC: The National Academies Press.
- Institute of Medicine. (2009). *Preventing mental, emotional, and behavioral disorders among young people: Progress and possibilities*. Washington, DC: The National Academies Press.
- Izard, C. E. (2002). Translating emotion theory and research into preventive interventions. *Psychological Bulletin*, 128, 796-824.
- Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research*, 79, 491-525.
- *Johnson, D. L., & Johnson, R. (1997). The impact of conflict resolution training on middle school students. *Journal of Social Psychology*, 137, 11-21.
- *Johnson, D. W., Johnson, R. T., & Dudley, B. (1992). Effects of peer mediation training on elementary school students. *Mediation Quarterly*, 10, 89-99.
- *Johnson, D. W., Johnson, R., Dudley, B., & Magnuson, D. (1995). Training elementary school students to manage conflict. *Journal of Social Psychology*, 135, 673-686.
- *Johnson, D. W., Johnson, R., Dudley, B., Ward, M., & Magnuson, D. (1995). The impact of peer mediation training on the management of school and home conflicts. *American Educational Research Journal*, 32, 829-844.
- *Kam, C-M., Greenberg, M. T., & Walls, C. T. (2003). Examining the role of implementation quality in school-based prevention using the PATHS curriculum. *Prevention Science*, 4, 55-63.
- *Kenney, D. J., & Watson, T. S. (1996). Reducing fear in the schools: Managing conflict through student problem solving. *Education and Urban Society*, 28, 436-455.
- Kitano, H. L. (1960). Validity of the Children's Manifest Anxiety Scale and the modified revised California Inventory. *Child Development*, 31, 67-72.
- Klem, A. M., & Connell, J. P. (2004). Relationships matter: Linking teacher support to student engagement and achievement. *Journal of School Health*, 74, 262-273.
- *Knoff, H. M., & Batsche, G. M. (1995). Project ACHIEVE: Analyzing a school reform process for at-risk and underachieving students. *School Psychology Review*, 24, 579-603.
- *Krogh, S. L. (1985). Encouraging positive justice reasoning and perspective-taking skills: Two educational interventions. *Journal of Moral Education*, 14, 102-110.
- *Krug, E. G., Brener, N. D., Dahlberg, L. L., Ryan, G. W., & Powell, K. E. (1997). The impact of an elementary school-based violence prevention program on visits to the school nurse. *American Journal of Preventive Medicine*, 13, 459-463.
- *Kumpfer, K. L., Alvarado, R., Tait, C., & Turner, C. (2002). Effectiveness of school-based family and children's skills training for substance abuse prevention among 6-8-year-old rural children. *Psychology of Addictive Behaviors*, 16, S65-S71.
- *Kutnick, P., & Marshall, D. (1993). Development of social skills and the use of the microcomputer in the primary school classroom. *British Educational Research Journal*, 19, 517-534.
- Ladd, G. W., & Mize, J. (1983). A cognitive social learning model of social skill training. *Psychological Review*, 90, 127-157.
- *LaFromboise, T., & Howard-Pitney, B. (1995). The Zuni life skills development curriculum: Description and evaluation of a suicide prevention program. *Journal of Counseling Psychology*, 42, 479-486.

- *Larson, J. D. (1992). Anger and aggression management techniques through the Think First curriculum. *Journal of Offender Rehabilitation*, 18, 101-117.
- *Leadbeater, B., Hoglund, W., & Woods, T. (2003). Changing contexts? The effects of a primary prevention program on classroom levels of peer relational and physical victimization. *Journal of Community Psychology*, 31, 397-418.
- Learning First Alliance. (2001). *Every child learning: Safe and supportive schools*. Washington, DC: Author.
- *LeCroy, C. W., & Rose, S. D. (1986). Evaluation of preventive interventions for enhancing social competence in adolescents. *Social Work Research & Abstracts*, 22, 8-16.
- Lemerise, E. A., & Arsenio, W. F. (2000). An integrated model of emotion processes and cognition in social information processing. *Child Development*, 71, 107-118.
- *Leming, J. S. (1998). *An evaluation of the Heartwood Institute's: An ethics curriculum for children*. Murphysboro, IL: Character Evaluation Associates.
- *Leming, J. S. (2000). Tell me a story: An evaluation of a literature-based character education programme. *Journal of Moral Education*, 29, 413-427.
- *Leming, J. S. (2001). Integrating a structured ethical reflection curriculum into high school community service experiences: Impact on students' sociomoral development. *Adolescence*, 36, 33-45.
- *Lewis, T. J., Powers, L. J., Kelk, M. J., & Newcomer, L. L., (2002). Reducing problem behaviors on the playground: An investigation of the application of school-wide positive behavior supports. *Psychology in the Schools*, 39, 181-190.
- *Lillenstein, J. A. (2001). Efficacy of a social skills training curriculum with early elementary students in four parochial schools. *Dissertation Abstracts International*, 62 (09), 2971A. (UMI No. 3025055)
- *Linares, L.O., Rosbruch, N., Stern, M.B., Edwards, M.E., Walker, G., Abikoff, H.B., et al. (2005). Developing cognitive-social-emotional competencies to enhance academic learning. *Psychology in the Schools*, 42, 405-417.
- Lipsey, M. W., & Wilson D. B. (2001). *Practical meta-analysis*. Thousand Oaks, CA: Sage.
- *Lonczak, H. S., Abbott, R., Hawkins, J. D., Kosterman, R., & Catalano, R. F. (2002). Effects of the Seattle Social Development Project on sexual behavior, pregnancy, birth, and sexually transmitted disease outcomes by age 21 years. *Pediatrics and Adolescent Medicine*, 156, 438-447.
- *Lopez, B. G. & Lopez, R. G. (1998). The improvement of moral development through an increase in reflection: A training programme. *Journal of Moral Education*, 27, 225-241.
- *LoSciuto, L., Rajala, A. K., Townsend, T. N., & Taylor, A. S. (1996). An outcome evaluation across ages: An intergenerational mentoring approach to drug prevention. *Journal of Adolescent Research*, 11, 116-129.
- Lösel, F., & Beelman, A. (2003). Effects of child skills training in preventing antisocial behavior: A systematic review of randomized evaluations. *Annals of the American Academy of Political and Social Science*, 587, 84-109.
- *Lynch, K. B., & McCracken, K. (2001). *Highlights of findings of the AI's Pals intervention Hampton city public schools*. Virginia Institute for Developmental Disabilities, Virginia.
- Marzano, R. J. (2006). *Classroom assessment and grading that works*: (Chapters 1-5; pp. 1-104). Alexandria, VA: Association for Supervision and Curriculum development.
- Masten, A. S., & Coatsworth, J. D. (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. *American Psychologist*, 53, 205-220.
- *Masters, J. R., & Laverty, G. E. (1977). The relationship between changes in attitude and changes in behavior in the Schools without Failure program. *Journal of Research and Development in Education*, 10, 36-49.
- *McClowry, S., Snow, D. L., & Tamis-LeMonda, C. S. (2005). An evaluation of the effects of INSIGHTS on the behavior of inner city primary school children. *Journal of Primary Prevention*, 26, 567-584.
- *McNeese, R. M. F. (1999). Reducing violent behavior in the classroom: A comparison of two middle schools. *Dissertation Abstracts International*, 60 (08), 2756A. (UMI No. 9941589)
- *Menesini, E., Codecasa, E., Benelli, B., & Cowie, H. (2003). Enhancing children's responsibility to take action against bullying: Evaluation of a befriending intervention in Italian middle schools. *Aggressive Behavior*, 29, 1-14.
- *Merry, S., McDowell, H., Wild, C. J., Julliet, B., & Cunliffe, R. (2004). A randomized placebo-controlled trial of a school-based depression prevention program. *Journal of American Academy of Child & Adolescent Psychiatry*, 43, 538-547.
- Metropolitan Area Child Study Research Group. (2002). A cognitive-ecological approach to preventing aggression in urban settings: Initial outcomes for high-risk children. *Journal of Consulting and Clinical Psychology*, 70, 179-194.
- *Michelson, L., & Wood, R. (1980). A group assertive training program for elementary school children. *Child Behavior Therapy*, 2, 1-9.

- *Miller, A. L., Gouley, K. K., Seifer, R., & Zakriski, A. (2003, June). *Evaluating the effectiveness of the PATHS curriculum in an urban elementary school*. Paper presented at the meeting of the Society for Prevention Research, Washington DC.
- *Morrison, S. (1994). A description and a comparative evaluation of a social skills training program. *Dissertation Abstracts International*, 55 (05), 1226A. (UMI No. 9426011)
- *Muuss, R. E. (1960). The effects of a one- and two-year causal-learning program. *Journal of Personality*, 28, 479-491.
- *Nelson, G. & Carson, P. (1988). Evaluation of a social problem-solving skills program for third- and fourth-grade students. *American Journal of Community Psychology*, 16, 79-99.
- *Nelson, J. R., Martella, R. M., & Marchand-Martella, N. (2002). Maximizing student learning: The effects of a comprehensive school-based program for preventing problem behaviors. *Journal of Emotional & Behavioral Disorders*, 10, 136-148.
- Ngwe, J. E. Liu, L. C., Flay, B. R., Segawa, E., & Aban-aya Co-Investigators. (2004). Violence prevention among African American adolescent males. *American Journal of Health Behavior*, 28(Supplement 1), S24-S37.
- *Norris, K. (2001). The ninth grade seminar: A ninth grade transition program evaluation. *Dissertation Abstracts International*, 62 (04), 1370A. (UMI No. 3012846)
- *O'Donnell, J., Hawkins, J. D., Catalano, R. F., Abbott, R., & Day, L. E. (1995). Preventing school failure, drug use, and delinquency among low-income children: Long-term intervention in elementary schools. *American Journal of Orthopsychiatry*, 65, 87-100.
- *O'Hearn, T. C., & Gatz, M. (1999). Evaluating a psychosocial competence program for urban adolescents. *The Journal of Primary Prevention*, 20, 119-144.
- *Ojemann, R. H., Levitt, E. E., Lyle, W. H., & Whiteside, M. F. (1955). The effects of a "causal" teacher-training program and certain curricular changes on grade school children. *Journal of Experimental Education*, 24, 95-114.
- *Olweus, D. (1994). Annotation: Bullying at school: Basic facts and effects of a school based intervention program. *Journal of Child Psychology and Psychiatry*, 35, 1171-1190.
- *Omizo, M. M., Omizo, S. A., & D'Andrea, M. J. (1992). Promoting wellness among elementary school children. *Journal of Counseling and Development*, 71, 194-198.
- *Orpinas, P., Kelder, S., Frankowski, R., Murray, N., Zhang, Q., & McAlister, A. (2000). Outcome evaluation of a multi-component violence-prevention program for middle schools: The Students for Peace project. *Health Education Research*, 15, 45-58.
- *Orpinas, P., Parcel, G. S., McAlister, A., & Frankowski, R. (1995). Violence prevention in middle schools: A pilot evaluation. *Journal of Adolescent Health*, 17, 360-371.
- Osher, D., Dwyer, K., & Jackson, S. (2004). *Safe, supportive, and successful schools step by step*. Longmont, CO: Sopris West.
- *Patton, G.C., Bond, L., Carlin, J.B., Thomas, L., Butler, H., Glover, S., et al. (2006). Promoting social inclusion in schools: A group-randomized trial of effects on student health risk behavior and well-being. *American Journal of Public Health*, 96, 1582-1587.
- Payton, J., Weissberg, R. P., Durlak, J. A., Dymnicki, A. B., Taylor, R. D., Schellinger, K. B., & Pachan, M. (2008). *The positive impact of social and emotional learning for kindergarten to eighth-grade students: Findings from three scientific reviews*. Chicago, IL: Collaborative for Academic, Social, and Emotional Learning.
- Pechman, E. M., Russell, C. A., & Birmingham, J. (2008). Out-of-school time (OST) observation instrument: Report of the validation study. Washington, DC: Policy Studies Associates, Inc. Retrieved July 30, 2009 from www.policystudies.com.
- Peters, J. L., Sutton, A. J., Jones, D. R. Abrams, K. R., & Rushton, L. (2007). Performance of the trim and fill method in the presence of publication bias and between-study heterogeneity. *Statistics in Medicine*, 26, 4544-4562.
- *Philliber, S., & Allen, J. P. (1992). Life options and community service: Teen Outreach program. In B. C. Miller (Ed.), *Preventing adolescent pregnancy: Model programs and evaluations* (pp. 139-155). Thousand Oaks, CA: Sage Publications, Inc.
- *Possehl, P., Horn, A.B., Goren, G., Hautzinger, M. (2004). School-based prevention of depressive symptoms in adolescents: A 6-month follow-up. *Journal of the American Academy of Child and Adolescent Psychiatry*, 43, 1003-1010.
- *Quest International. (1995). *Report for U.S. Department of Education expert panel on safe, disciplines, and drug-free schools: Lions-Quest Skills for Growing*. Newark, OH: Author.
- *Reid, J. B., Eddy, M., Fetrow, A., & Stoolmiller, M. (1999). Description and immediate impacts of a preventive intervention for conduct problems. *American Journal of Community Psychology*, 27, 483-517.
- *Renfro, J., Huebner, R., & Ritchey, B. (2003). School violence prevention: The effects of a university and high school partnership. *Journal of School Violence*, 2, 81-99.

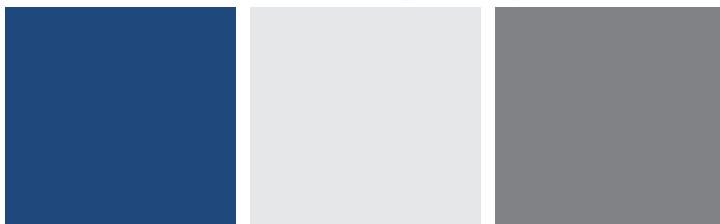
- *Reyes, O., & Jason, L. A. (1991). An evaluation of a high school dropout prevention program. *Journal of Community Psychology, 19*, 221-230.
- *Rimm-Kaufman, S.E., Fan, X., Chiu, Y-J., & You, W. (2007). The contribution of the Responsive Classroom Approach on children's academic achievement: Results from a three year longitudinal study. *Journal of School Psychology, 45*, 401-421.
- Ringwalt, C., Vincus, A. A., Hanley, S., Ennett, S. T., Bowling, J. M., & Rohrbach, L. A. (2009). The prevalence of evidence-based drug use prevention curricula in U.S. middle schools in 2005. *Prevention Science, 10*, 33-40.
- *Roberts, L., White, G., & Yeomans, P. (2004). Theory development and evaluation of project WIN: A violence reduction program for early adolescents. *Journal of Early Adolescence, 24*, 460-483.
- *Rollin, S. A., Rubin, R., Marcil, R., Ferullo, U., & Buncher, R. (1995). Project KICK: a school-based drug education health promotion research project. *Counseling Psychology Quarterly, 8*, 345-359.
- *Roseberry, L. (1997). An applied experimental evaluation of conflict resolution curriculum and social skills development. *Dissertation Abstracts International, 58* (03), 724A. (UMI No. 9726399)
- *Rotheram, M. J. (1982). Social skills training with underachievers, disruptive, and exceptional children. *Psychology in the Schools, 19*, 532-539.
- *Rotheram, M. J., & Armstrong, M. (1980). Assertiveness training with high school students. *Adolescence, 15*, 267-76.
- Salas, E., & Cannon-Bowers, J. A. (2001). The science of training: A decade of progress. *Annual Review of Psychology, 52*, 471-499.
- *Salzman, M., & D'Andrea, M. (2001). Assessing the impact of a prejudice prevention project. *Journal of Counseling and Development, 79*, 341-346.
- *Sarason, I. G., & Sarason, B. R. (1981). Teaching cognitive and social skills to high school students. *Journal of Consulting and Clinical Psychology, 49*, 908-919.
- *Sawyer, M. G., Macmullin, C., Graetz, B., Said, J. A., Clark, J. J., & Baghurst, P. (1997). Social skills training for primary school children: A 1-year follow-up study. *Journal of Pediatric Child Health, 33*, 378-383.
- Schaps, E., Battistich, V., & Solomon, D. (2004). Community in school as key to student growth: Findings from the Child Development Project. In J. E. Zins, R. P. Weissberg, M. C. Wang, & H. J. Walberg (Eds.), *Building academic success on social and emotional learning: What does the research say?* (pp. 189-205). New York: Teachers College Press.
- *Schaps, E., Moskowitz, J. M., Condon, J. W., & Malvin, J. (1984). A process and outcome evaluation of an affective teacher training primary prevention program.
- Journal of Alcohol and Drug Education, 29*, 35-64.
- *Schulman, J. L., Ford, R. C., & Busk, P. (1973). A classroom program to improve self-concept. *Psychology in the Schools, 10*, 481-486.
- *Schultz, L. H., Barr, D. J., & Selman, R. L. (2001). The value of a developmental approach to evaluating character development programmes: An outcome study of Facing History and Ourselves. *Journal of Moral Education, 30*, 3-27.
- *Shapiro, J. P., Burgoon, J. D., Welker, C. J., & Clough, J. B. (2002). Evaluation of the peacemakers program: School-based violence prevention for students in grades four through eight. *Psychology in the Schools, 39*, 87-100.
- *Sharpe, T. L., Brown, M., & Crider, K. (1995). The effects of a sportsmanship curriculum intervention on generalized positive social behavior of urban elementary school students. *Journal of Applied Behavior Analysis, 28*, 401-416.
- *Sharpe, T., Crider, K., Vyhildal, T., & Brown, M. (1996). Description and effects of prosocial instruction in an elementary physical education setting. *Education and Treatment of Children, 19*, 435-457.
- *Shochet, I. M., Dadds, M. R., Holland, D., Whitefield, K., Harnett, P. H., & Osgarby, S. M. (2001). The efficacy of a universal school-based program to prevent adolescent depression. *Journal of Clinical Child Psychology, 30*, 303-315.
- *Simons-Morton, B., Haynie, D., Saylor, K., Crump, A.D., & Chen, R. (2005). The effects of the Going Places Program on early adolescent substance use and antisocial behavior. *Prevention Science, 6*, 187-197.
- Smith, J. D., Schneider, B. H., Smith, P. K., & Ananiadou, K. (2004). The effectiveness of whole-school antibullying programs: A synthesis of evaluation research. *School Psychology Review, 33*, 547-560.
- *Smith, P. K., & Sharp, S. (Eds.) (1994). *School bullying: Insights and perspectives*. Routledge: London.
- *Smokowski, P. R., Fraser, M. W., Day, S. H., Galinsky, M. J., & Bacallao, M. L. (2004). School-based skills training to prevent aggressive behavior and peer rejection in childhood: Evaluating the Making Choices program. *The Journal of Primary Prevention, 25*, 233-251.
- *Solomon, D., Battistich, V., & Watson, M. (1993). *A longitudinal investigation of the effects of a school intervention program on children's social development*. Paper presented at the biennial meeting of the Society for Research in Child Development, New Orleans, LA.
- *Solomon, D., Battistich, V., Watson, M., Schaps, E., & Lewis, C. (2000). A six-district study of educational change: Direct and mediated effects of the Child Development Project. *Social Psychology of Education, 4*, 3-51.

- *Solomon, D., Watson, M. S., Delucchi, K. L., Schaps, E., & Battistich, V. (1988). Enhancing children's prosocial behavior in the classroom. *American Educational Research Journal*, 25, 527-555.
- *Sorsdahl, S. N., & Sanche, R. P. (1985). The effects of classroom meetings on self-concept and behavior. *Elementary School Guidance & Counseling*, 20, 49-56.
- *Sprague, J., Walker, H., Golly, A., White, K., Myers, D., & Shannon, T. (2001). Translating research into effective practice: The effects of a universal staff and student intervention on key indicators of school safety and discipline. *Education and Treatment of Children*, 24, 495-511.
- *Sprinthall, N. A., & Scott, J. R. (1989). Promoting psychological development, math achievement, and success attribution of female students through deliberate psychological education. *Journal of Consulting Psychology*, 36, 440-446.
- *Stacey, S., & Rust, J. O. (1985). Evaluating the effectiveness of the DUSO-1 (revised) program. *Elementary School Guidance & Counseling*, 20, 84-90.
- *Stafford, W. B., & Hill, J. D. (1989). Planned program to foster positive self-concepts in kindergarten children. *Elementary School Guidance & Counseling*, 24, 47-57.
- *Stephenson, D. (1979). *Evaluation of the Twin Falls Primary Positive Action Program 1978-1979*. Unpublished report, College of Southern Idaho.
- *Stevahn, L., Johnson, D. W., Johnson, R. T., Oberle, K., & Wahl, L. (2000). Effects of conflict resolution training integrated into a kindergarten curriculum. *Child Development*, 71, 772-784.
- *Stevahn, L., Johnson, D. W., Johnson, R. T., & Real, D. (1996). The impact of a cooperative or individualistic context on the effectiveness of conflict resolution training. *American Educational Research Journal*, 33, 801-823.
- *Switzer, G. E., Simmons, R. G., Dew, M. A., Regalski, J. M., & Wang, C. (1995). The effect of a school-based helper program on adolescent self-image, attitudes, and behavior. *Journal of Early Adolescence*, 15, 429-455.
- *Taub, J. (2001). Evaluation of the Second Step violence prevention program at a rural elementary school. *School Psychology Review*, 31, 186-200.
- *Taylor, C. A., Liang, B., Tracy, A. J., Williams, L. M., & Seigle, P. (2002). Gender differences in middle school adjustment, physical fighting, and social skills: Evaluation of a social competency program. *The Journal of Primary Prevention*, 23, 259-272.
- *The Center for Evaluation and Research with Children and Adolescents (1999). *The impact of The Great Body Shop on student health risk behaviors and other risk and protective factors using the Minnesota Student Survey: An evaluation report to the Children's Health Market*. Boston, MA: Author.
- *Thompson, K. L., Bundy, K. A., & Wolfe, W. R. (1996). Social skills training for young adolescents: Cognitive and performance components. *Adolescence*, 31, 505-521.
- *Thomson-Rountree, P., & Woodruff, A. E. (1982). An examination of Project AWARE: The effects on children's attitudes towards themselves, others, and school. *Journal of School Psychology*, 20, 20-30.
- Tolan, P. H., Guerra, N. G., & Kendall, P. C. (1995). A developmental-ecological perspective on antisocial behavior in children and adolescents: Toward a unified risk and intervention framework. *Journal of Consulting and Clinical Psychology*, 63, 579-584.
- Tobler, N.S., Roona, M.R., Ochshorn, P., Marshall, D.G., Streke, A.V., & Stackpole, K.M. (2000). School-based adolescent drug prevention programs: 1998 meta-analysis. *Journal of Primary Prevention*, 30, 275-336.
- *Trudeau, L., Spoth, R., Lillehoj, C., Redmond, C., & Wickrama, K. A. S. (2003). Effects of a preventive intervention on adolescent substance use initiation, expectancies, and refusal intentions. *Prevention Science*, 4, 109-122.
- *Twemlow, S., Fonagy, P., Sacco, F., Gies, M., Evans, R., & Ebanks, R. (2001). Creating a peaceful school learning environment: A controlled study of an elementary school intervention to reduce violence. *American Journal of Psychiatry*, 158, 808-810.
- U. S. Public Health Service. (2000). *Report of the Surgeon General's Conference on Children's Mental Health*. Washington DC: Department of Health and Human Services.
- *Van Schoiack-Edstrom, L., Frey, K. S., & Beland, K. (2002). Changing adolescents' attitudes about relational and physical aggression: An early evaluation of a school-based intervention. *School Psychology Review*, 31, 201-216.
- *Vicary, J. R., Henry, K. L., Bechtel, L. J., Swisher, J. D., Smith, E. A., Wylie, R., et al. (2004). Life skills training effects for high and low risk rural junior high school females. *Journal of Primary Prevention*, 25, 399-416.
- *Vogrin, D., & Kassinove, H. (1979). Effects of behavior rehearsal, audio taped observation, and intelligence on assertiveness and adjustment in third-grade children. *Psychology in the Schools*, 16, 422-429.
- *Waksman, S. A. (1984). Assertion training with adolescents. *Adolescence*, 19, 123-130.
- Wandersman, A., & Florin, P. (2003). Community interventions and effective prevention. *American Psychologist*, 58, 441-448.

- Wang, M. C., Haertel, G. D., & Walberg, H. J. (1997). Learning influences. In H. J. Walberg & G. D. Haertel (Eds.), *Psychology and educational practice* (pp. 199-211). Berkeley, CA: McCatchan Publishing Corporation.
- Waters, E., & Sroufe, L. A. (1983). Social competence as a developmental construct. *Developmental Review*, 3, 79-97.
- *Watson, M., Battistich, V., & Solomon, D. (1997). Enhancing students' social and ethical development in schools: An intervention program and its effects. *International Journal of Educational Research*, 27, 571-586.
- *Weissberg, R. P., & Caplan, M. (1994). *Promoting social competence and preventing antisocial behavior in young urban adolescents*. Unpublished manuscript.
- Weissberg, R. P., Caplan, M. Z., & Sivo, P. J. (1989). A new conceptual framework for establishing school-based social competence promotion programs. In L. A. Bond, & B. E. Compas (Eds.), *Primary prevention and promotion in the schools* (pp. 255-296). Newbury Park, CA: Sage.
- *Weissberg, R. P., Gesten, E. L., Carnrike, C. L., Toro, P. A., Rapkin, B. D., Davidson, E., & Cowen, E. (1981). Social problem-solving skills training: A competence-building intervention with second- to fourth-grade children. *American Journal of Community Psychology*, 9, 411-423.
- *Weissberg, R. P., Gesten, E. L., Rapkin, B. D., Cowen, E. L., Davidson, E., Flores de Apodaca, R., et al. (1981). Evaluation of a social-problem-solving training program for suburban and inner-city third-grade children. *Journal of Consulting and Clinical Psychology*, 49, 251-261.
- Weissberg, R. P., & Greenberg, M. T. (1998). School and community competence-enhancement and prevention programs. In I. E. Siegel and K. A. Renninger (Vol. Eds.), *Handbook of child psychology. Vol 4: Child psychology in practice* (5th ed, pp. 877-954). New York: John Wiley & Sons.
- Weissberg, R. P., Kumpfer, K., Seligman, M. E. P. (Eds.). (2003). Prevention that works for children and youth: An introduction. *American Psychologist*, 58, 425-432.
- Weisz, J. R., Sandler, I. N., Durlak, J. A., & Anton, B. S. (2005). Promoting and protecting youth mental health through evidence-based prevention and treatment. *American Psychologist*, 60, 628-648.
- *Welch, F. C., & Dolly, J. (1980). A systematic evaluation of Glasser's techniques. *Psychology in the Schools*, 17, 385-389.
- Wilson, D., B., Gottfredson, D. C., & Najaka, S. S. (2001). School-based prevention of problem behaviors: A meta-analysis. *Journal of Quantitative Criminology*, 17, 247-272.
- Wilson, S. J., & Lipsey, M. W. (2007). School-based interventions for aggressive and disruptive behavior: Update of a meta-analysis. *American Journal of Preventive Medicine*, 33(Suppl. 2S), 130-143.
- Wilson, S. J., Lipsey, M. W., & Derzon, J. H. (2003). The effects of school-based intervention programs on aggressive behavior: A meta-analysis. *Journal of Consulting and Clinical Psychology*, 71, 136-149.
- *Work, W. C., & Olsen, K. H. (1990). Evaluation of a revised fourth grade social problem solving curriculum: Empathy as a moderator of adjustive gain. *Journal of Primary Prevention*, 11, 143-157.
- Zeidner, M., Roberts, R. D., & Matthews, G. (2002). Can emotional intelligence be schooled? A critical review. *Educational Psychologist*, 37(4), 215-231.
- Zins, J. E., & Elias, M. J. (2006). Social and emotional learning. In G. G. Bear & K. M. Minke (Eds.), *Children's needs III: Development, prevention, and intervention* (pp. 1-13). Bethesda, MD: National Association of School Psychologists.
- Zins, J. E., Weissberg, R. P., Wang, M. C., & Walberg, H. J. (Eds.). (2004). *Building academic success on social and emotional learning: What does the research say?* New York: Teachers College Press.

THE ECONOMIC VALUE OF SOCIAL AND EMOTIONAL LEARNING

February 2015 (Revised)



Clive Belfield

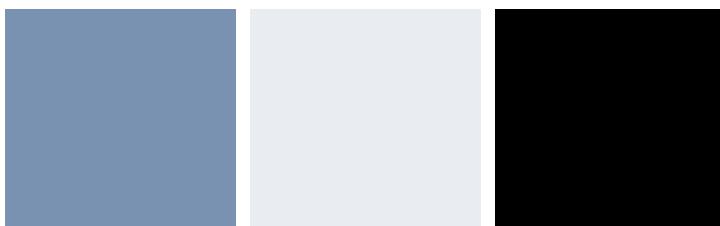
Brooks Bowden

Alli Klapp

Henry Levin

Robert Shand

Sabine Zander



Center for Benefit-Cost Studies in Education

Teachers College, Columbia University

www.cbcse.org

Funding for this research was provided by the
NoVo Foundation (novofoundation.org).

The Economic Value of Social and Emotional Learning

Clive Belfield, Brooks Bowden, Alli Klapp, Henry Levin, Robert Shand and Sabine Zander

Center for Benefit-Cost Studies in Education
Teachers College, Columbia University
www.cbcse.org

February 2015 (REVISED VERSION)

Funding for this research was provided by the NoVo Foundation (novofoundation.org).

Acknowledgements: The authors greatly appreciate comments and support from Steve Aos, John Bridgeland, Mark Greenberg, Damon Jones, Stephanie Lee, Annie Pennucci, and Roger Weissberg.

S U M M A R Y

Benefit-cost analysis is a tool for evaluating the economic profitability of an investment. It has been used in education since the 1960's to determine the rate of return on both individual and social investments in education. Essentially, benefit-cost analysis compares the monetary cost of an investment with the monetary value of its outcomes. For example, by reducing high school dropouts there are costs to the student in foregone income by staying out of the labor market. But there are also gains to the student in terms of higher income, better health, and lower likelihood of involvement in the criminal justice system, all which can be measured, in terms of a monetary return on investment. The taxpayer also makes an investment in education through paying a considerable portion of its direct cost and gets a return through higher tax revenues and lower costs of public services for health, public assistance, and criminal justice. And, society obtains returns by using its resources in its most productive ways, at least partially reflected in economic returns.

It is not necessarily the case that the benefits of an educational investment always justify the costs. For some interventions, the benefits will exceed the costs. But in others the investment is not found to be compensated by its returns: even if an intervention is effective, it may be too expensive to implement. Thus, the purpose of a benefit-cost (BC) study is to provide an accurate measure of costs and benefits to determine not only if the benefits are greater than the costs of the investment, but by how much.

In the educational setting, we seek investments that have the highest return to the taxpayer and to society. In the past, BC studies have been limited largely to increases in educational attainment and to improvements in cognitive test scores. But it is now becoming widely recognized that social and emotional learning in schools can be as important as or even more important than cognitive gains in explaining important developmental and life outcomes (Durlak et al. 2011; Heckman and Kautz 2012; Levin 2012). Social and emotional skills are less commonly considered in educational evaluations, in part because they are more challenging to measure than attainment and test scores. As such skills have gained prominence, it is important to integrate them into BC studies for consideration in educational policy and decision-making.

Because of the long history of the Center for Benefit-Cost Studies in Education (CBCSE) at Teachers College and its predecessor organizations in publishing BC studies in education (e.g. Levin 1975, Levin and McEwan 2001, and other publications at www.cbcse.org), it was requested by the NoVo Foundation and the Collaborative for Academic, Social, and Emotional Learning (CASEL) to apply BC analyses to studies of social and emotional learning. The purpose was to both demonstrate the BC method in this domain as well as to gain early perspectives on the potential economic returns to investments in social and emotional learning.

In this Report, we review the available evidence on the economic value of Social and Emotional Learning (SEL). We utilize a formal method to perform economic valuations with respect to changes

in Social and Emotional (SE) skills to guide future evaluations of reforms that target SEL. Our main contribution is to demonstrate BC analysis using recent impact evaluations of six prominent SE intervention:

- 4Rs;
- Positive Action;
- Life Skills Training;
- Second Step;
- Responsive Classroom; and
- Social and Emotional Training (Sweden).

Table S1
Social and Emotional Learning Interventions

Intervention	Grades and Student Groups
4Rs Learning and literacy program to combat aggression/violence	Grades K–5 Disadvantaged
Positive Action School curriculum/activities to promote positive thinking, actions, and self-concept	Grades 3–8 All
Life Skills Training Classroom intervention to reduce substance abuse/violence	Grades 6–12 At-risk students
Second Step Social skills curriculum to improve problem-solving/emotional management	Grades PK–10 Disadvantaged
Responsive Classroom Improve teacher efficacy to influence SE skills and school community	Grades 3–5 All
Social and Emotional Training (Sweden) Classroom intervention to support cognitive and SE competencies	Grades 1–9 All

Table S1 provides the descriptions of the six interventions.

These interventions were chosen because they are prominent in the literature and provide diversity in terms of their goals, measures of outcomes, and student populations. For each intervention we have constructed tables of ingredients and their costs; alongside, we have created benefit maps to summarize the possible benefits each intervention might confer and calculated the monetary value of the portion of benefits that could be identified and quantified based on the results reported in the impact evaluation. We then computed appropriate economic metrics – benefit-cost ratios and net present values – and performed sensitivity testing to see if the results are robust to alternative specifications.

Our central question is whether a range of different SEL interventions, both individually and in the aggregate, show benefits that exceed their costs. We recognize the fact that we have captured only a portion of their benefits because not all of their effects are fully measured and can be readily converted into monetary measures of their benefits. Further, the portion of benefits that we have been

able to capture may differ considerably among the different interventions' depending upon the goals of each and measurability of the associated benefits. *We caution that it is inappropriate to compare individual benefit-cost ratios among the six interventions in the absence of a more complete accounting of benefits for each.* Thus, we focus primarily on the basic question of whether the available measures of benefits are equal to or exceed costs for each and summarize our results with an overall average benefit-cost ratio among the six interventions.

The most important empirical finding is that each of the six interventions for improving SEL shows measurable benefits that exceed its costs, often by considerable amounts. There is a positive return on investments for all of these educational reforms on social and emotional learning. And the aggregate result also shows considerable benefits relative to costs, with an average benefit-cost ratio of about 11 to 1 among the six interventions. This means that, on average, for every dollar invested equally across the six SEL interventions, there is a return of eleven dollars, a substantial economic return. These findings are robust to the imposition of different assumptions on the sources and construction of benefits and costs, and a full accounting for benefits, as shown in the benefit maps, would provide an even larger return.

However, we emphasize that in addition to the benefit-cost test that we have imposed on these interventions, an important contribution of this report is its demonstration of methods and applications to estimating benefits and costs of SEL interventions. Only if a formal method is applied in a transparent way will economic evaluations of SEL interventions help improve resource allocation within the school setting.

This methodological demonstration can advance understanding of SEL in the future. Because our calculations have not captured all of the benefits of each of the interventions and the proportions that we have captured probably vary considerably among them, *we caution the reader that it is inappropriate to compare directly the results for specific interventions relative to the others.* The important findings are that each of the SEL approaches shows benefits that exceed costs and that the average return is very high, but differences in the quality and availability of comparable data preclude precise comparisons among the interventions for the following reasons:

- **Evaluation Quality**—We drew upon the best evaluations for each intervention that were available. However, even among relatively high quality evaluations there was variation. Had the evaluation designs and measurements been of consistent quality, there might have been some differences in results. Both data quality and research methods account for some potential differences in our results.
- **Cost Estimation**—Our cost method is the well-established ingredients method, which requires identification of all of the resources that were required to produce the results that were found in the evaluations. Since all evaluations had been done in the past, it was necessary to reconstruct the interventions as they had been implemented at the time of their reported effectiveness results. Precise details of the interventions were rarely available, and attempts to contact informed observers were not always successful. Even when successful, relying on retrospection of details can often provide incomplete or misleading results. To as great an extent as possible we have attempted to use multiple sources to construct the cost estimates, but differences in the information base attainable for each of the interventions varied considerably in comprehensiveness and quality.
- **Multiple Benefits**—Most SEL interventions have multiple goals and benefits, and this contrasts with interventions to improve cognitive test results in a particular subject. For example, an attempt to reduce aggression may also improve impulse control and later reduce juvenile crime and/or may

raise academic achievement. We have tried to capture some of this heterogeneity in our benefit maps, but even these are dependent upon an incomplete knowledge-base. And as the maps reveal, only a portion of the possible benefits are measured in the specific evaluation studies. Consequently, our measures of benefits are based upon a limited set of dimensions, a source of downward bias in our benefits measure. The actual benefits may be considerably higher if we were able to identify all effects and convert them into monetary benefits.

■ **Benefits Measures**—There is a major challenge in taking outcomes such as reductions in substance abuse or aggression or other improvements in behavior and attitudes and converting them into monetary values to society. We have used shadow prices, which reflect the amount that society is willing to pay for such improvements. But shadow prices depend upon specific assumptions, constructs, and data availability, and there is likely to be some underlying variance, largely unmeasured, in the magnitude of potential shadow price estimates. We believe that the shadow prices used to estimate benefits in this report are both plausible and defensible, but they are still subject to variability.

Taken in conjunction, the two contributions of this Report suggest a promising agenda for future research on the economics of social and emotional learning. From one perspective, it is feasible to apply benefit-cost analysis to SEL interventions, and these interventions do offer high economic returns as educational investments. Overall, SEL interventions are likely to pass a benefit-cost test. From another perspective, there is considerable additional research to be performed to establish the full extent and magnitude of the benefits of SEL. The full economic value of SEL is not yet established. Our hope is, therefore, that this investment stimulates the generation of a refined knowledge base and a greater focus on the development of benefit-cost applications to SEL initiatives.

CONTENTS

Summary	3
1. Introduction	8
2. Evidence on the Economics of SEL	10
2.1 Program-Based Evidence	10
2.2 Earnings and SE Skills	11
2.3 Educational Achievement and SE Skills	13
3. Foundations for Economic Evaluation of SEL	15
3.1 Economic Framework	15
3.2 Ingredients Method for Costs	16
3.3 Shadow Price Methods for Benefits	18
4. SEL Interventions	21
4.1 4Rs	21
4.2 Positive Action	25
4.3 Life Skills Training	30
4.4 Second Step	34
4.5 Responsive Classroom	37
4.6 Social and Emotional Training	42
5. Developing Methods and Evidence for Economic Evaluations of SEL	46
References	49
Appendices	
Appendix I Benefits Maps	56
Appendix II	62

1. INTRODUCTION

Social and emotional skills are increasingly being recognized as important for child development (Weissberg et al., 2003; Zins et al., 2004). These skills, which include competencies such as self-awareness, self-management, social awareness, relationship skills, and responsible decision-making, may help students progress further in their education and may also enhance personal, economic and social well-being in youth and adulthood. In recent reviews of the evidence on interventions to develop social and emotional skills, Durlak et al. (2011, Table 2) and Sklad et al. (2012) identify durable and substantively important gains in social and emotional skills, attitudes, positive social behavior, conduct problems, emotional distress and academic performance. These gains should lead to substantial increases in personal and social wellbeing.

According to Durlak et al. (2011), social and emotional learning combines youth development with the promotion of particular competencies, with the aim of enabling students to respond appropriately to environmental demands and fully take advantage of opportunities. Ultimately, social and emotional competencies encourage a shift to an internal locus of control, allowing individuals' choices and actions to better accord with their own values. These competencies relate to "soft skills" and personality traits that, according to Heckman and Kautz (2012), predict success in school, the labor market, and in life. Notably, social and emotional competencies do not just raise academic achievement and educational attainment. They also foster personal satisfaction and growth, help individuals become better citizens, and reduce risky behaviors like violence and drug use (Durlak, Weissberg and Pachan, 2010; Collaborative for Academic, Social, and Emotional Learning, 2013).

However, although the positive development of social and emotional skills through education has been established, the economic value of gains in these skills has received little attention. But, within a resource-constrained education system, instructional activities in social and emotional skills must compete with instruction directed toward test score improvements and increases in educational attainment. To date, most education research has focused on these last two objectives, with the presumption that this will have important economic consequences. For attainment, this focus makes sense: the evidence on the high economic value of graduating from high school or completing college is substantial. For achievement, however, the justification is much less certain: the impact of cognitive gains on economic performance is extremely modest; and most interventions fail to generate long-term boosts in cognition (Levin, 2012). Moreover, whatever influences are driving the high returns to attainment, they are only partially mediated through improvements in cognitive functioning (Heckman and Kautz, 2012). A suggestive and plausible alternative is that much of the effect of education on economic outcomes and personal well-being is based on non-cognitive or social and emotional development such as effort, motivation, curiosity, empathy, caring, and the many other dimensions that can be encompassed by social and emotional skills. These skills may drive attainment, which then becomes the focus for educational investments. On balance, it is likely that both social and emotional learning and cognitive learning are efficient investments. But the former domain has received very little attention from economists, and the policy debate instead emphasizes cognitive gains and test score accountability. In this environment, it is critical to identify and enumerate the value of social and emotional skills.

In this Report, we demonstrate an approach to conducting economic evaluations of six school-based social and emotional learning interventions and place these evaluations in the broader context of the economics of social and emotional learning. These six interventions are selected because each

has been evaluated using a generally, acceptable, research method in terms of impacts on a range of social and emotional (SE hereinafter) skills. We estimate each intervention's costs based on the ingredients employed during the implementation previously evaluated. We utilize the effects estimated in the evaluations to estimate economic benefits of the interventions to society. We then calculate the benefit-cost ratios and net present values to determine if the benefits generated by each program outweigh the costs of implementation. The intention here is not to rank these interventions in terms of their efficiency for reasons of differential completeness of the underlying studies in identifying effects and measurement challenges in identifying benefits. Instead, it is to provide a demonstration of how benefit-cost analysis of social and emotional interventions should be undertaken and to see if measured benefits exceed costs, understanding that a full assessment of benefits of each intervention would yield even higher benefits. Thus, we pay considerable attention to methodological challenges in estimating costs and calculating benefits; in turn, these challenges highlight broader research issues in evaluating social and emotional interventions.

Our Report is structured as follows. We begin with a review the evidence on the development of SE skills and in particular how these skills influence future earnings and are mediated through changes in education levels. Next, we set out a framework that includes both the economic principles and the methodological approaches for estimating the value of SE skills. We then apply this framework to six SE interventions to calculate their costs, benefits, and net benefits. Finally, in light of these six applications, we illustrate important conceptual, empirical, and methodological issues for research on the economic value of SEL. Overall, by providing the foundations for economic evaluations of social and emotional skills, this research should enhance their presence in future research and policy discussions.

2. EVIDENCE ON THE ECONOMICS OF SEL

2.1 Program-Based Evidence

There is substantial evidence on positive impacts of SEL interventions (SCDRC, 2010; Durlak et al., 2011; and Sklad et al., 2012). These impacts include large gains in SE skills, attitudes, positive social behavior, and academic performance, as well as reduced conduct problems of student disruption and emotional distress. These gains, measured across hundreds of interventions, are substantively large (with effect size gains of 0.2-0.6); and, when based on teacher reports, are consistently statistically significant (Durlak et al., 2011, Table 2). In a subsequent review, Sklad et al. (2012) emphasize gains in social-emotional skills and positive self-image. Concomitant with these gains were other effects in terms of social behavior, substance abuse, mental health disorders, and achievement.

SEL interventions vary significantly in application and mission: some are integrated into regular classroom instruction, others are directed at a specific adverse behavior (e.g. substance abuse), and others are intended to have a general effect (e.g. on school climate) rather than individual students. SEL interventions can be targeted to specific grades or be applied across the full span of grades. Variations in the practices for each intervention with respect to lessons, classroom strategies, and professional development are given in detail in SCDRC (2010, Table 1.1, Panels 1-3) and Sklad et al. (2012, Tables 3 and 4). Hence, although we refer to SEL interventions as a group, we recognize there is considerable diversity.

Some benefit-cost analyses of SEL interventions have been performed.¹ Applied to the context in Washington state, Lee et al. (2012) have calculated costs, benefits, and net benefits for three well-known SEL interventions: Promoting Alternative Thinking Strategies program (PATHS); the Seattle Social Development Project (SSDP); and Life Skills Training (LST).² For the SSDP, the participant costs are \$3,030 and the benefits are \$5,800; the net benefits are strongly positive at \$2,770. For LST, the costs are \$30 and the benefits are \$1,290; the net benefits are therefore \$1,260. At the national level, Jones et al. (2008) estimate net benefits of \$810 per student in LST. Looking at how SEL interventions ameliorate substance abuse by youth, Miller and Hendrie (2008) perform benefit-cost analysis for three interventions. For LST, they estimate costs of \$290, benefits of \$5,960, and therefore net benefits of \$5,670. For SSDP, they estimate costs of \$3,200, benefits of \$19,000, and therefore net benefits of \$15,800. Finally, for the Social Competence Program, Miller and Hendrie (2008) estimate costs of \$350, benefits of \$2,500, and therefore net benefits of \$2,150. Given the approaches used, these benefit-cost analyses show that SEL interventions can yield positive, sometimes substantial, economic returns. However, since the studies were done independently, they use different approaches to both cost and benefit measurement. Therefore, they are not directly comparable. Across the broader literature on youth behavior, there are many benefit-cost analyses of programs to combat delinquency.³ Many of these programs are intended to modify some SE skills (such as student conduct, educational progress, and externalizing behaviors). But their main focus is on a narrow class of behaviors, such as teenage pregnancy or juvenile crime; few are intended to affect a broad array of outcomes simultaneously.

¹ Throughout, we report all money values in 2013 dollars and, where appropriate, express amounts in present values at the start of each SEL intervention. To avoid spurious precision, amounts are rounded to the nearest \$10 or \$100 where appropriate.

² See <http://www.wsipp.wa.gov/BenefitCost>. Evidence on PATHS is currently under review.

³ See Weimer and Vining (2009) and the compendia of evidence at: www.colorado.edu/cspv/blueprints/; youthinfo.gov; and [wsipp.wa.gov](http://www.wsipp.wa.gov).

Nonetheless, these programs are typically found to have benefits that exceed their costs. Miller and Hendrie (2008, Table 12) estimate net benefits for 17 general substance abuse programs and find almost all have positive net benefits. In their review for Washington State of programs for children and adolescents, Lee et al. (2012) find positive net benefits for seven.

Although these analyses contribute to the debate on the economic value of SEL, the literature and evidence base are limited. More importantly, significant empirical and methodological challenges remain. First, few studies report costs in detail. Even fewer use the ingredients method, relying instead on more casual information such as budgetary data or estimates by the program developers. Second, it is not clear if these programs can be compared either to each other or to the broader class of delinquency prevention interventions. There are significant programmatic differences with respect to the students targeted, the size of the program, and the outcomes intended for improvement (SCDRC, 2010, Table 1.1, Panel 6). There are also significant differences in how the programs are evaluated. These differences include: the number of impacts that are converted into monetary benefits; the time horizon for analysis (with some studies including only immediate benefits and others only long-term benefits); and the method by which benefits are calculated (i.e. how impacts are translated into dollar amounts).⁴ Unless the method is consistently applied, comparing results across existing evaluations is highly problematic.

The economic evidence on the value of SE skills therefore needs to be expanded to include more interventions and particularly those that affect SE skills directly (rather than youth conduct). The research also needs to be undertaken in a standardized way, such that findings from separate benefit-cost analyses are comparable and so can be generalized. We discuss these issues in more detail in our conclusion.

2.2 Earnings and SE Skills

One approach to establishing the value of SE skills is to look at how they directly influence labor market outcomes. There is now an expanding literature on the association between SE skills and subsequent earnings (Murnane et al., 2001; Waddell, 2006; Drago, 2011). This evidence indicates strong positive impacts on earnings when SE skills are enhanced.

However, a critical aspect of this research is how SE skills are defined and measured. These skills can be defined in terms of psychological traits, behaviors, attitudes towards others, and performance on specific tasks. In turn, these constructs can be measured in different contexts (e.g. school versus home) and using different instruments. Yet, labor market research relies almost exclusively on the Rosenberg scale of self-esteem and Rotter scale for locus of control. These scales are rarely used in evaluations of particular interventions. Thus, it is not possible to directly translate the impact of an intervention into gains in earnings.

In addition, there are methodological challenges to identifying earnings gains from social and emotional (SE) skills. One challenge is that the construct chosen to measure SE skills is typically the only one representing an individual's behavioral traits; it may be that other traits – correlated with SE

⁴ According to Durlak et al. (2011, 413), the average follow-up period for SEL interventions is less than two years. Thus, in most cases it is not possible to see whether there have been long-run impacts. Yet, it seems likely that some SEL effects will persist, even if the immediate effects are stronger than those over a longer-term (Sklad et al., 2012). It is possible to extrapolate from immediate impacts to future ones, although this extrapolation adds imprecision.

skills – are driving the association. Another challenge is that education itself may be positively correlated with SE measures; and education is of course a significant determinant of earnings. Both these challenges may offset any underlying association. De Araujo and Lagos (2013) examine how earnings are influenced by self-esteem (their construct for SE skill); they find that self-esteem has no influence after controlling for locus of control attributes and for education. Nevertheless, if self-esteem affects educational attainment and thence earnings, this still represents an economic benefit from SE skills. A final challenge arises when these SEL constructs are measured simultaneously with earnings: it seems plausible that someone with high earnings might report (or have acquired) high SE skills. On the last of these, de Araujo and Lagos (2013) find that high self-esteem is indeed jointly determined with wages.

Notwithstanding these challenges, research evidence consistently finds strong associations between SE skills – broadly defined – and earnings. Using NLSY79, de Araujo and Lagos (2013, p.1987) estimate that a “one standard deviation increase in [self-reported] self-esteem leads to a 30.46% increase in real wages”. This increase is mostly mediated through attainment, which is estimated to be 1.5 years greater for those with higher self-esteem. If we assume baseline returns to attainment at 10% per year, the estimated gain in earnings from a one standard deviation increase in self-esteem is therefore 15%. This is still a very large gain in earnings. However, Drago (2011), also using NLSY79, finds smaller estimates of self-esteem (at 4%). Using NELS88, Segal (2013, p.767) reports a one standard deviation increase in “[teacher-reported] misbehavior is associated with a 4% decrease in earnings” at age 28. Also using NELS88, Eren and Ozbeklik (2013) employ the Rosenberg and Rotter scales in 10th grade and estimate that a one-standard deviation increase in non-cognitive ability is associated with an increase of 9% in earnings.⁵

Although promising, a precise association between SE skills and earnings remains to be determined. The economic value of these impacts of enhanced SE skills can only be generalized under two restrictive assumptions. It is necessary to assume that these constructs (self-esteem, misbehavior, self-control, etc.) accurately and fully reflect SE skills. As well, it is necessary to assume that SE skill differences are stable over childhood (such that SE skills in one grade reflect SE skills throughout the school years). These assumptions – both of which are highly debatable – represent important areas for future research.

Yet, given these two assumptions, it is possible to approximate the present value of lifetime earnings gain from a one standard deviation increase in SE skills. (We use one standard deviation for illustrative purposes; most interventions cannot yield effects this large). Based on current lifetime earnings profiles from the American Community Survey and the Current Population Survey, the average present value lifetime earnings of a child who is currently in 3rd grade would be \$575,000.⁶ These amounts represent how much a lifetime's earnings are worth at 3rd grade (adjusting for inflation). Given the above evidence, if SEL goes up by one standard deviation, earnings go up by 4-15% (net of additional schooling). Using the lower bound of these numbers, the average expected earnings gain from a one standard deviation increase in SE skill in 3rd grade is \$46,000. A conservative estimate – using the weakest correlation between SE skills and earnings – would yield earnings gains of \$23,000. In other words, if an intervention raised a child's SE skills at that age, this would be worth \$23,000 in terms of gains in future productivity alone. Although not precise and subject to the many caveats listed above, these figures indicate very large long-term labor market effects from enhanced SE skills.

5 Results from Murnane et al. (2001) and Waddell (2006) are not easily translated into effect size gains.

6 Details of this calculation are available from the authors. Under these two assumptions, the present value amount can be calculated for any year group.

2.3 Educational Achievement and SE Skills

An alternative approach to estimating the economic value of SE skills is to examine how they affect education levels. From this association it should then be possible to draw on the vast amount of research on the economic returns to education to establish the benefits of SE skills. Overall, research evidence typically shows a positive association between SE skills and education. In their review of 35 SEL interventions, Durlak et al. (2011, Table 2) report an average effect size gain in achievement of 0.27.

From an economic perspective the association between SE skills and achievement is complex. Where SE skills enhance achievement, it should be possible to value SE skills by valuing the labor market gains from higher achievement. However, this approach is likely to undervalue SE skills as these almost certainly have much more diffuse and long-term behavioral and attitudinal implications than achievement does. Academic achievement gains often fade-out within a short period (see Kinsler, 2012; Jacob et al., 2008). Moreover, for some groups academic achievement *per se* may not be especially important for future lifetime outcomes and may even be inversely related to SE skills (as established in studies of high school dropouts who pass the GED, see Heckman and LaFontaine, 2006). Recent research using longitudinal data by Heckman and Kautz (2012) describes a weak association between achievement and future life outcomes; and Castex and Dechter (2013) find that cognitive ability has actually declined as a determinant of wages over the last two decades. Heckman and Kautz (2012) also argue that SE skills and achievement as measured by standardized test scores are strongly confounded: because SE skills are expressible as behavior on tasks and taking an achievement test is a task, then higher achievement scores must also reflect higher SE skills. From an economic perspective, distinguishing the two constructs is problematic and may lead to double-counting in benefit-cost analysis because of their overlap. Finally, it might be noted that a focus on the cognitive gains of SEL programs serves to reinforce the idea that schools teach only ‘knowledge’ and downplays the idea that schools ought to develop broader social and emotional skills.

A number of studies have – despite these caveats – evaluated SE programs in terms of how they increase achievement, and these achievement gains can be translated into present value money benefits in terms of higher earnings. (As with the earnings analyses referred to above, an implicit assumption is that achievement gains are stable and persist over grade levels). To estimate the economic gains from achievement, we adapt estimates generated by Belfield and Levin (2009, Table 4).⁷ Specifically, we adjust their estimates of achievement gains – mediated through changes in attainment – for inflation and population weights. These adjustments yield a present value gain in earnings from a one standard deviation increase in 3rd [8th] grade math test scores of \$34,300 [\$40,700]. Applied to the specific results reported by Durlak et al. (2011), a one standard deviation increase in SE skills in 3rd [8th] grade is therefore valued at \$9,000 [\$11,000]. Although still substantial, these education-mediated values are considerably below the direct estimates reported above.

Thus, the association between SE skills and education should be evaluated more broadly than through individual achievement gains. Although Zins et al. (2007) make a strong case for evaluating SE skills in terms of academic outcomes, these outcomes should include school behaviors and school attitudes, as well as test scores (Zins et al., 2007, Figure 1.4). One direct way that has clear economic

⁷ To avoid the methodological challenges noted above, Belfield and Levin (2009) express achievement gains in terms of attainment gains (using the association between test scores and high school graduation).

consequences is to look at rates of grade retention and placement in special education. So far, this approach – even as it only refers to substantive behaviors and not attitudes – has not been extensively investigated. Moreover, it seems unlikely that the benefits of SE are confined solely to the individual student. The benefits of SE skills should be looked at using general measures at both classroom-level (such as peer effects, teacher efficacy, or teacher retention) and school-level (such as school quality or school climate). That is, in an economic sense there are externalities such that a healthier emotional and social climate induced directly by SEL interventions at the level of individual students should improve classroom harmony and school functioning. Unfortunately, to our knowledge there is no straightforward way to estimate the economic value of general school quality/climate differences.⁸ It seems plausible that in the absence of SEL, schools would incur greater costs in terms of heightened security, student support, or facilities upkeep. Related evidence on ‘compensating wage differentials’ (in this case, the need to pay teachers more to work in more disruptive school environments) has not found large costs when students exhibit worse behavior (Goldhaber et al., 2010). At this time it is therefore possible to calculate the economic value of SE skills – as mediated through education – only in terms of individual test score gains or more productive social behaviors and not in terms of other school-wide or student-level effects.

⁸ Again, this task is made more difficult by the idiosyncratic instruments used by evaluators to measure school climate.

3. FOUNDATIONS FOR ECONOMIC EVALUATION OF SEL

3.1 Economic Framework

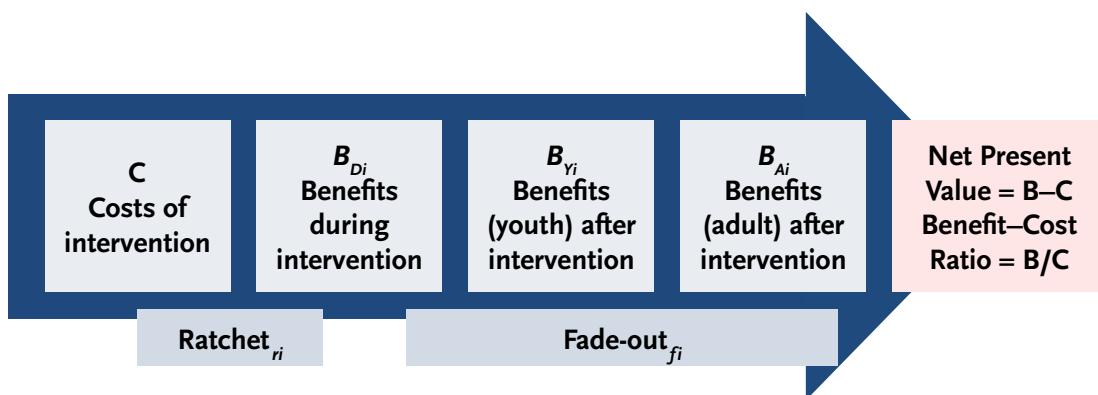
A framework for economic evaluation of SEL interventions – linking costs and benefits together in a standardized approach – is given in Figure 1.

To begin, the costs of each intervention must be estimated. These costs should be based on the opportunity cost of the resources required (Levin, 1975; Nas, 1996, p.61). They should be expressed in present values (discounted) from the start-date of the intervention to account for the fact that money expenditures that happen earlier as reflected in opportunity cost are given greater weight by society (see McEwan, 2002, p.39).

Next, the benefits of the intervention must be estimated, ideally based on causal impact evaluations. These too should be expressed as present values at the start date of the intervention: present investments in SEL engender future benefits and the further these benefits are in the future, the less valuable they are. By convention, a societal perspective is adopted whereby all benefits are calculated regardless of who reaps them. These benefits can be separated into three components. First, there are immediate benefits B_{D_i} – those occurring as the intervention is being delivered. Second, there are post-intervention benefits during youth B_{Y_i} – those benefits that occur after the intervention has been delivered but while the participants are still in school. Third, there are post-intervention benefits during adulthood B_{A_i} – those benefits that occur after the participants have left school. There may be many separate benefits in each time period and each benefit must be modeled over time. For the immediate benefits, the issue is how rapidly the benefits accrue once the intervention has begun (specified as the ‘ratchet function’ r). Some interventions may work immediately (perhaps through control of behaviors); others may work more slowly (perhaps through changing attitudes). Holding all other factors constant, immediate benefits are preferred to later ones. For the post-intervention benefits, the critical issue is their durability (‘fade-out function’ f). Some interventions may yield benefits only during implementation; others may change behaviors beyond the time frame of intervention. Critically, all benefits from an intervention should be counted: otherwise – tautologically – analyses that include more benefits will appear more beneficial.

Costs and benefits need to be reported in an equivalent way. For these analyses, all dollar amounts are reported as present values of future benefits from the year in which the intervention began with a discount

Figure 1
Cost-Benefit Framework for Social-Emotional Learning



rate of 3.5% applied to future costs and benefits. Dollar values are adjusted for inflation and reported in 2013 prices. Unless otherwise stated, the general ratchet function is assumed to be zero (i.e. the impacts of the program only occur in the year in which they are measured). Unless otherwise stated, the fade-out function is zero: the benefits are assumed to persist through school and adulthood. (Although this may seem to be a strict assumption, it is unlikely that interventions are delivered under the assumption that they will only have temporary effects. In our sensitivity testing, we vary the rate of fade-out).

Two efficiency metrics can be derived from comparing costs and benefits: the benefit–cost ratio ($=B/C$) and the net benefits ($=B-C$).⁹ Interventions with benefit-cost ratios that exceed one or for which benefits exceed the costs are considered efficient. Interventions with the highest net benefits or benefit-cost ratios are most preferable from an efficiency standpoint. Given that SEL interventions are often at substantially different scales of implementation, the net benefit measure may be more informative. The net benefit measure indicates the total amount of resource saved: interventions that generate the largest total dollar saving are preferred (even if they have a lower benefit-cost ratio). Calculation of these metrics is subject to sensitivity testing. In this analysis, a general form of sensitivity analysis is performed: salient benefits and costs that cannot be monetized are mapped, along with analysis as to how their inclusion would influence the results.

It is important to specify this framework in detail because interventions can differ in important respects. Most obviously, they can differ in how much resource is allocated to them: how much they cost and who bears that cost. Next, they can differ in the number and types of separate domains of behavior they impact. Those interventions that reduce juvenile crime and substance abuse will be more beneficial than those that impact in just one of these domains. Also, interventions can differ with respect to the durability of their impacts. Those that yield short-term gains in academic achievement are unlikely to be as beneficial as those that ensure students graduate from high school, for example. In conjunction, there are a series of context assumptions (year of evaluation, inflation adjustments) that can create variation in analyses. These differences have to be ascertained when comparing interventions.

Application of this framework – consistent measurement of costs and benefits, reporting of standardized metrics, and consideration of differences – should yield meaningful estimates of the economic value of interventions to boost SE skills.

Moreover, this framework gains even greater salience in light of current practice in SEL evaluations. For most interventions there are important uncertainties and knowledge gaps. Most evaluations give a very incomplete sense of how valuable – and hence how attractive to policymakers – a particular intervention is. This economic framework serves to illustrate these uncertainties and gaps. As such cost-benefit analysis yields information on what we do know and illustrates the possible importance of what we do not know.

3.2 Ingredients Method for Costs

The ingredients method is a cost-accounting approach that is compatible with the economic concept of opportunity cost and has been used successfully to undertake cost and cost-effectiveness studies in education (Levin and McEwan, 2001; IOM/NRC, 2014). With this method all the ingredients or

⁹ A third metric is the internal rate of return, defined as the discount rate that makes the present value of benefits equal to the present value of costs. This metric conveys less information than the other two metrics but may be useful as a shorthand way to compare programs of similar scale and duration.

inputs used to implement an intervention – net of the costs of the alternative or ‘business as usual’ program – are identified and specified. Inputs should be counted as incremental beyond what is usually required in the absence of the intervention. All inputs should be included and evaluated for their costs, regardless of who pays for them (with their financing source identified).

Program ingredients are grouped into personnel, materials/equipment, facilities and other inputs. Ideally, information on ingredients is collected from semi-structured instruments administered to key personnel responsible for implementing the intervention. Each ingredient is then priced out using prices from independent sources based on actual market outcomes (or shadow prices if market prices do not reflect opportunity costs or are unavailable).¹⁰ The cost of the intervention is then reported as the total sum of all ingredients multiplied by their unit prices. Also, some interventions induce additional resource use if the intervention succeeds in improving earlier educational outcomes (e.g., if more students are induced to attend college). When monetary benefits are calculated, additional costs engendered by success are typically counted as ‘negative benefits’ and put on the benefits side of the ledger.

The ingredients method is strongly preferred over reliance on budgets (and very strongly preferred over reliance on statements from program deliverers). Agency budgets are rarely comprehensive, covering all relevant ingredients, and are almost never itemized in a way that clearly identifies how much is spent on a given intervention. Using budgets it is very difficult to disentangle the incremental costs of an intervention from the regular school operations. As well, budget statements reflect local prices and not what an intervention would cost if another agency decided to implement it in their local context. If budgets were used, interventions in areas with high prices would be automatically disadvantaged in any economic comparisons.

The ingredients costing method is generally applicable across all types of educational interventions. However, for SEL interventions the critical issue is how to specify incremental costs relative to the business as usual provision. Where an SEL intervention is delivered as an after-school program, then incremental costs are straightforwardly measured as the cost of that program. However, if the within-school curriculum is altered to emphasize SEL, it may be difficult to identify what incremental resources are involved. More importantly in this case, curricular changes that emphasize SE skills ought to enhance SE skills – that is their purpose. Logically when time and resources are reallocated to a new goal or focus such as SEL, other outcomes obtain less time and resources and so are impaired. At issue is what skills are being displaced with any reallocation of resources and effort from one focus to a different one.

Critically, the costs of SEL interventions must be measured with reference to the overall goals of the education system as well as the specific SE skills that are being targeted. Those who argue that there is no cost to adding an SE intervention to the regular teaching schedule, and therefore that there are no additional instructional costs or displacement of productive activities, should provide evidence that this can be done. Similarly, the burden of proof is on those who argue that time spent on SE skills will not compromise achievement. Certainly, there is a limit to the number of goals and activities that can be addressed within a given time frame. It might be possible to meet this burden of proof: there may be slack in teacher schedules so that they can do more; or it may be that enhanced SE skills complement cognitive learning such that achievement scores and SE skills move mutually upward; or it may be that SEL can indeed be seamlessly integrated into the existing curriculum. However, these possibilities should be substantiated with evidence. As a general rule, instruction in one area should be assumed to

¹⁰ These prices are taken from appropriate datasets of statistical agencies (e.g. the Bureau of Labor Statistics or the National Center for Educational Statistics); an extensive catalog of prices of education inputs is available from cbcse.org.

displace instruction in another area: the working assumption is that there is no ‘free lunch’ in terms of resource use to boost SE skills (or achievement).

3.3 Shadow Price Methods for Benefits

The benefits of interventions are derived from shadow pricing – placing monetary values on – the interventions’ impacts. A shadow price is based upon the societal willingness to pay for a specific impact (Levin and McEwan, 2001: Chapter 4, p.60-61). Conventionally, market prices indicate willingness to pay. But where market prices are missing or are distorted, then shadow prices for willingness to pay must be derived independently. For example, it does not make sense to conceptualize student aggression as a ‘market’ (with buyers and sellers of aggression) and so there is no easy way to observe a ‘price’ for student aggression. Instead, we have to calculate how much we think society is willing to pay to reduce student aggression by a certain amount. That amount will depend on how important society feels about combating aggression; as a lower bound, the value can be represented by how much is currently spent to combat aggression.

In theory, shadow prices can be calculated for most behaviors that are the target of SEL interventions. The fundamental approach of shadow pricing is to measure these behaviors on a scale and then calculate shadow prices for each notch up or down the scale. There are several different techniques for deriving shadow prices (e.g. the burden method, the hedonic method) and the validity of each technique depends on the particular impact being priced out (Boardman et al., 2011).

In practice, deriving shadow prices for impacts from SEL interventions is complex. For some impacts, approximate shadow prices already exist. Published studies have estimated the shadow prices of an array of social ‘ills’, such as smoking, teenage pregnancy, child abuse, asthma, and being a career criminal (Maynard and Hoffman, 2008; Cohen and Piquero; 2009, Table 12; and Cohen et al., 2010, Table 8); for shadow prices of ADHD during the intervention years, see Jones and Foster (2009). However, as we describe below, these shadow prices have to be adapted to specific population groups or recalibrated to specific impacts before they can be applied to SEL interventions.

For other impacts of SEL, new shadow prices must be derived. Given the existing evidence base and methodological research, it is not as yet possible to estimate shadow prices for all possible impacts. Durlak et al. (2011 Table 2) catalog six categories of impacts arising from SEL interventions: (1) academic performance; (2) SE skills; (3) positive social behavior; (4) conduct problems; (5) emotional distress; and (6) attitudes. For academic performance, it is possible to derive or adapt existing shadow prices (see above). For SE skills, it is possible to calculate or approximate shadow prices in terms of increased earnings (see above). For behaviors and conduct, it is possible to derive shadow prices where these actions have clear economic consequences (e.g. a specific juvenile crime). For emotional distress, it is also possible to derive shadow prices, but typically these impacts are less likely to be expressed in ways that do have obvious economic consequences. For the last category – attitudes – it is very difficult to derive shadow prices (Heckman and Kautz, 2012; Borghans et al., 2008). Fundamentally, shadow pricing can only be applied to behaviors (not attitudes) that can be measured with validity.

One short-cut would be to find a ‘unit shadow price’ for specific SE skills, i.e. an overall willingness to pay for increments in these skills (or a measure that encompasses most of this willingness to pay). Two approaches – the mediation of general SE skills through earnings and education – have been discussed above. Two other possible techniques for deriving a unit shadow price are to look at aggression or the economic burden per ‘high-risk’ youth.

Child aggression is typically measured using the aggregated Behavioral Assessment System for Children (BASC). This system has been used extensively in research and is validated (see Reynolds and Kamphaus, 2002, Chapter 3). Helpfully for shadow pricing, BASC T-scores can be scaled to behaviors as: clinically significant (>70), at-risk (60-70), average (40-60) and below average (<40). Also, there is evidence on how aggression persists over time: studies have shown how aggressive and disruptive behavior in primary school predicts aggressive behavior through middle and high school and whether different trajectories of aggressive and disruptive behavior are associated with a range of negative life outcomes in youth and early adulthood.¹¹ Thus, in theory BASC shadow price notches could be calculated. However, we are not aware of studies that have priced out changes in BASC T-scores either in terms of contemporaneous or lagged benefits. Also, studies typically disaggregate the BASC according to the teacher or child reporter; and it is less clear how the different scores of these reporters independently translate into behaviors and, so, into shadow prices (Reynolds and Kamphaus, 2002). For future research we believe this approach is promising, although it would require a dedicated research endeavor to establish accurate shadow prices for the BASC scale (and so is beyond the scope of our current endeavor).

Another option is to derive a unit value for general youth delinquency that subsequently leads to adult delinquency. For example, Cohen and Piquero (2009, Table 12) have calculated the lifetime social burden per career criminal, one-time offender, high school dropout and drug user over the lifetime. However, there are two issues in applying these values to enhancements in SE skills. One concern is that it may not be valid to translate impacts across any of the six SE categories described above into a general youth delinquency status. This translation requires assumptions about how aggressive behavior relates to criminal activity or externalizing behaviors relate to drug use, for instance. A second issue is that this approach focuses only on the long-term consequences of SE skills and not on the immediate impacts, and the latter may be the most salient (particularly if there is uncertainty about fade-out of SE skills). Overall, this approach requires significant extrapolation and inference to produce shadow prices. However, it can serve as an approximation when no other evidence is available and can be applied in sensitivity analysis.

In summary, the use of a single SEL index – in terms of earnings, or mediated through education, or via the BASC, or a general delinquency index – poses a number of methodological challenges. Therefore, our approach is to derive separate shadow prices for each intervention based directly on the impacts reported for that intervention. This approach, which is more research-intensive, ensures that each intervention is evaluated with respect to its intended objectives.¹² As a sensitivity check, however, we apply these more general approaches to trace their implications for SEL.

Currently, it is not possible to determine a shadow price for every impact from each intervention: there is insufficient data and research evidence to do this. This creates a risk that interventions where data on benefits do exist will appear more beneficial than interventions where the evidence base is more sparse. It also carries the related risk that interventions where more outcomes are evaluated will appear more efficient than those where only a few outcomes are investigated. To illustrate the extent to which impacts are captured by shadow pricing, we create benefit ‘maps’ for each intervention. These maps show the outcomes evaluated, the instruments used to measure these outcomes, and whether

¹¹ These outcomes include early sexual activity, teenage pregnancy, school dropout and drug abuse (e.g., Montague et al. (2011) uses BASC scores to link behavior in grades 1-5 to outcomes at age 19/20).

¹² A similar approach is undertaken by (Lee et al., 2012).

these outcomes can be expressed as shadow prices. The maps show whether extant interventions can – under current research circumstances – be evaluated appropriately using benefit-cost analysis.

Our benefit-cost analyses of six interventions are reported below. These interventions were selected using several evaluation criteria. Primarily, interventions were selected where there was existing evidence of effectiveness based on a methodologically rigorous evaluation. In addition, interventions were selected with the expectation that costs data could be obtained and that benefits could be assigned shadow prices. Interventions operating across a range of dimensions were also selected, so as to illustrate the variation in efforts to enhance social and emotional learning.

4. SEL INTERVENTIONS

4.1 4Rs

Program

The 4Rs Program (Reading, Writing, Respect, & Resolution) focuses on social and emotional learning and literacy development in grades K-5, with an overall goal of ameliorating aggression and violence at an early age. The 4Rs curriculum, specific to each grade, aims to increase pro-social behavior and help students develop cooperative problem-solving skills. At each grade level, there are seven units, each based on one literary work, that highlight themes such as conflict, diversity, and relationships, and the curriculum reinforces those themes through skills practice.

4Rs has been found to be effective at reducing aggression. In a recent longitudinal evaluation of relatively disadvantaged third-grade children, Jones et al. (2011) employed a school-randomized, experimental design across 1,184 children and 146 teachers in 9 treatment and 9 control group public elementary schools in New York City. The evaluation found improvements of 4Rs compared to ‘business-as-usual’ elementary schooling on: student self-reports on hostile attributional bias, aggressive interpersonal negotiation strategies and depression; teacher reports of attention skills, aggressive and socially competent behavior; and on math/reading achievement. We apply the results from this study to calculate the costs and benefits of 4Rs.

Costs

We estimate the costs of replicating this implementation of the 4Rs program. We consider only the costs of the program above and beyond the resources students already receive as part of their regular instruction in school, i.e., we identify the incremental costs of introducing the programs into existing school activities. All cost estimates exclude any costs associated with the conduct of research activities and reflect only program implementation costs throughout the course of the first two years of the evaluation study. Costs are adjusted for inflation using the CPI-U into 2013 prices and national prices are applied. A discount rate of 3.5% is used.

The cost estimates for 4Rs are adapted from Long et al. (2014, Tables 3 and 4).¹³ The analysis by Long et al. (2014) used the ingredients method and high quality data to calculate a whole school costs analysis of 4Rs across grades.¹⁴ Long et al. (2014) calculated costs for all three years during which the longitudinal evaluation of the 4Rs program took place (2004-2007). As the impact evaluation only refers to two years of 4Rs, only two years of costs are reported here and national rather than local prices are applied to provide comparable costs of replication.

Personnel accounted for the most significant portion of program costs. This category includes teachers, center administrators, 4Rs staff developers, and consultants. Incremental school principal time and parental time were not included as these were assumed to be trivial per student. Teacher input was counted for instructional delivery of the curriculum, initial training, ongoing training and workshops. Hours of teacher input were collected from the Center’s weekly accounting logs and

¹³ We appreciate communications from Long et al. (2014) to help us adapt their estimates.

¹⁴ Long et al. (2014) compiled the ingredients to implement the 4Rs program through review of documents from the evaluation study (e.g. teacher logs on what they did each day in terms of program implementation etc.), extensive research into the budgets and meetings with the program’s director and accountant. The researchers did not interview teachers or principals directly.

teacher time logs. Overall, the program did not require a particular experience level for these teachers. Teachers devoted time to the delivery of the 4Rs curriculum in each year of program participation. Per year, this totaled to a 7-unit, 21–35 lesson (number depending on grade level), literacy-based curriculum devoted to SEL. Students received one 4Rs lesson per week, one hour per lesson. Before beginning 4Rs, classroom teachers received initial training of approximately 25 hours. Teachers also received on-going training, working with 4Rs staff developers or administrators on-site at their school in individual or small group sessions (approximately 12 contacts each year). Teachers also attended workshops throughout the school year.

Teacher cost was estimated using a national average price for an elementary school teacher in 2013. The same rate was applied for teaching time, initial training, ongoing training and workshops. Prices were adjusted to include fringe benefits valued at 29.5% of salary. Annual salaries were divided by an average academic year of 1,260 hours to convert to hourly wages.

Data on other personnel was also taken from Center's accounting logs and measured in days. Center administrators included the Executive Director and two administrators (one full-time, one part-time). There were seven 4Rs staff developers working on hourly schedules. (The time of consultants for translation services and curriculum development was not included as this was assumed to be a developmental and not an operating cost). The hourly wage rates (including fringe benefits) for administrators and developers were taken from the database catalog of prices at www.cbcse.org.

Facilities space included workshop space and the Center office space. Two facilities were rented out to host 4Rs workshops. For the workshop space, this was measured as a single unit. The cost per unit was represented as a set fee that the facilities charged for rent. This data was collected using the Center's accounting records. Additionally, school classroom space for instruction of the 4Rs student cohort was costed out. Space estimates were based on class sizes of 26 students receiving one 4Rs lesson per week of one hour per lesson. Classroom space costs are expressed in national average costs.¹⁵

The 4Rs program included kits and basic instructional materials (but no computer materials).¹⁶ These were costed according to invoice prices. Travel costs for 4Rs personnel were included based on invoiced amounts. Other subsistence ingredients (such as basic foodstuffs) were also included.

As noted above, a critical feature of costs analysis is that the costs must be measured in relation to outcomes. For 4Rs, this means that we have to decide whether or not to include teaching time as part of the program's incremental costs. The program was intended to fit into the standard literacy block of the school curriculum in an equivalent classroom space and serve as a partial substitute for regular literacy instruction. The teaching time – and classroom space – is therefore not strictly incremental to the implementation of 4Rs. The only difference was in how these students were taught and so, given the same amount of instructional time, the difference in costs between the methods might therefore be very small. However, the decision as to whether to include instructional time depends on how the impacts of 4Rs are measured. If the impacts that are measured are only those that 4Rs is intended to influence (and not those intended or inherent to the provision received by the control group), then it

¹⁵ For educational facilities rental rates are not generally available as national prices. We apply school building construction costs (adjusted for cost of land, development, furnishings and equipment) amortized over 30 years. Costs associated with initial training for 4Rs program are amortized over 3 years. We do not amortize ongoing coaching and support to teachers. For classroom space we use new elementary school national median prices amortized over 30 years at a 3% interest rate. Class size estimates are from http://schools.nyc.gov/AboutUs/data/classsize/classsize_2013_11_15.htm. The school year is assumed to be 36 weeks.

¹⁶ We amortize initial training and initial materials (4Rs Kits) over 3 years at an interest rate of 3.5%.

Table 1
Costs for 4Rs Program (Single Cohort for Two Years)

Categories/Ingredients	Year 1	Year 2	Total
<i>Participants</i>	630	630	630
Personnel:	91%	93%	92%
Training and support	50%	66%	0%
Teachers - 4Rs delivery	41%	27%	33%
Facilities:	8%	6%	7%
Rental Morningside office	1%	1%	1%
Rental Workshop Space	0%	0%	0%
Classrooms	7%	5%	6%
Materials and equipment:	1%	1%	1%
4Rs Kits	1%	0%	1%
Supplemental materials	0%	1%	1%
Total	100%	100%	100%

would not be surprising to see a big impact from the program. Therefore, we report resource costs both with and without instructional time (and the related instructional facilities costs). Including instructional time is conservative, suggesting that 4Rs only influences SE skills and not other skills. Excluding instructional time is possibly too restrictive in that it implies that 4Rs manages to enhance SE skills whilst also maintaining all other skills at the same standard as the business-as-usual approach.

For the two-year program providing 4Rs to a cohort of 630 participants, the present value total cost is \$262,300 if instructional costs are excluded or \$426,600 if instructional costs are included. Hence, the average cost without instructional time/facilities included is \$420; and with instructional time/facilities, the average cost is \$680.

Benefits

There are many impacts from 4Rs that could potentially be translated into money benefits. Based on the available evaluations, we have generated a map of these benefits (see Appendix I, Map 1). There are impacts in: understanding and handling feelings; achievement; academic skills; and other domains. These impacts have specific outcomes that are measurable, but only a subset of these outcomes can be monetized at present.¹⁷ In addition, 4Rs has impacts that are not easily measured (e.g. cooperation or dealing with diversity). Although these impacts are valuable in their own right, if they cannot be measured then it is not possible to assign shadow prices to them.

In this benefit-cost analysis we are able to consider three behaviors. To correspond with the costs analysis, we measure these behaviors at the end of two years of the intervention, i.e. in spring of fourth grade. Our focus is on teacher reports of ADHD symptoms, social competence, and aggressive

¹⁷ In particular, we are not able to consider the general class of impacts measured using the BASC such as child attitudes and thoughts, even as these may predict subsequent behavior.

behavior. The results based on Jones et al. (2011, Table 3) yield statistically significant effect size impacts after two years for these behaviors.¹⁸ These effect size gains are: 0.12, for reduced ADHD symptoms; 0.14, for social competence; 0.13, for reduced aggression (average from 0.05-0.21). These effect size gains are equivalent to moving from the median position to the 44th-45th percentile of outcomes.

Shadow prices for ADHD, social competence, and aggression are derived using the cost-of-illness method. That is, the shadow prices are based on what society currently spends on these conditions through the health care system. For the baseline estimates, the ratchet effect is assumed at zero and decay rate is assumed to be infinity. That is, there are no effects in the first year of the intervention, and there are no effects that exist beyond the implementation of the intervention; there are only effects in the second year of the intervention. For ADHD, spending is from Jones et al. (2009). For social competence and aggression, spending on oppositional defiant disorder (ODD) and conduct disorder (CD) respectively are applied; these are from Foster et al. (2005).¹⁹ These spending figures are for a similarly disadvantaged population to the 4Rs group. All these estimates are conservative in that the ‘cost-of-illness’ method typically excludes some important costs (e.g. family expenditures).

The annual present value benefits of moving from the median burden to the 44th-45th percentile burden are: \$2,490 for ADHD; \$1,360 for Social Competence; and \$4,470 for aggression. Therefore, the present value sum of benefits, i.e. the total immediate benefits of 4Rs expressed as a present value back to the first year of program delivery, is \$8,320.

We perform several sensitivity tests based on different assumptions. First, we assume that the ratchet effect is linear. That is the benefits after one year are half the size of the benefits after two years. This assumption is as plausible as assuming there is no effect until after two years of the intervention (but it is less conservative). With a linear ratchet effect the total benefits are \$12,630. Second, we apply a decay rate from Washburn et al. (2011). This decay rate is one-third within two years after the cessation of the intervention (and one-third more for the subsequent year). With this decay rate, the total benefits are \$16,370. Third, we assume that the decline in ADHD will have an impact on labor market outcomes. Fletcher (2013) estimates ADHD to be associated with a fall in labor market attachment of 5%. Using the CPS data from 2009-2013, we calculate average lifetime earnings of \$383,100 in present value terms in 4th grade. With an effect size change of 0.12, the value of the change in labor market attachment is \$580-\$780. With labor market effects included, the total benefits are \$8,930. We consider these to be only a portion of the total benefits, that portion that could be identified and measured, and refer to these as the minimum benefits of the intervention.

Benefit-Cost Results for 4Rs

The benefit-cost comparisons for 4Rs are given in Table 2. The estimates of costs per participant are \$1,410 and \$2,590. But to be conservative, the latter cost estimate is used as the baseline. The minimum commensurate benefits are \$8,320. Our main concern is whether the minimum estimated benefits exceed the costs per participant, the gain in net present value when costs are deducted from

¹⁸ Unadjusted descriptive statistics for these behaviors show no difference between intervention and control groups for ‘Child Social Competence’; adverse effects for ‘Child Aggression’; and positive effects for ‘Child ADHD symptoms’ (Jones et al., 2011, Table S1).

¹⁹ The annual incremental costs per ADHD=(\$4100-\$1800) per year (Jones et al., 2008, Figure 1, estimates for youngest year). For Social Competence: annual incremental costs per ODD=(\$2750-\$1490) per year (Foster et al., 2005, Table 1). For Aggression: annual incremental costs per CD=(\$5630-\$1490) per year (Foster et al., 2005, Table 1). These figures are in 2000 dollars rounded to nearest ten. Moving down from the median to the 45th percentile is associated with costs that are 3% lower per percentile. The discount rate is 3.5%.

the benefits. The net present value gain at baseline is \$5,730 per participant for 4Rs a large gain in benefits relative to costs. We remind the reader that our focus is on whether the minimum estimated benefits exceed the costs, not comparisons with the other interventions, given that the proportion of overall benefits for each intervention captured in the estimates can differ substantially.

The estimates for the net present value for delivering 4Rs to 100 students are given in Table 2. To be conservative, the cost estimate including instructional time is used as the baseline. Therefore, the net present value gain per 100 students is \$764,000.

Table 2
Benefit-Cost Results for 4Rs for 100 Students

	Costs	Benefits	Net Present Value
Baseline Estimate (AC2 incl. instruction time)	\$68,000	\$832,000	\$764,000
Sensitivity tests:			
AC2; B + labor market gains	\$68,000	\$89,300	\$8,250
AC1 (excl. instruction)	\$42,000	\$832,000	\$790,000
AC1; B + labor market gains	\$42,000	\$893,000	\$851,000
AC2; ratchet=0.5	\$68,000	\$1,263,000	\$1,195,000
AC1; ratchet=0.5	\$42,000	\$1,263,000	\$1,221,000
AC2; decay rate=0.33	\$68,000	\$1,637,000	\$1,569,000
AC1; decay rate=0.33	\$42,000	\$1,637,000	\$1,595,000
<i>Average across sensitivity tests</i>	<i>\$55,000</i>	<i>\$1,203,000</i>	<i>\$1,148,000</i>

Sources: Table 1 above. Notes: Present values at third grade ($d=3.5\%$). Baseline model assumes AC2 and baseline benefits. Sensitivity tests sorted by NPV.

To ascertain how robust are the gains in minimum benefits relative to costs, we test economic assumptions that might alter the net returns in Table 2. These alternatives apply the lower cost estimate (excluding instructional time), apply different assumptions about the fade-out and decay rate of effects, and include labor market benefits. Given the conservative assumptions for the baseline estimate, all the sensitivity tests yield higher net present values than the baseline. Across the seven tests, the average net present value is estimated at \$1,148,000 per 100 participants. (Moreover, even these results do not include many of the possible impacts from 4Rs itemized in the benefits map). Finally, given the baseline costs of \$680, a threshold benefit level can be identified: that is, the economic value of 4Rs is positive even if only the benefits of reduced aggression are accounted for (\$4,470); and the value is positive even if only the benefits for ADHD are accounted for (\$2,490). Thus, programs such as 4Rs may be economically justified based on very partial measures of benefits in relation to full costs.

4.2 Positive Action

Program

Positive Action is a school-based curriculum and supplemental set of school cultural and family activities designed to promote students' positive thinking, actions, and self-concept. This intervention is

intended to increase intrinsic motivation to learn and reinforce positive behavioral choices. It consists of a series of short lessons at each grade level organized into six units: self-concept; positive actions for your body and mind; managing yourself responsibly; treating others the way you would like to be treated; telling yourself the truth; and improving yourself continually. Supplementary materials can be used by school leaders, teachers, counselors, or families to help students apply the main lessons of the program to target student development in specific areas, such as prevention of bullying or drug abuse. The program is based on the theory that positive actions make us feel good about ourselves, and therefore become self-reinforcing over time.²⁰

Positive Action has been extensively studied, notably in two large-scale, multi-year randomized controlled trials.²¹ One study took place in 20 elementary schools in Hawaii and evaluated outcomes across a range of academic, behavioral, school quality, sexual activity, substance abuse, and violence outcomes (Snyder et al., 2010, 2012, 2013; Washburn et al., 2011; and Beets et al., 2009).²² The other experimental evaluation of Positive Action was conducted in Chicago. With random assignment at the school-level, outcomes from Positive Action were evaluated at seven treatment schools over six years of implementation across grades 3-8. A series of studies examined outcomes such as academic achievement, student behavior, bullying, drug use, violence, and mental health (Lewis et al., 2012, 2013ab; Li et al., 2011; and Bavarian et al., 2013).

We perform our benefit-cost analysis using the outcomes from the trial in Chicago. We chose this site for several reasons. It is the most recent trial of Positive Action. Also, the outcomes measured in that trial most closely align with social and emotional learning outcomes discussed above. Specifically, assignment to Positive Action yielded impacts on: student self-reported normative beliefs about aggression, bullying and other violent or disruptive behaviors; parental reports of bullying or conduct problems; and on disciplinary actions based on administrative data (Lewis et al., 2013). There was a 0.38 effect size reduction in self-reported bullying, as well as there were significant impacts on parent-reported bullying, disruptive behaviors, and disciplinary actions.

Costs

We estimated costs using the ingredients method based on interviews from two sites that were part of the Chicago program evaluated by Lewis et al. (2013). The interviews were conducted with a teacher and a counselor who served as site coordinators at two elementary schools.²³ We estimate costs using the ingredients method and calculate only those costs that were incremental to the delivery of ‘business-as-usual’ schooling. All costs are estimated in 2013 dollars and expressed in present values with a discount rate of 3.5%. Although randomization occurred at the school level and all students in schools assigned to treatment were eligible to receive Positive Action services, only the initial third grade cohort was

²⁰ Program developers illustrate that dynamic with the Thoughts-Actions-Feelings Circle (TAF), in which thoughts lead to actions which lead to feelings about oneselfs. Those feelings, in turn, lead to new thoughts, repeating the cycle in either a positive or negative manner. A positive cycle reinforces intrinsic motivation to learn, whereas a negative cycle undermines intrinsic motivation. The program therefore systematically emphasizes thoughts and actions that lead to a positive cycle.

²¹ In addition, other studies have examined alternate versions of Positive Action (as a pre-kindergarten or family program (see Flay, 20012, 2010 respectively). Other studies have evaluated Positive Action using quasi-experimental designs (Flay, Allred and Ordway, 2001; Flay and Allred, 2003).

²² This research was included in the meta-analysis by Durlak et al. (2011) and has met What Works Clearinghouse evidence standards (as a progress report by Flay et al., 2006).

²³ Despite repeated requests to a sample of schools, we were unable to obtain contact with other personnel involved in the delivery of Positive Action in Chicago.

followed intensively in terms of measurement and implementation support. Yet, while that cohort was intended to receive Positive Action for six years, student attrition was very high such that average length of treatment was only 3.1 years. Therefore, we estimate the costs of 3 years of treatment, expressed as a present value in 3rd grade.

By far the largest program ingredient is personnel time. This includes the reallocation of classroom teacher time to deliver the program's approximately 140 15-minute lessons. Classroom teacher time was also incurred for lesson preparation, initial and ongoing training, and for implementation support. Other personnel were also involved in the program. A coordinator at each site, often a teacher or counselor, organized the program and provided delivery support to teachers as well as organized regular parent meetings and school-wide assemblies. School principals spent time supporting the program, and parents contributed time attending meetings and occasionally volunteering in classrooms. Also, at one site a school aide served as an interpreter at parent meetings. Positive Action staff and trainee staff at the University of Illinois-Chicago provided training and implementation support.

Estimates for the amount of time each of these groups contributed to the program were made based on interviews with site coordinators. National average prices for each ingredient in terms of wage time were then obtained from relevant databases.²⁴ Fringe benefit rates of 29.5% for personnel in K-12 education and 28.5% for personnel in higher education were applied. Annual salaries were divided by an average academic year of 1,260 hours to convert to hourly wages.

Other ingredients include facilities for training, meetings, and most importantly classroom space for program delivery.²⁵ Facilities costs were based on rental rates for classroom space.²⁶ Also, program materials were costed, including curriculum kits with workbooks and worksheets for teachers and supplementary kits for counselors, school administrators, and families, and stickers as positive reinforcement for students. Prices for program materials were obtained from the Positive Action catalog and amortized over 5 years, based on average teacher turnover, at a 3.5% interest rate.

Finally, the extent to which teacher time devoted to the program should be considered incremental is unclear. Although there are no additional financial outlays – since teachers would be teaching even in the absence of the program – there is an opportunity cost of lost instruction in what would have happened in the absence of the program. To be conservative, we consider all teacher time to be an incremental cost.

The costs of Positive Action at the two sites are given in Table 3.²⁷ In total, there were 140 participants in the program over this three year period. The total costs for this cohort was \$70,710. The average cost per participant was therefore \$510.

We undertake two sensitivity tests on costs. For the baseline estimate all students in a school were assumed to receive Positive Action. All school-wide costs, such as coordinator, principal, and trainer

²⁴ These included: the Database of Educational Resource Prices at cbcse.org; and data from the Department of Labor, the Bureau of Labor Statistics, the National Center for Education Statistics, the National Education Association, and the Integrated Postsecondary Education Data System.

²⁵ We assumed an average elementary school classroom size to be 900 square feet, and conservatively assumed that meetings and trainings would take place in a similarly sized regular classroom.

²⁶ In the absence of a significant rental market for educational spaces, we estimated the hourly opportunity cost of using educational facilities by amortizing new construction prices over 30 years at a 3.5% interest rate. Elementary school construction prices were obtained from the 16th Annual School Construction Report at <http://webspm.com/~media/457BAA6BC0164B86A1D04E80DD696569.pdf>.

²⁷ From the interviews we found notable variation in program implementation between the two sites. Program treatment was notably more intensive in one site (and so variable costs were higher). But the site also served a larger student population (so fixed costs per student were lower).

Table 3
Costs for Positive Action (3-Year Program)

Ingredient	Share of Costs (Site A)	Share of Costs (Site B)	Share of Costs (Sum)
<i>Participants (single cohort for 3 years)</i>	80	60	140
Personnel:			
Classroom teacher	74%	59%	69%
School staff (coordinator, principal, aide)	11%	8%	10%
Management (implementation support)	4%	10%	6%
Parent time	2%	8%	4%
Training (incl. travel/facilities)	1%	1%	1%
Facilities:			
Classroom space	6%	10%	7%
Materials and equipment:			
Program materials	3%	5%	3%
Total Resource Cost	100%	100%	100%

time as well as school culture materials and activities, are divided among six cohorts. However, coordinators at both sites indicated that treatment intensity in non-evaluated cohorts was lower. Therefore, school-wide costs were instead allocated across students in the evaluated cohorts who received intensive treatment. Under this more stringent assumption, the total program cost was \$142,200 or \$1,020 per student.

A second sensitivity test was based on length of program receipt. The baseline estimates assume an average of 3 years of program receipt. But students in later years of the study could have benefited from increased program effectiveness due to teacher experience or improved overall school climate (as more of their peers had received the program). As a check, we estimate the program costs spread across six years of program delivery. Under this assumption, program costs using the baseline estimates dividing school-wide costs across 6 cohorts would be \$131,800, or \$940 per student.

Benefits

Positive Action is likely to have many impacts on social and emotional outcomes. These include improvements in personal behavior, mental health, achievement and academic behaviors, and school climate (see the Benefits Map in the Appendix I). However, not all these impacts can be measured in such a way as to allow them to be monetized. In addition, some outcomes, such as school quality and academic achievement, overlap with one another, and so to count both of them would be likely to double-count the consequences of Positive Action. Again, we warn against comparing benefit-cost outcomes among interventions when the portions of the benefits that are captured by the evaluations and the ability to convert them to benefits are unknown among the alternatives.

For this benefits analysis, we estimate the shadow price of bullying reduction. Estimates of the shadow price for bullying are only approximate. The economic consequences of bullying include: days of missed school (both for the victim and for the suspended or expelled perpetrator); school personnel time to respond to bullying cases; school practices and training programs to mitigate bullying; parental

time to resolve bullying; resources of social services; resources for alternative placement of perpetrators; and justice system expenditures for cases that involve the legal system.

To our knowledge, no study has estimated the benefits of these reductions using a rigorous shadow pricing technique.²⁸ A very lower bound estimate is to apply the number of school absences that are associated with bullying and price these out using society's willingness to pay for a day of schooling.²⁹ Under this assumption, an effect size reduction of 0.38 in bullying for three years yields 18 fewer days of bullying. We assume these days build cumulatively over the three year period (equivalent to the ratchet effect for other SEL programs).

Benefit-Cost Results for Positive Action

The benefit-cost results for Positive Action are reported in Table 4. Measurable benefits exceed costs by a considerable amount.

Table 4
Benefit-Cost Results for Positive Action Per 100 Participants

	Costs	Benefits	Net Present Value
Baseline	\$51,000	\$258,000	\$207,000
Sensitivity tests:			
S1. Zero ratchet effect	\$51,000	\$810,000	\$759,000
S2. Slower fade-out	\$51,000	\$392,000	\$341,000
S3. Education benefits	\$51,000	\$337,000	\$286,000
S4. Delinquent youth benefits	\$51,000	\$1,007,000	\$956,000
S5. Intensive program	\$60,000	\$130,000	\$70,000
Average across S1-S5			\$443,600

Sources: Table 3 above. *Notes:* Present values at third grade ($d=3.5\%$). Sensitivity tests assume costs or benefits from baseline model unless other specified. For delinquent youth benefits, see Appendix Table 1.

We undertake five sensitivity tests. For the first two tests we vary the ratchet and fade-out effects respectively. For our baseline estimates, we assume that the ratchet effect is cumulative: that is, the benefits accumulate as the intervention is delivered. This assumption is as plausible as linearity (but it is less conservative). Also, for the baseline estimates the fade-out rate is immediate after the final year of evaluation (that is, there are no effects on bullying beyond the length of the program). For our first sensitivity check, we assume the ratchet effect is immediate: that is, the effects of the intervention are immediately equal to the final year impact. Obviously this increases the benefit-cost ratio. As a third

²⁸ For discussions that at least attempts to estimate this issue, see www.principals.org/Content.aspx?topic=The_Financial_Costs_of_Bullying_Violence_and_Vandalism; www.casafeschools.org/FactSheet5rev2.pdf; and www.highmarkfoundation.org/pdf/publications/HMK_Bullying%20Report_final.pdf

²⁹ Societal willingness to pay for a school day is estimated using average daily expenditures for a day of public school nationally in 2014 prices. This amount is \$70 per day (\$13,400/180, see nces.ed.gov/programs/digest/d12/tables/dt12_215.asp). There is also a value of increased achievement with fewer days of absenteeism (Gottfried, 2010, 2011ab).

test, we assume that the impacts decline linearly to zero six years after the initiation of the intervention. This too increases the benefit-cost ratio.

The third sensitivity test draws on recent evidence on the long-term effects of bullying reported in Wolke et al. (2013). Although this study is not representative of the U.S. population, it tracks longitudinally students who are bullies, victims, both, and neither. With long-term follow-up of the students, Wolke et al. (2013) identify strong deleterious effects of bullying on all those involved across a range of domains. Specifically, compared to those who have no experience of bullying, victims are 1.1 times as likely to have dropped out of high school, bullies are 1.6 times as likely, and those who are victim/bully are 3.1 times as likely, to drop out of high school. As an approximation, we can use these proportions, along with estimates of the economic burden of high school failure, to derive the shadow price of bullying. Accounting for the impact of Positive Action on bullying, we calculate that the present value benefit per participant from lower rates of bullying is (conservatively) \$3,370. These benefits are easily greater than the costs.³⁰

As a fourth sensitivity check we calculate benefits based on impacts reported in Beets et al. (2009) for Positive Action implemented in school in Hawai'i. At this site, the main statistically significant impacts were on substance abuse and violent behavior. For substance abuse, the treatment group rate was 4.0% compared to 7.6% in the control group; for violent behavior the treatment group rate was 6.1% compared to 2.2% (Beets et al., 2009). We use the shadow price of a substance abuser and career criminal from Cohen and Piquero (2009), adjusted to correspond to other shadow prices applied here. This shadow price is then multiplied by the number of reductions in substance abusers or career criminals yielded from a program serving 140 participants. The advantage of this method is that it avoids direct modeling of the lifetime impacts and the fade out of Positive Action. The disadvantage is that it requires extrapolation from behaviors in 5th grade to youth delinquency. Therefore, to be conservative, we assume 20% fade-out each year.³¹ As well, these shadow prices do not count the burden of delinquency before youth. To avoid double-counting benefits we assume only one of these scenarios applies, i.e. only the substance abuse rate is reduced or the career criminal rate but not both. The calculations of benefits are given in Table 1 of Appendix II. The minimal estimates of benefits exceed costs by considerable amounts.

Finally, we assume that the program is delivered as intensively in the second year as it is in the first year. Under this assumption, the average cost of the program rises to \$600. Again, the benefits easily exceed these costs.

Overall, the sensitivity analyses indicate that even a partial estimate of benefits for Positive Action exceeds costs across all conditions. Although this analysis yields results that are favorable to Positive Action, the sensitivity tests in Table 4 make clear that the benefit-cost ratio varies widely depending on which model assumptions are made.

4.3 Life Skills Training

Program

Life Skills Training (LST) is a school-based classroom intervention to reduce substance abuse and violence (www.lifeskillstraining.com). The intervention is generally delivered to at-risk students in middle and/or high school. Life Skills Training teaches social and emotional skills to build confidence and

³⁰ Details of this calculation are available from the authors.

³¹ This fade-out function approximates to the correlation between 8th grade and adult behaviors of 0.38 reported by Hawkins et al. (1998).

self-esteem, equip youth with the skills needed to resist peer pressure, and generally improve social and emotional competence to reduce anxiety and improve a range of health outcomes. The curriculum is divided into three key components: knowledge and skills needed to resist use of alcohol, tobacco, and other drugs; personal management skills; and general social skills to build assertiveness. The program duration involves sessions over three years, with most of these in the first year of the middle school program followed by booster sessions.

A series of impact evaluations of LST have been conducted (see Botvin et al., 2006; Spoth et al., 2008, Griffin et al., 2011). These studies have examined a range of effects, including reductions in crime, smoking initiation, substance abuse, and risky behaviors (Griffin et al., 2006; Spoth et al., 2008). For each impact, LST is statistically significantly associated with lower delinquency.

Based on these impacts, two benefit-cost analyses of LST have already been conducted (Lee et al., 2012; Miller and Hendrie, 2008).³² Adapted to be consistent with our other analyses, the results for these two studies are given in Table 2 of Appendix II. The studies differ with respect to estimated costs and how benefits are calculated. In Lee et al. (2012), the benefits are mediated through reductions in crime. In Miller and Hendrie (2008), the benefits are mediated primarily through changes in ‘quality of life’. However, both analyses estimate that the costs of Life Skills Training are very low (\$40 and \$290 respectively) and that the benefit-cost ratios are extremely large although significantly different (at 46:1 and 21:1 respectively).

Our analysis follows these studies. We describe costs in detail, adjusting for displaced instructional time as appropriate, and itemize the array of possible benefits from LST. We also update the results into 2013 dollars.

Costs

Based on descriptive reports of LST, we calculate the costs by adapting the ingredients identified in the estimates from Miller and Hendrie (2008).³³ Personnel ingredients are based on time spent teaching LST, as well as time on training. Average national teacher salaries are applied, including fringe benefits.³⁴ Other ingredients include materials and subsistence for teachers. These are priced from several sources.³⁵ We include costs for personnel time for program delivery.

These costs are given in Table 5. We estimate the cost of three years of LST at \$130 per student. These costs are very low because LST is a very light-touch program. However, LST has changed. Earlier evaluations of LST were based on implementation where instruction was within regular class time. In current versions of LST the students are pulled out of class to participate in the program. Thus, we note that these costs may not necessarily represent the same implementation in terms of intensity, training, oversight and support as was used to obtain the published effects used to estimate the benefits.

³² There has also been a cost-effectiveness analysis of LST compared with other programs that may reduce prescription drug abuse (Crowley et al., 2014).

³³ Ideally, the full ingredients approach should be applied to a version of LST that had been evaluated. However, the identities of recently-evaluated sites were unavailable, and after contacting one of the earlier evaluation sites, we discovered that current program delivery in the school district differs substantially from descriptions of the program as evaluated. Therefore, our cost estimates are based on published descriptions of the program in evaluations. In fact, these cost estimates are roughly in line with those estimated by Miller and Hendrie (2008); they are higher than those of Lee et al. and Aos et al. (2004, 2012) as their estimates of the latter omit personnel costs for program delivery.

³⁴ http://www.bls.gov/news.release/archives/ecec_12082010.pdf

³⁵ These include Western CAPT, Maryland Blueprints, and Aos et al. (2004), as well as the LST website.

Table 5
Costs for Life Skills Training (3-Year Program)

Ingredient	Share of Costs
Participants	25
Teacher time	54%
Training	9%
Implementation fidelity	11%
Facilities:	
Classroom space	6%
Materials:	
Manual and Student Guides	21%
Total Cost	100%

Benefits

Our estimate of benefits is derived from impacts reported in Botvin, Griffin, and Nichols (2006). Although LST is primarily a substance abuse prevention program, Botvin, Griffin, and Nichols (2006) estimated the effects of the program on other risky behaviors with the hypothesis that the program could reduce behaviors besides substance abuse through increasing general social and emotional competencies. This study identified a statistically significant reduction in “Delinquency in past year” (odds ratio of 0.684), “Frequent fighting in past year” (odds ratio of 0.742), and “Frequent delinquency in past year” (odds ratio of 0.643) after one year of LST for sixth grade students. Thus, assuming a given population of 100 at-risk students where 50 are delinquent, if those students had received one year of LST, conservatively, only 37 would be delinquent.

Our estimates of benefits follow a similar approach to those for Positive Action. We shadow price the immediate monetary consequences (as the program is only one year, there is no ratchet effect). We then estimate lifetime impacts assuming that these impacts persist. This is likely a lower-bound estimate of the benefits of LST, as delinquency is an ancillary program outcome and because we may not be able to fully capture the economic burden of delinquency.³⁶

At baseline, 53.2% of the combined intervention and control groups displayed any of the above delinquent behaviors, with no statistically significant differences between the groups. Therefore, we can estimate that 1,263 of the 2,374 students in the intervention group had previously exhibited delinquent behaviors, whereas only 937 students in the intervention group reported delinquent behaviors in the follow-up survey three months after the intervention, for a reduction of 326 delinquent students.

As with Positive Action, the immediate economic burden of acts of delinquency can include the value of lost instruction due to absenteeism and truancy, lost instructional time and costs of school staff time devoted to disciplinary actions such as suspensions and expulsions, and the burden experienced

³⁶ As described by Botvin, Griffin, and Nichols (2006), this burden includes “destroying others property, throwing objects at people or cars, shoplifting, stealing from others, taking something from someone by force, or intentionally vandalizing a school or other building.”

by crime victims due to loss or destruction of property. Conservatively, we estimate the value of the reduction in delinquency as a reduction in a single act of the least burdensome delinquent behavior per year for the 326 students whose behavior was positively impacted by the program. This approach is used because the data cannot be disaggregated to show exactly which delinquent acts were avoided and to what extent.

If a large portion of the reduction in delinquent acts is in the most severe acts and for the most serious offenders, the lifetime benefits of delinquency reduction could be significantly larger, ranging up to Cohen and Piquero's (2009) estimate of \$877,030 per career criminal. It is highly unlikely, however, that all of the 53.2% of students identified as exhibiting any delinquent behaviors at baseline could be characterized as "moderate juvenile offenders" or "career criminals," so we proceed with a more cautious approach of estimating the economic burden of an individual delinquent act. The National Association of Secondary School Principals estimates the loss due to vandalism at \$400 per incident and the direct costs of school suspensions at \$170 per incident, which translate to \$430 and \$180 in 2013 dollars, respectively.³⁷ If 26.8% (1-0.742) of the cases of vandalism, all resulting in suspensions, were averted, LST could save \$80 per participant per case per year; if we assume those effects persist without fadeout from the intervention in grade 6 through the end of grade 12, the present value of the benefits are \$450 per participant.

Benefit-Cost Results for LST

Using our estimates of costs and benefits we can calculate the net benefits for LST, that is the benefits minus costs. This calculation is made within our framework (see above). As noted, the costs of the program are \$13,000 for 100 students. With a conservative estimate, the net benefits are \$32,000 per 100 participants. Thus, consistent with other studies, we find a strongly positive return to Life Skills Training.

We apply several sensitivity tests to the benefits of Life Skills Training. First, we assume that the only benefit derives from the case of vandalism that is averted per offender: this would reduce the benefits to \$80 and yield a negative net present value. For other sensitivity tests, we apply alternative estimates of lifetime costs per at-risk youth: one test applies the benefits per career criminal averted from Cohen and Piquero (2009); another test relies on the association between LST and substance abuse and the benefit of averting such abuse; and a third test applies shadow price estimates from a recent health intervention delivered to 8th grade students to reduce delinquency.³⁸ Each of these is based upon riskier assumptions for which the evidence on effectiveness of LST is less direct. These sensitivity tests are reported in Table 6.

Overall, Life Skills Training yields a very large present value. Under a range of sensitivity tests, that value may be considerably larger, although we note that these tests are not very precise. Of course, given the very low cost of LST and its targeting of at-risk students, the program does not have to be especially effective in order to generate economic value.

³⁷ www.principals.org/Content.aspx?topic=The_Financial_Costs_of_Bullying_Violence_and_Vandalism

³⁸ For the first two tests, we adapt the estimates for career criminals and substance abusers reported in Table 1 of Appendix II.

We adjust these amounts for delivery to 10th grade students and for the impacts of LST on being in this status (accounting for fade-out). Conservatively, we report this shadow price assuming the program averts one delinquent per 100 students. Finally, we adapt the shadow prices that Kuklinski et al. (2012) apply in their evaluation of a health intervention to reduce youth deviant behaviors. Adapting their benefits and adjusting them to 2013 prices, the lifetime benefits of \$3,100.

Table 6
Benefit-Cost Results for Life Skills Training Per 100 Participants

	Costs	Benefits	Net Present Value
Baseline	\$13,000	\$45,000	\$32,000
Sensitivity tests:			
S1. 1 case vandalism averted	\$13,000	\$8,000	(\$5,000)
S2. Career criminal probability	\$13,000	\$201,000	\$188,000
S3. Substance abuse reduction	\$13,000	\$650,000	\$637,000
S4. Delinquency reduction	\$13,000	\$310,000	\$297,000
Average across S1-S4			\$279,000

Sources: Table 1 above. *Notes:* Present values at third grade ($d=3.5\%$). Baseline model assumes baseline costs and baseline benefits. Sensitivity tests assume costs or benefits from baseline model unless other specified.

4.4 Second Step

Description

Second Step is a classroom-based social skills curriculum for pre-school through the junior year of high school, with a distinct curriculum for each grade. The program builds on cognitive behavioral intervention models and consists of interactive lessons that relate to problem-solving and emotional management. The *Second Step* program is designed for school-wide implementation and is implemented by classroom teachers. The curriculum is intended to help students develop empathic behaviors and improve their skills in communication, social problem-solving, and critical thinking. The overall goal is for children to identify and understand their emotional state and to manage and communicate these emotions appropriately and so increase social competence and reduce aggressive and delinquent behaviors.

Second Step has been extensively studied. A series of impact evaluations have been conducted in the United States and other countries, and many report positive impacts with students from a variety of age groups, socioeconomic and racial backgrounds, and geographic settings. Between 1989 and 2012 there were 35 studies of Second Step that focused on children with or at-risk of emotional disturbance. However, none of these met What Works Clearinghouse evaluative standards (NCES, 2013).³⁹

To calculate the costs and benefits of Second Step, we use the impacts from a recent study by Espelage et al. (2013). This study presents first-year results from a 3-year school-randomized controlled trial in 36 Midwestern schools (Chicago/Illinois and Wichita/Kansas). This study utilizes a sample of 6th-grade students who received the 15-lesson sixth grade curriculum. A large proportion of these students were eligible for free or reduced-price lunch (treatment 72.7%, control 75.6%). Thus, the sample is more disadvantaged relative to the national population. Espelage et al. (2013) evaluated the impact of Second Step on reducing youth physical and sexual violence: after one year, the researchers found a substantial reduction in self-reported physical aggression among students.

³⁹ Studies have examined a range of effects, including: social competence, school performance, and satisfaction with life (Holsen et al., 2008); positive approach, caring, suppression of aggression, and consideration of others (Cooke et al., 2007); knowledge about empathy, anger management, impulse control, and bully-proofing (Edwards et al., 2005); decline in anxious and depressed behavior (Schick et al., 2005); and aggression and cooperation (Frey et al. 2005).

Costs

We estimate the costs of replicating this implementation of the Second Step program based primarily on descriptions of the program.⁴⁰ We consider only the costs of the program above and beyond the resources students already receive as part of their regular instruction in school, i.e., we identify the incremental costs of introducing the programs into existing school activities. All cost estimates exclude any costs associated with the conduct of research activities and reflect only program implementation costs throughout the course of the first year of implementation.

Without access to our usual sources for compiling and clarifying data on ingredients, we had to derive the costs of Second Step using a top-down approach. See Table 7. As described in Espelage et al. (2013), Second Step requires four hours of training, and teachers also completed implementation logs to see what parts of the curriculum had been implemented. Given hourly rates for teacher salaries as well as trainer costs, we estimate the cost of Second Step implementation at \$50 per year per student when instructional time is not accounted for.⁴¹

Table 7
Costs for Second Step (1-Year Program)

Ingredient	Share of Costs
Participants	1,940
Teacher resource for training/logs (including facilities, materials)	10%
Trainer resource (including facilities, materials)	1%
Instructional time (incl. classroom space)	89%
Total Cost (excl. instructional time)	\$92,700
Total Cost (incl. instructional time)	\$849,300
Average Cost per student (TC1/n)	\$50
Average Cost per student (TC2/n)	\$440

Notes: Present value ($d=3.5\%$) in 2013 dollars.

In addition, Second Step requires instructional time. Again as described in Espelage et al. (2013), Second Step involves up to 25 instructional hours over the course of an academic year (6th grade). A lower-bound estimate of total instructional hours available per school year is 800, so Second Step absorbs about 3% of total instructional time (or 2% of the entire time in school). Given school expenditures of \$12,500 per student, this amounts to \$390 for delivery of Second Step on the assumption that it is an addition to the regular school instruction. Overall, therefore, the total resource requirement for Second Step, including instructional costs, is \$440. Thus, the critical issue for resource use for Second

⁴⁰ Normally we use informed observers to assist in identifying the required ingredients and their purpose and implementation.

Despite repeated attempts within the Chicago Public School system, we were unable to find personnel who had implemented Second Step and had direct information on ingredients usage. A representative of the Office of Social and Emotional Learning at CPS was helpful in confirming some details on the general implementation of the program and how it has evolved over time.

⁴¹ With hourly annual teacher pay at \$55,190 (+29.5% benefits and multiplied by 70% for overheads, facilities, and management).

Contact hours are 1,200 per year. Class size is assumed to be 20-24 students. Training is needed annually. Completion of implementation logs requires 2.5 hours annually. Trainer costs are based on salaries of \$90,000 (with the same benefits, overheads rates, and class sizes; but contact hours of 600 per year). Materials costs are estimated at \$20 per student.

Step is the extent to which it displaces or substitutes for the business-as-usual curriculum. If Second Step displaces current practice it will have a much lower cost than if it is a supplement to the regular curriculum.

Benefits

The array of outcomes and benefits of Second Step are shown in the benefits map (Appendix I). These outcomes encompass substance abuse, delinquency, and changes in sexual health status.

Potentially, where these outcomes translate into behaviors, they can also be assessed in monetary values. However, the extent to which these outcomes overlap or confound each other is unknown. As well, it is not possible to tell whether these outcomes are at the expense of achievement gains. Therefore, we apply two approaches to estimating benefits. One is to focus on a single, specific behavior for which plausible shadow prices exist. (This excludes drug knowledge and attitudes but includes sexual risk behaviors which may either induce sexually-transmitted diseases or teenage pregnancy). The other is to use an overall ‘delinquent youth’ shadow price that is intended to capture all the outcomes in aggregate.

The first approach is to calculate a shadow price for aggression. The outcomes of Second Step are from Espelage et al. (2013) who identified a 42% reduction in self-reported physical aggression. Using estimates from Foster et al. (2005) for the medical resources required to address cases of aggression, this outcome yields benefits of \$4,320.⁴²

As an alternative, we apply the shadow price of an at-risk youth calculated by Cohen and Piquero (2009). As reported in Appendix II, this shadow price is (conservatively) \$877,030. From a baseline rate of 5% at-risk youth, Second Step would yield 2.1 percentage points fewer substance abusers to a new rate of 2.9% (corresponding to a 42% reduction in the number of at-risk youth). If the program does not exhibit fade-out, Second Step would yield benefits of \$18,420 per participant. This is a very large benefit compared to the costs. More plausibly, we assume fade-out of 10% per annum until adulthood. Nevertheless, this still yields present value benefits of \$7,550 per Second Step participant.

Benefit-Cost Results for Second Step

The costs and minimum net benefits for Second Step are reported in Table 8. Assuming that the costs of instruction are counted, the program costs for one year are \$440. The benefits in terms of reduced aggression are \$4,320. The baseline estimate therefore yields a net benefit of \$388,000 per 100 participants.

The sensitivity tests show that Second Step is likely to yield positive net benefits under a range of scenarios. For example, if we apply the benefits from reducing the number of at-risk youth, then the net present value per 100 students increases from the baseline to \$711,000. If we assume fade-out is not immediate (within one year) but is only complete after three years, then the net present value increases even further to \$796,000. Finally, if we assume that achievement and other school outcomes are unchanged – even as the level of aggression is much lower – then the appropriate cost measure should exclude instructional costs. To the degree that a calmer environment reduces the need for discipline and disruption and makes the school safer, it is even conceivable that academic

⁴² Calculations assume costs per aggressor of \$1,490 in 2000 dollars with 5% of youth population in this category. Fade-out is immediate after the program is completed.

Table 8
Benefit-Cost for Second Step Per 100 Participants

	Costs	Benefits	Net Present Value
Baseline	\$44,000	\$432,000	\$388,000
Sensitivity tests:			
S1. At-risk youth	\$44,000	\$755,000	\$711,000
S2. Slower fade-out	\$44,000	\$840,000	\$796,000
S3. Unchanged achievement	\$5,000	\$432,000	\$427,000
Average across S1-S3			\$581,000

Sources: Table 7 above. *Notes:* Present values at third grade ($d=3.5\%$). Sensitivity tests assume costs or benefits from baseline model unless other specified. For delinquent youth benefits, see Appendix Table 1.

achievement could increase. In this case, the net resource requirement for Second Step is very small. Yet, it seems unlikely either that it is costless to displace instructional time or that instructional efforts in one direction do not jeopardize efforts in another direction. The overall result suggests a good return on an SEL investment under a variety of assumptions.

4.5 Responsive Classroom

Description

Responsive Classroom is a pedagogic approach that focuses on how teachers both teach and interact with elementary school students. The approach is designed to provide teachers with strategies, structures, practices, and techniques to improve their self-efficacy, to impact student social and emotional, academic, and other non-academic outcomes, and to build a strong school community.⁴³ Through two one week sessions, coaching, and published materials, teachers are trained how to incorporate ten key practices into their teaching philosophy and pedagogy. Teachers use the Responsive Classroom approach to provide emotional support and to proactively manage the class. These practices lead to increased student motivation and engagement, which in turn increases academic skill acquisition.

Responsive Classroom has been identified as an effective program based on CASEL criteria.⁴⁴ It is integrated with classroom instruction and provides opportunities for students to practice SEL skills. Also, the program provides tools to assess implementation and evaluate student behavior (CASEL, 2013, Table 3). Early research found that the program improved social skills and reduced problem

⁴³ Responsive Classroom was developed and is provided by the North East Foundation for Children. The program is composed of ten key practices: morning meeting; rule creation; interactive modeling; positive teacher language; logical consequences; guided discovery; academic choice; classroom organization; working with families; and collaborative problem-solving (see <https://www.responsiveclassroom.org/>).

⁴⁴ CASEL (Collaborative for Academic, Social, and Emotional Learning) reviews SEL programs annually to identify effective SEL programs that promote student self-awareness, self-control, social awareness, relationship building, and problem solving. The criteria for the review are that the programs: are well-designed and classroom based; must provide repeated opportunities for students to practice new skills and behaviors; must offer training and implementation support; must be evidence-based (CASEL, 2013).

behaviors (Elliot, 1999; 1995; 1993). More recently, a quasi-experimental evaluation of Responsive Classroom found that the program positively impacted academic performance, teacher self-efficacy, children's social skills, and children's perception of school (Rimm-Kaufman et al., 2007; Rimm-Kaufman and Chiu, 2007).

For our benefit-cost evaluation we use evidence from a recent randomized control trial to evaluate the impact of Responsive Classroom on academic achievement in reading and math (Rimm-Kaufman et al., 2014). The sample included 24 schools in a large, diverse mid-Atlantic school district. The treatment group consisted of 13 schools and 1,467 students. Students entering third grade in 2008-2009, fourth grade in 2009-2010, and fifth grade in 2010-2011 were included as participants. Overall, the evaluation was not able to detect a statistically significant impact of the program directly on math or reading achievement at the end of fifth grade (Rimm-Kaufman et al., 2014: Table 4). However, there were statistically significant achievement gains when the program was implemented with fidelity. Structural equation modeling analyses were utilized to estimate the mediated effect of the program through fidelity of implementation (and mediated effect by student's initial ability). Fidelity was related to effect size gains of 0.26 SD in math and 0.30 SD in reading (Rimm-Kaufman et al., 2014: Table 5). For students with low initial math achievement, implementation of Responsive Classroom in treatment schools was related to an increase of 0.89 SD ($p < .01$) in math and 0.52 SD ($p < .05$) in reading (Rimm-Kaufman et al., 2014: Table 6). For initially high achieving math students, implementing Responsive Classroom with high fidelity in treatment schools was related to an increase of 0.49 SD ($p < .01$) in reading (Rimm-Kaufman et al., 2014: Table 6). Therefore, we perform benefit-cost analysis only for the schools in which the program was faithfully implemented, *with the express caution that our findings should not be viewed as representative of typical or average schools.*

Costs

No prior information on the costs of Responsive Classroom was available. Our approach was to estimate the ingredients needed to replicate the implementation from the evaluation by Rimm-Kaufman et al. (2014). We were able to obtain ingredients data from the evaluation team based on implementation observation data and other records related to the experiment.⁴⁵ In addition, supplementary information was collected from the developers regarding the training provided and how the program has evolved over time.

As per our framework, all cost estimates in our main analyses are incremental and exclude any costs associated with the conduct of research activities and reflect only program implementation costs corresponding to the years of the evaluation study. All costs are estimated in 2013 dollars and expressed in present values using a discount rate of 3.5%. Our data are representative of the whole sample of 13 treatment schools. However, we were unable to interview school-level staff. Because this information was not collected in full accordance with the ingredients method, we perform a series of sensitivity tests on costs.⁴⁶

In Rimm-Kaufman et al. (2014), randomization occurred at the school level because the program targets the entire school including principals and teachers. The intent is to create an environment

⁴⁵ We are grateful to Sara Rimm-Kaufman and Julia Thomas at the University of Virginia, and Philip Pohlmeyer and the staff at Responsive Classroom for their assistance.

⁴⁶ In the ideal case, ingredients information should be collected directly from those personnel who are directly delivering the program or from skilled observers.

where teachers can grow together and to provide the support needed to take risks to advance their skills. The program was rolled-out over three years to longitudinally follow one cohort of students from 3rd through 5th grades.

Personnel ingredients represent the largest input category. Over the course of the three years, two one-week summer training sessions were provided to 3rd-5th grade teachers. These training sessions were supplemented with coaching, online support, and workshops provided by the developer. Principals also participated in the summer training sessions and also received ongoing support and coaching from the program developer. The schools that adopted Responsive Classroom also participated in the annual developer's conference, which provided additional professional development and networking opportunities.

Personnel costs were estimated using national prices available from the U.S. Department of Labor. To estimate a daily rate, the annual median salary of a principal or elementary teacher was divided by 180 days. The hourly rate assumes a seven hour day for teachers and an eight hour day for principals. If teachers on average spend five years teaching, we assume that the training will last for five years and amortize the cost of the time accordingly using a 3.5% rate. NEFC reported that teachers may remain in the profession longer as a result of participating in the program and working in a school that implements the program well. Thus, we include a sensitivity test that assumes teachers spend 10 years teaching.

Facilities ingredients include the space used for training sessions. All of the training sessions were held during the summer in district space, such as classrooms. We utilize the hourly rate for classroom space for all trainings.⁴⁷ We also include 9.19% of the average student expenditure in 2013, divided by 180 days, as overhead for the use of facilities to cover additional expenses that would not have otherwise occurred.⁴⁸ The daily overhead rate was amortized for five years using a rate of 3.5%.

Materials included books published by the developer that complement the training provided. Teachers and principals received books and a manual during training. Each school received a set of Responsive Classroom books for their library. The costs of these materials were based on their 2013 sticker prices, with a 20% discount for bulk purchase and amortized with a 3.5% rate assuming the life of each book would be five years.⁴⁹

We were unable to ascertain the degree of displacement of other activities during the school day due to implementing Responsive Classroom. The program is implemented during the regular school day as a set of embedded practices. The evaluators and NEFC reported that the program provides guidance to teachers to improve classroom organization and schedule management. Through improved transitions and time management, the program does not displace any other class time. Because we were not able to obtain access to interview school-level staff to confirm this, we include a sensitivity analysis that incorporates additional costs for implementation time.

Cost information on Responsive Classroom is given in Table 9. The total cost of the program relative to business-as-usual is \$1.32 million over three years. Across the 1,467 participants, this yields an average program cost of \$900.

⁴⁷ Please refer to the Positive Action section above for details.

⁴⁸ Source: <http://asumag.com/maintenance/36th-annual-maintenance-operations-cost-study-schools?page=2>

⁴⁹ Information from individual communication with NEFC.

Table 9
Costs for Responsive Classroom (3-Year Program)

Ingredient	Share of Costs
<i>Participants (single cohort for 3 years)</i>	<i>1467</i>
Personnel:	
Principals	13%
Teachers	70%
NEFC Training	14%
Facilities:	
Training space	1%
Materials and equipment:	
Books/manuals	1%
Total Resource Cost	\$1,316,250
Average Cost per student (=TRC/n)	\$900

Notes: Present Values at third grade ($d=3.5\%$). National prices. 2013 dollars. Amounts rounded to \$10.

We conducted four tests of the sensitivity of the costs per student estimate. First, we included costs for the evaluation personnel who observed the program during the study.⁵⁰ Two researchers (either study coordinators or graduate students) observed each teacher five times in class for 60 minutes. Including the time for these personnel increases the cost for the program by \$30-\$50 per student. Second, we modified our assumptions about the duration of the effects of the training. In the baseline, we assumed that training would be needed every five years as teachers exit the program. If Responsive Classroom reduces teacher turnover because of positive effects on teacher satisfaction, training may be needed less frequently. If we assume that the average time a teacher remains in the classroom was increased to 10 years, the cost per student would drop by \$100. Third, we re-estimated the costs of the training using a market price for training instead of the prices paid to the developer. In fact, the costs of training by the developer at the time of the evaluation correspond closely to current market prices for general training. The cost estimate is therefore unchanged.

Finally, we included classroom space and the time that teachers spent providing a morning meeting for students during class time.⁵¹ Although these meetings are only one aspect of the program, their implementation may impact the school day in a costly way. The morning meeting is a 20 minute class meeting designed to build community, teach social skills, and reinforce academic skills and is intended to be held daily. If the cost of teacher time and classroom space are included on the basis of this daily meeting during the school year, the cost per student for Responsive Classroom increases by \$1,060 (to \$1,960).

⁵⁰ These costs were not included in our main analysis under the assumption that the observations did not result in any feedback for the teachers regarding their performance. The presence of the evaluators could have changed the instructional environment, perhaps through accountability pressures. However, the findings were not shared with the teachers or principals, so this sensitivity test is conservative.

⁵¹ These costs were not included in our main analyses because the teacher's time and the classroom space used during the class day are included in the base cost of schooling provided to students in both the treatment and control groups.

Benefits

For benefits, we estimate the economic value of achievement gains from Responsive Classroom. Although there was no overall program impact, when results are limited to strong implementation of Responsive Classroom, there was an effect size gain by 5th grade of 0.26 in math and 0.3 in reading (Rimm-Kaufman, 2014, Table 5). These fidelity-determined results are applied here under the justification that comparable effects and costs are being applied. That is, we have estimated costs for a faithfully implemented program that can be combined with the corresponding fidelity-adjusted outcomes. There are limitations with this approach. There could be many reasons why a school that implements Responsive Classroom with high fidelity would have greater gains in student achievement. Therefore, we are unable to know if the results are caused by the program or if they are due to some other difference between the schools. We recommend that these results be interpreted with caution, and they may not be generalizable.

The benefits map (Appendix I) shows that, based on evidence from other studies, there are other important outcomes besides achievement. These include understanding and handling of feelings (measured as social skills, social competence, and school perception) and delinquency, as well as corollary outcomes for teachers (self-efficacy and relationship with the child). However, it is not possible to monetize these impacts either because they are either outside the evaluation by Rimm-Kaufman (2014) or because no shadow prices are currently available.

Based on analysis of the association between achievement and earnings, we calculate the present value of earnings gains from a one standard deviation achievement gain of \$34,300 in third grade (see Section 2). Therefore, with an effect size change in overall achievement of 0.26 (the lower bound of gains in math and reading), the value of the change in labor market attachment is \$8,920. We note that this value assumes that the gains from Responsive Classroom are permanent (until age 18), even though many interventions experience test score fade-out (e.g. Heckman and Kautz, 2012).

Benefit-Cost Results for Responsive Classroom

Table 10 shows the benefit-cost results for Responsive Classroom on a per participant basis. With costs of \$900 and benefits of \$8,920, the net present value per 100 students is \$802,000.

Table 10
Benefit-Cost Results for Responsive Classroom Per 100 Participants
(high fidelity implementation only)

	Costs	Benefits	Net Present Value
Baseline	\$90,000	\$892,000	\$802,000
Sensitivity tests:			
S1. Costs include evaluator observations	\$95,000	\$892,000	\$797,000
S2. Costs with implementation	\$196,000	\$892,000	\$696,000
S3. Fade-out of 10% pa	\$90,000	\$384,000	\$294,000
S4. Fade-out of 25% pa	\$90,000	\$89,000	(\$1,000)
Average across S1-S5			\$446,500

Sources: Table 9 above. *Notes:* Present values at third grade ($d=3.5\%$). Baseline model assumes baseline costs and baseline benefits. Sensitivity tests assume costs or benefits from baseline model unless other specified.

Given the very large baseline benefits, we perform sensitivity tests that show lower bounds to Responsive Classroom. Applying the higher cost estimates described above, the net benefits are reduced. Nevertheless, even including the costs of morning meetings, the benefits exceed the costs by \$696,000 per 100 participants. The key sensitivity parameter is the fade-out of benefits from achievement gains. If the achievement gains fade-out by 10% per year until age 18, the benefits are reduced to \$3,840. When the fade-out function reaches 25% per year, then the benefits are equal to the costs. Thus, for programs of this scale, the break-even fade-out rate is approximately one-quarter. Looking across the four (conservative) sensitivity tests, the net present value per 100 students is \$446,500. However, if we evaluate the program based only on the overall average effects on achievement, the costs would outweigh the benefits. Future studies of the effect of SEL programs on achievement outcomes would benefit from measuring SEL outcomes, such as those in Appendix I, rather than limiting them to standardized test performance.

4.6 Social and Emotional Training

Program

For contrast with the previous programs from the U.S., we decided to apply our methods to an extensive program that was highly documented and evaluated in Sweden. Our final benefit-cost analysis is of Social and Emotional Training (SET) for a program implemented and evaluated for Swedish school children. The SET program is a classroom-based intervention for grades 1-9 designed to support students' cognitive and social and emotional competencies, learning and development. The program has a similar curriculum to the U.S. Providing Alternative Thinking Strategies (PATHS) program (cite).

The SET program has been evaluated using a longitudinal quasi-experimental design at several different time-points, and the findings show positive effects for the program on a number of social and emotional outcomes. The evaluation addressed 41 classes and 52 teachers at two schools implementing SET and 14 classes at one control school located in the same neighborhood. The impacts of the program are primarily focused on social and emotional competencies linked to mental health issues, although reduced drug use was also considered for students in the older grades. Positive impacts from SET were identified both after two and five years of the program (Kimber, Sandell and Bremberg, 2008; Kimber and Sandell, 2009).

To calculate the costs and benefits of the SET program, the impacts from a five-year follow up (Kimber and Sandell, 2009) are used. In a five-year follow up (Kimber, Sandell and Bremberg, 2008) the results showed positive and significant effects on five of seven variables for the SET-students: internalizing problems ($d = .56$), externalizing problems ($d = .42$), mastery as reflecting self-efficacy or hopelessness ($d = .36$), self-image and self-esteem ($d = .54$), contentment in school ($d = .60$) and bullying ($d = .35$). Effect sizes were medium and no relationship was found between the treatment group and the promotion of social skills ($d = .07$).⁵² The cohort size for the intervention was 1,028 youth, although 837 students participated in the evaluation (663 treatment, 174 control).

⁵² In the two-year follow-up, there were impacts in terms of: in grade 3, psychological well-being ($d = .95$) and ability ($d = .56$); and in grades 4-9, body image ($d = .48$), psychological well-being ($d = .33$), aggressiveness ($d = .32$), relation with others ($d = .33$), attention seeking ($d = .32$) and bullying ($d = .39$). In addition, there were significant positive effects for the program on alcohol abuse ($d = 0.26$) and drug use ($d = 0.23$).

Costs

No prior information on the costs of the SET program is available. The costs were estimated by using the ingredients method, and information about the ingredients was collected by interviewing the personnel who implemented the program and from information materials on the program (Kimber, 2001). U.S. prices were used.

This evaluation has estimated the total costs for the entire program over the five years, reported in Table 3 of Appendix II. The cost of the program is calculated for the 1,028 students who participated at the outset of the program.⁵³ The costs are in 2013 prices and a discount rate of 3.5% is used. Both the operating costs such as teacher salaries and administrative costs and capital costs such as rent costs for classrooms, facilities and materials have been estimated.

Personnel categories include teachers, principals, assistant principals, counselors and program developers. Teacher input was counted for curriculum delivery, initial (two full days) training and ongoing training. Hours of teacher training were collected from the program developer who implemented the program. Teachers in grades 1-5 delivered two 45 minute sessions of SET instruction (the program) every week, each year of the program, a total of 40 sessions per year. In grades 6-9, teachers delivered 45 minutes sessions of SET instruction every week, each year of the program, a total of 40 sessions per year. Teachers received initial and ongoing training for 33.5 hours the first year. In the second year some teachers received additional training and, due to teacher turnover, new teachers received training separately. Training was provided by the program counselor. Data on the national average salaries for teachers in compulsory school, special education teachers, counselors, assistant principals and principals has been taken from Statistics Sweden (Statistics Sweden, 2013).

Facilities for the SET program included school space and training space. The two-day initial training was held in an auditorium at one of the schools. The ongoing training was also held in the facilities at the schools by using classrooms or other smaller meeting-rooms.⁵⁴ The costs for facilities are based on the yearly rent in 2013 prices that the two schools pay to the municipality.

The material used in the SET program was a manual used by the teachers which was copied at the schools. Students created their own work-books using paper and other materials provided. The price for the paper was collected from several companies selling paper, and an average was calculated. No travel costs were incurred for training.

In Table 11 the costs are presented. For the five-year program, the present value of total cost is \$555,260 and the average cost per student is \$540. However, if we exclude the cost for teacher instruction time, the total cost is \$143,000 and the average cost falls to \$140.

We test this cost estimate for sensitivity to the cohort size. Specifically, as the intervention was delivered to a cohort of only 837 (out of the 1,028 intended participants), then the costs may be apportioned across this number of youth. If the cohort size falls to 837, the average cost rises to either \$660 or \$170.

Benefits

To calculate the benefits we use the impacts on drug use reported for students in grades 7-9 in Kimber et al. (2009). For drug use, students were assessed at three time points and divided into zero/light

⁵³ Turnover affected the number of students who participated in the program for the full the five years, although the sample of students in the classes remained stable.

⁵⁴ The costs for classroom were calculated from the 2013 rent costs to a square meter cost per hour. On average, a classroom is 56 square meters and a class size of 25 students.

Table 11
Costs for SET (5-Year Program)

Ingredient	Share of Costs
Participants	1,028
Personnel	
Teachers (Training/ongoing coaching)	16%
Teachers (SET instruction)	74%
Administration (Training/support/meetings)	3%
Facilities	
Auditorium	<1%
Workshop space	<1%
Classrooms	5%
Materials/equipment	
SET Manual	<1%
Supplemental materials	1%
Total Resource Cost 1	
(with teacher SET instruction)	\$555,260
Total Resource Cost 2	
(without teacher SET instruction)	\$143,000
Average Cost 1 per student (=TRC₁/1,028)	\$540
Average Cost 2 per student (=TRC₂/1,028)	\$140

Notes: Discounted by 3.5% to year 1. Prices in U.S. dollars (2013) \$1=6SEK.
Amounts rounded to \$10.

users and heavier users. For the zero/light group, students receiving the SET treatment reported a decrease in drug use of 5 percentage points (6% to 1%) from year 1 to 5; zero/light students in the control school reported an increase of 6 percentage points (2% to 8%) from year 1 to 5. This difference equates to an effect size gain of $d=0.64$. For the heavier users, there was an increase for SET treatment group from 1% to 5% and for the control group from 1% to 15% (an effect size, $d=0.32$).⁵⁵

Our benefits map for SET shows many other possible benefits from the program (Appendix I). However, these benefits could not be included in this analysis. Some benefits, such as alcohol, smoking and volatile substances abuse, are likely to be directly confounded with our selected measure of substance abuse. Inclusion of these other benefits would therefore lead to double-counting. Other impacts, such as delinquency and behavior measures of mental health, might also be indirectly confounded with drug use even if these impacts could be accurately shadow priced. Finally, none of the array of social competencies that SET promotes (relations with others, etc.) have shadow prices available and therefore cannot be monetized.

For drug use, we base our shadow prices on what society currently spends on these behaviors through the health care, criminal and judicial systems. For this analysis we use the calculations made

⁵⁵ Nationally, among males [females] age 15-16, 2% [1%] are drug abusers (illicit drug use during the past 30 days). The proportion raises with age, for 17-18 year-olds the rates are 6% and 2% respectively (The National Board of Health and Welfare, 2013).

by Nilsson and Wadeskog (2013); other spending estimates are given by Nilsson and Wadeskog (2008) and The National Board of Health and Welfare (2013). These estimates are conservative in that they do not include certain costs such as individual losses of income.

Across Sweden, the estimated annual burden of drug use was \$3.9 billion (\$26 billion kronor) in 2011; this amounts to \$450 per capita nationally (SOU, 2011). Of this aggregate amount, 42% was indirect losses of production due to sick leave and premature death, 27% was for spending on the criminal justice system, 26% was for health and social care treatments, and the remaining 5% was for insurance and private health care. Per drug user, the present value of the social burden is estimated at \$102,920 in 2013 dollars. Given the respective proportions of youth who are drug users in the intervention versus comparison group, there is a net reduction of 0.0982 drug users.⁵⁶ This translates into a benefit of \$7,510.

Benefit-Cost Results for SET

The net benefits for the SET program are presented in Table 12. The baseline estimates per participant are of costs at \$540 and benefits at \$7,510, yielding a net present value per 100 participants of \$697,000. The SET program easily passes a benefit-cost test: the program is relatively inexpensive per participant; it is highly effective for the population of substance abusers; and the economic burden per substance abuser is very large.

As shown in the bottom panel of Table 12, the SET program is unlikely to have a benefit-cost ratio that is less than one. Under the assumption that the cohort is smaller than expected (837 participants instead of 1,028), and therefore program costs are higher, the net present value per 100 participants is \$685,000. Counting only the benefits from heavy users, the benefits are only reduced slightly and the net present value per 100 participants is \$322,000. Finally, even if the fade-out rate is 60% within the first year, the net present value per 100 participants is still over \$200,000. Moreover, the net present value is likely to be even greater than reported here, given that only the public burden of substance abuse is included (and not the private burden).

Table 12
Benefit-Cost Results for SET Per 100 Participants

	Costs	Benefits	Net Present Value
Baseline	\$54,000	\$751,000	\$697,000
Sensitivity tests:			
S1. Smaller cohort of students	\$66,000	\$751,000	\$685,000
S2. Heavy users only	\$54,000	\$376,000	\$322,000
S3. 60% fade-out in year 1	\$54,000	\$300,000	\$246,000

Sources: Table 11 above. Notes: Present values ($d=3.5\%$) in 2013 dollars.

⁵⁶ Calculation based on 90% light drug usage (1% treatment, 8% control) and 10% heavy drug usage (5% treatment, 15% control). Of the population, 4% are assumed to be drug users at age 17-18 (The National Board of Health and Welfare, 2013)

5. DEVELOPING METHODS AND EVIDENCE FOR ECONOMIC EVALUATIONS OF SEL

The above analyses indicate that SEL interventions can easily pass a benefit-cost test. In fact, the weighted average benefit-cost ratio across all six interventions with prior evidence of effectiveness indicates that identified benefits outweigh the costs by a factor of 11:1, with an average net present value per 100 participants of \$618,380. This finding suggests that had we been able to obtain measures and monetary values of the full range of benefits identified in each of the benefit maps in Appendix I, the benefits would exceed costs by even larger magnitudes. However, a broader conclusion from these analyses is that – if economic evaluations are to have an important influence on the development of SE provision – then significant changes in current evaluation practice are needed (see also Belfield and Levin, 2014). These changes are summarized in Box 5.1.

Box 5.1 Recommendations for Evaluation Practice

Costs Analysis

1. Report all intervention inputs
2. Specify how intervention differs from 'business-as-usual'

Benefits Analysis

1. Draw benefit maps
2. Identify which impacts can and cannot be monetized
3. Identify how impacts overlap

Methodology

1. Calculate shadow prices for behaviors
2. Examine resource consequences for schools with students with low SE skills

A second concern is with the measurement of impacts and hence benefits. Across SE interventions, outcomes are rarely measured in a consistent way. As our case studies illustrate, evaluations vary in how many domains are measured and what scales are used for measurement. This can lead to benefit-cost analyses where simply the number of benefits varies (regardless of their value). It also means that, instead of determining the appropriate way to measure benefits and to apply shadow pricing techniques, the analyst must build each economic case in idiosyncratic fashion. With more classification and clarification of impacts, many more shadow prices could be estimated and more benefit-cost analysis performed. In addition, it is not clear how persistent the outcomes are. Some programs may affect outcomes in a very 'fast-acting' way. Some programs may have effects that endure over a long time period. Both types of programs will be much more beneficial than where effects are delayed or transitory. At present, these ratchet and fade-out attributes cannot be identified from the available evidence and it would therefore be preferable to have outcome data measured over a protracted period of time. All these attributes matter in economic evaluations, and without them it is very difficult to make comparisons across programs.

Applying a direct economic perspective, the main concern is that the methods by which impacts can translate into money benefits is underdeveloped. Even across the six broad categories of outcomes applied in reviews there is lack of clarity as to how outcomes overlap or confound. For example, high achievement may cause high social and emotional skills, e.g. by raising self-respect and a sense of control; the opposite association may hold (as argued by Heckman and Kautz, 2012); or they may be mutually determined. Evaluating an intervention in terms of both gains in achievement and social and emotional skills may therefore be double-counting. Also, it is not clear if SEL outcomes can be expressed monotonically as benefits. That is, when two interventions enhance SEL outcomes by 5% and 10% respectively, it cannot necessarily be assumed that the benefits from the latter are twice those of the former intervention. Similarly, the benefits of SEL may vary across the ability spectrum: improving SEL skills for at-risk students may have very different economic consequences from improving SEL skills across the general population.

There are two clear areas where more shadow pricing would help. First, at this time, there is no mechanism for converting the Teacher Rating Scale (TRS) of the BASC into economic metrics. The BASC-TRS is a widely-used, validated scale for child behavior, and yet its economic implications have not been investigated at all to our knowledge. Second, there is limited evidence on the resource implications within schools from low SE skills (especially negative social behavior or student conduct problems). If SE skills are low and create disruptions and learning problems, both schools and public welfare agencies will require more resources: to hire more counselors or social services personnel; to compensate current personnel who are working with more delinquent students; and to cover other related expenses such as injuries, sick pay, insurance payments, and recruitment costs due to increased quits (Pouliakis and Theodossiou, 2013).⁵⁷ Itemized thus, it seems likely that improving SE skills could yield sizeable cost savings. For example, serious behavior problems can result in expensive special education services and retention in grade or referral to other social agencies. But as yet the dollar amounts of these behaviors are unknown.

In addition, existing shadow prices need to be validated. Even in two areas where some progress has been made – on the association between SE skills and earnings or education – the need for substantial further investigation remains. Alternative scales need to be applied to identify the labor market gains from social and emotional skills more precisely and to model how these gains and skills are mutually determined (Heckman et al., 2006). Also, more emphasis should be put on the impact of SE skills on attainment (such as graduation from high school and college) rather than achievement; the economic value of attainment is much more robust than of achievement, not least because of ‘fade-out’ in cognitive gains.

To address these issues, a range of approaches need to be applied. On the costs side, the ingredients method of calculation is straightforward (although we have noted that it is rarely applied to SE interventions). Moreover, there are two important analytical issues. First, few evaluations give descriptions in comparative terms, i.e. how the intervention differs from business-as-usual. If treatment contrast is not well-documented, it is very difficult to calculate incremental costs. The primary example where this difficulty arises is with in-class treatments and the extent to which these are a substitute for, or addition to, regular classroom instruction. Second, retrospective calculation of cost data is very

⁵⁷ Evidence from Goldhaber et al. (2010) shows that these compensating wage differentials may be difficult to estimate in practice using wage equations. An alternative technique using contingent valuation methods has not yet been applied, nor has analysis of school spending patterns according to student behavior.

difficult. Persons with knowledge of how resources are allocated are often unavailable or are unable to describe program ingredients in detail. During our investigation we struggled to find subject interviewees who could describe the interventions which had been evaluated. This might not matter if SE programs were stable such that current versions of the program resemble past versions. Also, it might not matter if SE programs were always improved with fidelity to program design. Unfortunately, neither condition is likely to hold. This makes cost estimation less precise.

On the benefits side, we recommend the use of benefit maps for each evaluation. These maps show which impacts are measured; whether these impacts are measured consistently; and if there is overlap or confounding across impacts. In turn, we can identify which impacts can be assigned shadow prices, which might be assigned shadow prices, and which cannot. Indeed, the benefit maps we have produced thus far highlight differences across evaluations, and these differences are sufficiently large that we caution, strongly, against any comparison of benefit-cost ratios across the field of social and emotional learning when the ability to capture the benefits among interventions is so variable. Also, we recommend more attention to the wider benefits of SEL. Unavoidably given the current evidence, studies focus on the individual-level benefits of SEL. But there is a strong case that SEL benefits are dispersed through a school or community and so economic value should be measured at that level. A better understanding of the economic value of school climate or classroom behavior would help bring this idea to the forefront.⁵⁸

Overall, there are many caveats in comparing interventions: student groups differ; and a different set of outcomes are measured using different metrics over different time horizons. However, we emphasize that these caveats are not specific to benefit-cost analysis. They apply to all evaluation research that attempts to compare interventions. In fact, benefit-cost analysis serves to demonstrate the full heterogeneity of the research evidence on social and emotional learning, as well as highlight important gaps in the knowledge base. Equally importantly, this inquiry into the costs and benefits of specific SE interventions suggests that many such interventions might easily pass an economic test of a positive return to investment if sufficient and adequate data were available. Given constraints on education funding, passing this test is an important justification for making further commitments to enhance social and emotional learning.

⁵⁸ We appreciate this suggestion from Damon Jones.

REFERENCES

- Abramson, P. 2011. *16th Annual School Construction Report*. <http://webspm.com/research/2011/02/school-construction-report/asset.aspx>.
- Aos, S., Lieb, R., Mayfield, J., Miller, M., and Pennucci, A. 2004. Benefits and costs of prevention and early intervention programs for youth. Olympia: Washington State Institute for Public Policy.
- Bavarian, N., Lewis, K., DuBois, D., Acock, A., Vuchinich, S., Silverthorn, N., Snyder, F., Day, J., Ji, P., Flay, B.R. (2013) Using social-emotional and character development to improve academic outcomes: A matched-pair, cluster-randomized controlled trial in low-income, urban schools. *Journal of School Health*, 83(11), 771-779.
- Beets, M.W., Flay, B.R., Vuchinich, S., Snyder, F.J., Acock, A., Li K-K, Burns, K., Washburn, I.J., and J. Durlak. 2009. Use of a social and character development program to prevent substance use, violent behaviors, and sexual activity among elementary-school students in Hawai'i. *American Journal of Public Health*, 99, 1438-1445.
- Belfield, C.R. and H.M. Levin. 2009. Some economic consequences of improving mathematics reform. Monograph, Center for Benefit-Cost Studies in Education, www.cbcse.org.
- Belfield, C.R. and H.M. Levin. 2014. Methodological issues in cost-effectiveness analysis. *Journal of Research in Educational Effectiveness*, forthcoming. Boardman, A. E., Greenberg, D. H., Vining, A. R., and Weimer, D. L. 2011. *Cost-Benefit Analysis: Concepts And Practice* (4th ed). Upper Saddle River, N.J.: Prentice Hall.
- Boardman, A. E., Greenberg, D. H., Vining, A. R., & Weimer, D. L. 2011. *Cost-benefit analysis: Concepts and practice* (4th ed.). Upper Saddle River, New Jersey: Pearson Prentice Hall.
- Borghans, L., Duckworth, A.L., Heckman, J.J. and B. ter Weel. 2008. The economics and psychology of personality traits. *Journal of Human Resources*, 43, 972-1059.
- Botvin, G. J., Griffin, K. W., and Nichols, T. D. 2006. Preventing youth violence and delinquency through a universal school-based prevention approach. *Prevention Science*, 7(4), 403-408.
- Castex, G. and E. Dechter. 2013. The changing role of education and ability in wage determination. *Journal of Labor Economics*, forthcoming.
- Cohen, M.A. and A.R. Piquero. 2009. New evidence on the monetary value of saving a high risk youth. *Journal of Quantitative Criminology*, 25, 25-49.
- Cohen, M.A., Piquero, A.R., and W.G. Jennings. 2010. Estimating the costs of bad outcomes for at-risk youth and the benefits of early childhood interventions to reduce them. *Criminal Justice Policy Review*, 21, 391-434.
- Collaborative for Academic, Social, and Emotional Learning (CASEL). 2013. *CASEL Guide: Effective Social and Emotional Learning Programs*. <http://static.squarespace.com/static/513f79f9e4b05ce7b70e9673/t/526a22ode4b00a92c90436ba/1382687245993/2013-casel-guide.pdf>

- Cooke, M. B., Ford, J., Levine, J., Bourke, C., Newell, L., & Lapidus, G. 2007. The effects of city-wide implementation of Second Step on elementary school students' prosocial and aggressive behaviors. *The Journal of Primary Prevention*, 28(2), 93-115.
- Crowley, D. M., Jones, D.E., Coffman, D.L. and Greenberg, M.T. 2014. Can we build an efficient response to the prescription drug abuse epidemic? Assessing the cost effectiveness of universal prevention in the PROSPER trial. *Preventive Medicine*, 62: 71-77.
- de Araujo, P. & S. Lagos. 2013. Self-esteem, education, and wages revisited. *Journal of Economic Psychology*, 34, 120-132
- Drago, F. 2011. Self-esteem and earnings. *Journal of Economic Psychology*, 32(3), 480-488.
- Durlak, J.A., Weissberg, R.P., Dymnicki, A.B., Taylor, R.D., and K.B. Schellinger. 2011. The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82, 405-432.
- Durlak, J.A., Weissberg, R.P., and M. Pachan. 2010. A meta-analysis of after-school programs that seek to promote personal and social skills in children and adolescents. *American Journal of Community Psychology* 45:294-309.
- Edwards, D., Hunt, M. H., Meyers, J., Grogg, K. R., & Jarrett, O. 2005. Acceptability and student outcomes of a violence prevention curriculum. *Journal of Primary Prevention*, 26(5), 401-418.
- Elliot, S.N. 1993. *Caring to Learn: A Report on the Positive Impact of a Social Curriculum*. <http://www.responsiveclassroom.org/past-research>
- Elliot, S.N. 1995. *The Responsive Classroom Approach: Its Effectiveness and Acceptability*. <http://www.responsiveclassroom.org/past-research>
- Elliot, S.N. 1999. *A Multi-year Evaluation of the Responsive Classroom Approach: Its Effectiveness and Acceptability in Promoting Social and Academic Competence*. <http://www.responsiveclassroom.org/past-research>
- Eren, O. and S. Oxbeklik. 2013. The effect of noncognitive ability on the earnings of young men: A distributional analysis with measurement error correction. *Labour Economics*, 24, 293-304.
- Espelage, D., Low, S., Polanin, J., and E. Brown. 2013. The impact of a middle school program to reduce aggression, victimization, and sexual violence. *Journal of Adolescent Health* 53, 180-186.
- Flay, B.R. 2012. Strong quasi-experimental Evaluation of the Positive Action Pre-K program. Unpublished report, Oregon State University.
- Flay, B.R. 2010. The Positive Action family program: a pilot randomized trial and replication. Unpublished report, Oregon State University.
- Flay, B.R., Allred, C.G., and Ordway, N. 2001. Effects of the Positive Action program on achievement and discipline: Two matched -control comparisons. *Prevention Science*, 2(2), 71-90.
- Flay, B.R. & Allred, C.G. 2003. Long-term effects of the Positive Action program. *American Journal of Health Behavior*, 27(Supplement 1): S6-S21.

- Flay, B., Acock, A., Vuchinich, S., & Beets, M. 2006. Progress report of the randomized trial of Positive Action in Hawaii: End of third year of intervention. Available from Positive Action, Inc. 264 4th Avenue South, Twin Falls, ID 83301.
- Fletcher, J. 2013. Adolescent depression and adult labor market outcomes. *Southern Economic Journal*, 80, 26-49.
- Foster, E.M., Jones, D., & the Conduct Problems Prevention Research Group. 2005. The high costs of aggression: Public expenditures resulting from conduct disorder. *American Journal of Public Health*, 95, 1767-1772.
- Frey, K., Nolen, S., Van Schoiack Edstrom, L., & Hirschstein, M. 2005. Effects of a school-based social-emotional competence program: Linking children's goals, attributions, and behavior. *Journal of Applied Developmental Psychology*, 26(2), 171-200.
- Goldhaber, D. Destler, K. and D. Player. 2010. Teacher labor markets and the perils of using hedonics to estimate compensating wage differentials. *Economics of Education Review*, 29, 1-17.
- Gottfried, M.A. 2010. Evaluating the Relationship between Student Attendance and Achievement in Urban Elementary and Middle Schools: An Instrumental Variables Approach. *American Educational Research Journal*, 47, 434-465.
- Gottfried, M.A. 2011a. The Detrimental effects of missing school: Evidence from urban siblings. *American Journal of Education*, 117, 147-182.
- Gottfried, M.A. 2011b. Absent peers in elementary years: The negative classroom effects of unexcused absences on standardized testing outcomes. *Teachers College Record*, 113.
- Griffin, K.W., Botvin, G.J., and Nichols, T.R. 2006. Effects of a school-based drug abuse prevention program for adolescents on HIV risk behavior in young adulthood. *Prevention Science*, 7(1), 103-112.
- Griffin, K.W., Samuolis, J., and Wiliams, C. 2011. *Journal of Child and Family Studies*, 20: 319-325.
- Hawkins, J.D., Herrenkohl T., Farrington D.P., Brewer D., Catalano R.F., and T.W. Harachi. 1998. A review of predictors of youth violence. In Loeber R., and D. P. Farrington (Eds). *Serious and Violent Juvenile Offenders: Risk Factors and Successful Interventions*. Thousand Oaks, CA: Sage Publications.
- Hawkins, J.D., Kosterman, R., Catalano, R.F., Hill, K.G. and R.D. Abbott. 2005. Promoting positive adult functioning through social development intervention in childhood: Long-term effects from the Seattle Social Development Project. *Archives of Pediatrics & Adolescent Medicine*, 159, 25-31.
- Heckman, J.J. and P. LaFontaine. 2006. Bias-corrected estimates of GED returns. *Journal of Labor Economics*, 24, 661-700.
- Heckman, J. J., Stixrud, J., & S. Urzua. 2006. The effects of cognitive and noncognitive abilities on labor market outcomes and social behavior. *Journal of Labor Economics*, 24(3), 411-82.
- Heckman, J.J. and T. Kautz. 2012. Hard evidence on soft skills. *Labour Economics*, 19, 451-464.
- Holsen, I., Smith, B., & Frey, K. S. 2008. Outcomes of the social competence program *Second Step* in Norwegian elementary schools. *School Psychology International*, 29(1), 71-88.

IOM (Institute of Medicine) and NRC (National Research Council). 2014. Considerations in applying benefit-cost analysis to preventive interventions for children, youth, and families: Workshop summary. Washington, DC: The National Academies Press.

Jacob, B. A., Lefgren, L., and D.P. Sims. 2008. The persistence of teacher-induced learning. *Journal of Human Resources*, 45(4), 915-943.

Jones, D., Bumbarger, B.K., Greenberg, M.T., Greenwood, P. and S. Kyler. 2008. PCCD's Investment in Research-based Programs: A Cost-Benefit Assessment of Delinquency Prevention in Pennsylvania. Monograph, The Prevention Research Center for the Promotion of Human Development, Pennsylvania State University.

Jones, D., Foster, E.M., & the Conduct Problems Prevention Research Group. 2009. Service use patterns for adolescents with ADHD and comorbid conduct disorder. *Journal of Behavioral Health Services and Research*, PMID#: 18618263.

Jones, S.M., Brown, J.L. & J.L. Aber. 2011. Two-year impacts of a universal school-based social-emotional and literacy intervention: an experiment in translational developmental research. *Child Development*, 82(2), 533-554.

Kimber, B. (2001a). Livsviktigt, SET, Student Book. Stockholm: Ekelunds förlag.

Kimber, B. (2001b). Livsviktigt, SET, Teacher Manual. Stockholm: Ekelunds förlag.

Kimber, B., Sandell, R., & S. Bremberg. 2008. Social and emotional training in Swedish classrooms for the promotion of mental health: results from an effectiveness study in Sweden. *Health Promotion International*, 23(2), 134-143.

Kimber, B. and R. Sandell. 2009. Prevention of substance use among adolescents through social and emotional training in school: A latent class analysis of a five-year intervention in Sweden. *Journal of Adolescence*, 32, 1403-1413.

Kinsler, J. 2012. Beyond levels and growth: Estimating teacher value-added and its persistence. *Journal of Human Resources*, 47(3), 722-763.

Kuklinski, M.R., Briney, J.S., Hawkins, J.D., & R.F. Catalano. 2012. Cost-benefit analysis of *Communities That Care* outcomes at eighth grade. *Prevention Science*, 12(2), 150-161.

Lee, S., Aos, S, Drake, E., Pennucci, A., Miller, M., Anderson, L., and M. Burley. 2012. Return on investment: Evidence-based options to improve state-wide outcomes. Technical Appendix Methods and User Manual, www.wsipp.wa.gov.

Levin, H.M. 1975. Cost-effectiveness analysis in evaluation research. In M. Guttentag, & E. L. Struening (Eds.), *Handbook of evaluation research (Volume 2)*. Beverly Hills, CA: Sage.

Levin, H.M. 2012. More Than Just Test Scores. *Prospects*, UNESCO. 43(2), 269-284.

Levin, H.M. & P.J. McEwan. 2001. *Cost-effectiveness Analysis: Methods and Applications* (2nd ed.). Thousand Oaks: Sage Publications.

Lewis, K.M., Bavarian, N., Snyder, F., Acocock, A.C., Washburn, I.J., and Flay, B.R. 2012. Direct and mediated effects of a social-emotional and character development program on adolescent substance use. *The International Journal of Emotional Education*, 4(1), 56-78.

- Lewis, K., Schure, M., Bavarian, N., DuBois, D., Day, J., Ji, P., Silverthorn, N., Acock, A., Vucinich, S., & B. Flay. 2013a. Problem behavior and urban, low-income youth: a randomized controlled trial of Positive Action in Chicago. *American Journal of Preventative Medicine* 44(6), 622-630.
- Lewis, K., Schure, M., Bavarian, N., DuBois, D., Day, J., Ji, P., Silverthorn, N., Acock, A., Vucinich, S., & B. Flay. 2013b. Effects of the Chicago trial of Positive Action on youth problem behaviors. *American Journal of Preventative Medicine*, 44, 622-630.
- Li, K.K., Washburn, I., DuBois, D.L., Vuchinich, S., Ji, P., Brechling, V., Day, J., Beets, M.W., Acock, A.C., Berbaum, M., Snyder, F., and Flay, B.R. 2011. Effects of the Positive Action programme on problem behaviors in elementary school students: A matched-pair randomized control trial in Chicago. *Psychology & Health*, 26(2), 187-204.
- Long, K., Brown, J.L., Jones, S.M., J.L. Aber L., & B.T. Yates. 2014. Cost Analysis of a School-Based Social and Emotional Learning and Literacy Intervention. Working Paper, Fordham University.
- McEwan, P.J. 2002. Are cost-effectiveness methods used correctly? In Levin, H.M. & McEwan, P.J. (Eds.), *Cost-Effectiveness and Educational Policy: 2002 Yearbook of the American Education Finance Association* (p.37-53). Eye on Education: Larchmont, NY.
- Maynard R.A. & S. Hoffman (Eds.), *Kids having kids*. Washington, DC: The Urban Institute Press.
- Miller, T. and D. Hendrie. 2008. *Substance Abuse Prevention Dollars and Cents: A Cost-Benefit Analysis*. DHHS Pub. No. (SMA) 07-4298. Rockville, MD: Center for Substance Abuse Prevention, Substance Abuse and Mental Health Services Administration.
- Missbruksutredningen. 2011. *Missbruket, Kunskapen, Värden: Missbruksutredningens forskningsbilaga*. Stockholm: Frizes, 2011.
- Montague, M. Enders, C. Cavendish, W., and M. Castro. 2011. Academic and Behavioral Trajectories for At-Risk Adolescents in Urban Schools. *Behavioral Disorders* , 36, 2 , 141-156.
- Murnane, R.J., Willett, J.B., Braatz, M.J. & Y. Duhaldeborde. 2001. Do different dimensions of male high school students' skills predict labor market success a decade later? Evidence from the NLSY. *Economics of Education Review*, 20, 311-320.
- Nas, T.F. 1996. *Cost-Benefit Analysis: Theory and Application*. Sage Publications: Thousand Oaks, CA.
- NCES. 2013. //ies.ed.gov/ncee/wwc/pdf/intervention_reports/wwc_secondstep_030513.pdf.
- Nilsson, I., & A. Wadeskog. 2008. Varje drogfri dag en framgång – Socioekonomiskt Bokslut för Metadonprogrammet i Stockholm. Stockholm: SEE.
- Nilsson, I., & Wadeskog, A. (2013). Trygghetens värde – sociala risker ur ett ekonomiskt perspektiv [The value of security – social risks from an economic perspective]. Retrieved May 5, 2014, from: http://www.seab.se/Dalarna/Dalarna_2013.pdf.
- Ozkan E. & S. Ozbeklik. 2013. The effect of non-cognitive ability on the earnings of young men: A distributional analysis with measurement error correction. *Labour Economics*, 24, 293-304.
- Pouliakis, K. and I. Theodossiou. 2013. The economics of health and safety at work: An interdisciplinary review of the theory and policy. *Journal of Economic Surveys*, 27, 167-208.

- Reynolds, C.R., and R.W. Kamphaus. 2002. *A Clinician's Guide to the Behavior Assessment System for Children (BASC)*. New York: Guilford Publications.
- Rimm-Kaufman, S.E., Larsen, R.A.A., Baroody, A.E., Curby, T.W., Ko, M., Thomas, J.B., Merritt, E.G., Abry, T., DeCoster, J. 2014. Efficacy of the Responsive Classroom approach: Results from a 3-year, longitudinal randomized controlled trial. *American Educational Research Journal*, 51(3), 567-603.
- Rimm-Kaufman, S.E., & Chiu, Y.I. 2007. Promoting social and academic competence in the classroom: An intervention study examining the contribution of the *Responsive Classroom* approach. *Psychology in the Schools*, 44(4), 397-413.
- Rimm-Kaufman, S.E., Fan, X., Chiu, Y.I., & You, W. 2007. The contribution of the *Responsive Classroom* approach on children's academic achievement: Results from a three year longitudinal study. *Journal of School Psychology*, 45, 401-421.
- Schick, A., & Cierpka, M. 2005. Faustlos: Evaluation of a curriculum to prevent violence in elementary schools. *Applied and Preventive Psychology*, 11, 157-165.
- Segal, C. 2013. Misbehavior, education, and labor market outcomes. *Journal of European Economics Association*, 11, 743-779.
- Sklad, M., Diekstra, R., De Ritter, M., Ben, J., and C. Gravestein. 2012. Effectiveness of school-based universal social, emotional, and behavioral programs: Do they enhance students' development in the area of skill, behavior, and adjustment? *Psychology in the Schools*, 49, 892-910.
- Social and Character Development Research Consortium [SCDRC]. 2010. *Efficacy of Schoolwide Programs to Promote Social and Character Development and Reduce Problem Behavior in Elementary School Children*. (NCER 2011-2011). Washington, DC: National Center for Education Research, Institute of Education Sciences, U.S. Department of Education.
- SOU (2011:6). *Missbruket, kunskapen, värden: Missbruksutredningens forskningsbilaga* [Drug Abuse, knowledge and medicin: The drug abuse investigation's appendix]. Stockholm: Frizes.
- Spoth, R. L., Randall, G. K., Trudeau, L., Shin, C., and Redmond, C. 2008. Substance use outcomes 5 1/2 years past baseline for partnership-based, family-school preventive interventions. *Drug and Alcohol Dependence*, 96, 57-68.
- Snyder, F., Vuchinich, S., Acock, A., Washburn, I., Beets, M. and K-K. Li. 2010. Impact of a social-emotional and character development program on school-level indicators of academic achievement, absenteeism, and disciplinary outcomes: A matched-pair, cluster randomized, controlled trial. *Journal of Research on Educational Effectiveness*, 3, 26-55.
- Snyder, F., Flay, B., Vuchinich, S., Acock, A., Washburn, I., and B.R. Flay. 2012. Improving elementary school quality through the use of a social-emotional and character development program: a matched pair, cluster randomized, controlled trial in Hawai'i. *Journal of School Health*, 82, 11-20.
- Snyder, F.J., Acock, A.C., Vuchinich, S., Beets, M.W., Washburn, I.J., and Flay, B.R. 2013. Preventing negative behaviors among elementary-school students through enhancing students' social-emotional and character development. *American Journal of Health Promotion*, 28(1).

Statistics Sweden (2013). Beskrivande data 2013 [Descriptive statistics 2013]. Retrieved February 6, 2014, from http://www.scb.se/sv/_Hitta-statistik/Statistik-efter-amne/Arbetsmarknad/Loner-och-arbetskostnader/Lonestrukturstatistik-primarkommunal-sektor/7627/7634/2012/28336/

The Swedish National Board of Health and Welfare, (2012). *The Public health report*. Stockholm: The Swedish Board of Health and Welfare.

Waddell, G. R. 2006. Labor-market consequences of poor attitude and low self-esteem in youth. *Economic Inquiry*, 44, 69–97.

Washburn, I.J., Acock, A., Vuchinich, S., Snyder, F.J., Li, K.K., Ji, P., et al. 2011. Effects of a social-emotional and character development program on the trajectory of behaviors associated with social-emotional and character development: Findings from three randomized trials. *Prevention Science*, 12, 314-323.

Weimer, D.L. and A. R. Vining (Eds). 2009. *Investing in the Disadvantaged. Assessing the Benefits and Costs of Social Policies*. Georgetown University Press: Georgetown, Washington DC.

Weissberg, R.P., Kumpfer, K., & Seligman, M. E. P. (Eds.). 2003. Prevention that works for children and youth: An introduction. *American Psychologist*, 58, 425-432.

Wolke, D. Copeland, W.E., Angold, A. & E.J. Costello. 2013. Impact of bullying in childhood on adult health, wealth, crime, and social outcomes. *Psychological Science*, 24, 1958-1970.

Zins, J.E., Weissberg, R.P., Wang, M. C., and H.J. Walberg. (Eds.). 2004. *Building Academic Success on Social and Emotional Learning: What Does the Research Say?* New York: Teachers College Press.

Zins, J.E., Bloodworth, M.R., Weissberg, R.P., and H.J. Wahlberg. 2007. The scientific base linking social and emotional learning to school success. *Journal of Educational and Psychological Consultation*, 17, 191-210.

APPENDIX I: BENEFITS MAPS

Benefits Map: 4Rs

Outcome Categories	Specific Outcomes	Measures	Monetizable
Understanding and handling feelings	Child aggression	SR - teacher	Y
	Child social competence	SR - teacher	Y
	Depressive symptoms	SR - student	
	Hostile attributional bias	SR - student	
	Normative beliefs about aggression	SR - student	
	Aggressive and prosocial fantasies	SR - student	
	Aggressive interpersonal negotiation strategies	SR - student	
Health-related	Attention skills - Child ADHD symptoms	SR – teacher	Y
Achievement	Reading	STest	P
	Math	STest	P
	Writing	—	
Academic skills	Academic skills	SR – teacher	P
Other	Attendance	Records	P
	Quality of classroom processes	Observations	
	Social– emotional functioning by teacher	SR – teacher	
Cooperation	—	—	
Building community	—	—	
Assertiveness	—	—	
Discussion skills	—	—	
Problem-solving	—	—	
Dealing with diversity	—	—	
Listening	—	—	

Notes: SR: Self-report; STest: Standardized test; Records: administrative/school records. P: potentially monetizable

Benefits Map: Positive Action

Outcome Categories	Specific Outcomes	Measures	Monetizable
Personal Behaviors	Substance abuse	SR – student SR – teacher SR – parent	Y
	Violence	SR – student SR – teacher SR – parent Records	Y
	Beliefs about aggression and violence	SR – student	Y
Mental Health	Depression	BASC	Y
	Anxiety	BASC	Y
	Sexual activity	SR – student	
	Affect	SR – student	
	Life satisfaction	SR – student	
Academic	Achievement	STest	P
	Grades	Records	P
	Retention	Records	P
	Academic ability/potential	SR – teacher	P
Academic Behaviors	Student motivation	SR – student SR – teacher	
	Attendance	Records	P
	Work habits and organizational skills	SR – student SR – teacher	
School Climate	School Quality	Surveys	

Notes: SR: Self-report; STest: Standardized test; Records: administrative/school records; Surveys: devised survey instruments; BASC: Behavioral Assessment System for Children. P: potentially monetizable.

Benefits Map: Second Step

Outcome Categories	Specific Outcomes	Measures	Monetizable
Substance abuse	Drug use	SR – student	Y
	Prescription drug abuse	SR – student	Y
	Alcohol use (as minor)	SR – student	Y
	Drug knowledge and attitudes	SR – student	
Delinquency	Aggression	SR – student	Y
	Delinquency	SR – student	Y
	Risky driving	SR – student	Y
Health	Sexual risk behaviors	SR – student	Y

Notes: SR: Self-report; STest: Standardized test; Records: administrative/school records; Surveys: devised survey instruments; BASC: Behavioral Assessment System for Children. P: potentially monetizable.

Benefits Map: LST

Outcome Categories	Specific Outcomes	Measures	Monetizable
Substance abuse	Drug use	SR – student	Y
	Prescription drug abuse	SR – student	Y
	Initiation of other illegal drug use	SR – student	Y
	Frequency of other illegal drug use	SR – student	Y
	Alcohol use (as minor)	SR – student	Y
	Smoking	SR – student	Y
	Drug knowledge and attitudes	SR – student	
Delinquency	Aggression	SR – student	Y
	Delinquency	SR – student	Y
	Risky driving	Records	Y
Health	Sexual risk behaviors	SR – student	Y
Social and Emotional Skills	Self-efficacy	SR – student	
	Decision-making skills	SR – student	

Notes: SR: Self-report; STest: Standardized test; Records: administrative/school records; Surveys: devised survey instruments; BASC: Behavioral Assessment System for Children. P: potentially monetizable.

Benefits Map: Responsive Classroom

Outcome Categories	Specific Outcomes	Measures	Monetizable
Achievement	Reading	STest	Y
	Math	STest	Y
Understanding and handling feelings	Social skills	SR – Teacher	
	Social Competence	SR – Teacher	
	Perception of school	SR – Student	
Delinquency	Reduction of Problem behavior	SR – Teacher, Parent, Student	P
Teacher Outcomes	Teacher Self-Efficacy	SR – Teacher	
	Teacher-Child Relationship	SR – Teacher	

Notes: SR: Self-report; STest: Standardized test; P: potentially monetizable.

Benefits Map: SET (Swedish)

Outcome Categories		Specific Outcomes	Measures	Monetizable
Substance abuse	Drugs		SR – student	Y
	Alcohol		SR – student	P
	Smoking		SR – student	P
	Volatile substances		SR – student	P
Delinquency	Aggressiveness		SR – student	P
Mental health	Psychological well-being		SR – student	P
	Body image		SR – student	
	Bullying		SR – student	P
	Attention seeking		SR – student	
Social competence	Talent/ability		SR – student	
	Relation with others		SR – student	
	Internalizing		SR – student	
	Externalizing		SR – student	
	Mastery		SR – student	
	ITIA		SR – student	
	Social skills		SR – student	

Notes: SR: Self-report; P: potentially monetizable.

APPENDIX II

Appendix Table 1
Adult Lifetime Benefits from Positive Action

	Control Group	Treatment Group	Reduction from PA	PV Benefit per avoided life-time profile ¹	Total PV Benefit per Participant
Substance abuser probability:					
Estimate 1					
Estimate 1	0.076	0.040	0.036	\$877,030	\$31,570
Estimate 2	0.188	0.101	0.087	\$877,030	\$76,300
Estimate 3	0.053	0.016	0.037	\$877,030	\$32,450
Estimate 4	0.041	0.011	0.030	\$877,030	\$26,310
Estimate 5	0.035	0.007	0.028	\$877,030	\$24,560
Career criminal probability:					
Estimate 1					
Estimate 1	0.061	0.022	0.039	\$2,833,490	\$110,510
Estimate 2	0.074	0.028	0.046	\$2,833,490	\$130,340
Estimate 3	0.038	0.011	0.027	\$2,833,490	\$76,500
Estimate 4	0.107	0.045	0.062	\$2,833,490	\$175,680
Estimate 5	0.054	0.013	0.041	\$2,833,490	\$116,170

Sources: 1 Cohen and Piquero (2009, Table 12). Substance abuser: Original value \$650,000 adjusted for inflation using CPI to 2013 dollars and PV at age 6 using 3% discount rate. Career criminal: Original value \$2.1m adjusted for inflation using CPI to 2013 dollars and PV at age 6 using 3% discount rate. Control/treatment group impacts from Beets et al. (2009). Estimates assume zero fade-out.

Appendix Table 2
Prior Cost-Benefit Analyses of Life Skills Training

	Lee et al. (2012)	Miller and Hendrie (2008)
Costs per participant	\$40	\$290
Benefits:		
Medical, other resource, work loss, quality of life		\$5,960
Crime	\$1,660	
Effects of HS graduation and smoking reduction on earnings and health care spending	\$190	
Total Benefits per participant	\$1,850	\$5,960
B-C ratio	46.3	20.6
NPV per participant	\$1,810	\$5,670

Notes: Dollar values in 2013 prices, rounded to \$10.

Appendix Table 3
Costs for SET (5-Year Program)

Ingredient	Year 1	Year 2	Year 3	Year 4	Year 5	Total Cost
Participants	1,028	1,028	1,028	1,028	1,028	1,028
Personnel:						
Teachers (Training/ongoing coaching)	\$57,000	\$17,870	\$4,710	\$4,710	\$4,710	\$89,000
Teachers (SET instruction)	\$82,450	\$82,450	\$82,450	\$82,450	\$82,450	\$412,260
Administration (Training/support/meetings)	\$7,270	\$4,480	\$1,450	\$1,450	\$1,450	\$16,110
Facilities:						
Auditorium	\$340	\$0	\$0	\$0	\$0	\$340
Workshop space	\$170	\$100	\$100	\$100	\$100	\$570
Classrooms	\$6,070	\$6,070	\$6,070	\$6,070	\$6,070	\$30,350
Materials/equipment:						
SET Manual	\$60	\$60	\$60	\$60	\$60	\$310
Supplemental materials	\$1,260	\$1,260	\$1,260	\$1,260	\$1,260	\$6,320
Total Resource Cost 1 (with teacher SET instruction)	\$154,630	\$112,290	\$96,110	\$96,110	\$96,110	\$555,260
Total Resource Cost 2 (without teacher SET instruction)	\$72,180	\$29,840	\$13,660	\$13,660	\$13,660	\$143,000
Average Cost 1 (=TRC2/1,028)						\$540
Average Cost 2 (=TRC1/1,028)						\$140

Notes: Discounted by 3.5% to year 1. Prices in U.S. dollars (2013). Amounts rounded to \$10.