Promoting Social and Emotional Competencies in Elementary School

Stephanie M. Jones, Sophie P. Barnes, Rebecca Bailey, and Emily J. Doolittle

Summary

There's a strong case for making social and emotional learning (SEL) skills and competencies a central feature of elementary school. Children who master SEL skills get along better with others, do better in school, and have more successful careers and better mental and physical health as adults.

But evidence from the most rigorous studies of elementary-school SEL programs is ambiguous. Some studies find few or no effects, while others find important and meaningful effects. Or studies find effects for some groups of students but not for others. What causes such variation isn't clear, making it hard to interpret and act on the evidence.

What are the sources of variation in the impacts of SEL programs designed for the elementary years? To find out, Stephanie Jones, Sophie Barnes, Rebecca Bailey, and Emily Doolittle examine how the theories of change behind 11 widely used school-based SEL interventions align with the way those interventions measure outcomes. Their central conclusion is that what appears to be variation in impacts may instead stem from imprecise program targets misaligned with too-general measures of outcomes. That is to say, program evaluations often fail to measure whether students have mastered the precise skills the programs seek to impart.

The authors make three recommendations for policy makers, practitioners, and researchers. The first is that we should focus more on outcomes at the teacher and classroom level, because teachers' own social-emotional competency and the quality of the classroom environment can have a huge effect on students' SEL. Second, because the elementary years span a great many developmental and environmental transitions, SEL programs should take care to focus on the skills appropriate to each grade and age, rather than taking a one-size-fits-all approach. Third, they write, measurement of SEL skills among children in this age range should grow narrower in focus but broader in context and depth.

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Research has shown that during the elementary school years, social and emotional skills are related to positive academic, social, and mental health outcomes. For example, correlational studies show that classrooms function more effectively and student learning increases when children can focus their attention, manage negative emotions, navigate relationships with peers and adults, and persist in the face of difficulty.[1] Children who effectively manage their thinking, attention, and behavior are also more likely to have better grades and higher standardized test scores.[2] Children with strong social skills are more likely to make and sustain friendships, initiate positive relationships with teachers, participate in classroom activities, and be positively engaged in learning.[3] Indeed, social and emotional skills in childhood have been tied to important life outcomes 20 to 30 years later, including job and financial security, as well as physical and mental health.[4]

This compelling evidence suggests that there's a strong case for making such non-academic skills and competencies a central feature of schooling, both because of their intrinsic value to society and, from a pragmatic standpoint, because they may help to reduce achievement and behavior gaps and mitigate exposure to stress.[5] But what do we know about efforts designed to improve and support social and emotional skills in the elementary years? The evidence from gold-standard studies—in which one group is randomly assigned to receive an intervention while another is not—is ambiguous. What works, for whom it works, and under what conditions often varies. For example, we've seen large-scale national studies that find small or no effects from interventions designed for the elementary school years, and many individual studies that find important and meaningful effects.[6] What causes such variation isn't clear, making it hard to interpret and act on the evidence.[7] This confusion allows those debating the merits of incorporating social and emotional learning (SEL) in schools to cherry-pick findings and adopt the ones that suit their own arguments. Does the mixed evidence result from different ways of measuring social and emotional skills? From differences in intervention approaches and variation in implementation? From different ways of studying interventions during the elementary years? To answer those questions, we examine how the theories of change behind 11 widely used school-based SEL interventions align with the way those interventions measure outcomes. In doing so, we hope to shed light on the mixed or null findings from past evaluations of such programs.

Social and Emotional Skills in Middle Childhood

Middle childhood, spanning roughly 5 to 11 years of age, is often treated as if it were a single developmental period. But the span from kindergarten through fifth grade and into middle school encompasses substantial biological, social, cognitive, and emotional changes. Children are exposed to an increasing number of contexts and are expected to develop an ever-growing set of diverse skills, all of which have implications for SEL interventions.[8]

Many frameworks and organizational systems, from a variety of disciplines, describe and define social and emotional skills during this period.[9] These frameworks may refer to the same skill or competency

with different names, or use the same name to refer to two conceptually distinct skills.[10] They also vary in the type of construct they address—from skills, behaviors, and attitudes to traits, strengths, and abilities.

Different SEL frameworks may refer to the same skill or competency with different names, or use the same name to refer to two conceptually distinct skills.

To organize our discussion, we use a framework developed by Stephanie Jones (a coauthor of this article).[11] This framework focuses largely on intervention approaches designed for the elementary school years, based on a review of research in developmental and prevention science and a scan of the major defining frameworks and curricular approaches for SEL. It categorizes social and emotional skills and behaviors into three primary groups: cognitive regulation, emotional processes, and social/interpersonal skills. This system has been reflected in other review papers, but it doesn't include attitudinal constructs such as character and mindsets, which are increasingly incorporated in other organizing frameworks and are gaining attention in intervention development and testing, largely with students in middle and high school.[12]

In the most general sense, *cognitive regulation* comprises the basic cognitive skills required to direct behavior toward attaining a goal. It's closely related to the concept of executive function, which comprises attention, inhibition, and working memory,

and it encompasses skills that help children prioritize and sequence behavior, inhibit dominant or familiar responses in favor of a more appropriate one (for example, raising their hands rather than blurting out an answer), keep task-relevant information in mind (for example, remembering a teacher's request to turn to a partner and talk over a question before the group discussion begins), resist distractions, switch between task goals or even between different perspectives, use information to make decisions, and create abstract rules and handle novel situations.[13] Children use cognitive regulation skills whenever they face tasks that require concentration, planning, problem-solving, coordination, conscious choices among alternatives, or inhibiting impulses.[14]

Emotional processes are skills that help children recognize, express, and regulate their own emotions, as well as understand the emotional perspectives of others.[15] They allow children to recognize how different situations make them feel and to handle those feelings in prosocial ways. Consequently, such emotional skills are often fundamental to positive social interactions and to building relationships with peers and adults. Without the ability to recognize and regulate your own emotions or empathize with others' perspectives, it's very difficult to maintain and focus attention (cognitive regulation) and to interact positively with others.[16]

Finally, *social and interpersonal skills* help children and adolescents accurately interpret other people's behavior, effectively navigate social situations, and interact positively with peers and adults.[17] Social and interpersonal skills build on emotional knowledge and processes; children must learn to recognize, express, and regulate their emotions before

they can be expected to interact with others. Children who use these social and interpersonal processes effectively can collaborate, solve social problems, and coexist peacefully with others.

What do we know about developmental changes in cognitive regulation, emotional processes, and social/interpersonal skills during middle childhood? Basic developmental theory indicates that some skills act as building blocks for other, more complex skills that emerge later on.[18] This means that children must develop certain basic competencies in each of the SEL domains (cognitive, emotional, social/ interpersonal) before they can master others, and that previously acquired skills support the development of new or more complex ones.[19] Developmental theory also suggests that some skills are stage-salient—that is, they help children to meet the demands of a particular developmental stage and/or setting.[20] In other words, some SEL skills are more important in middle childhood than in other periods. For example, when children first begin formal schooling, a key task is learning how to understand their own emotions and those of others; they're exposed to a wide variety of emotion words and an array of emotions expressed by their new peers. By the time children transition out of middle childhood, they must use previously learned emotion-related skills to support more sophisticated social problem-solving in more complex social interactions. Thus, there's reason to believe that certain SEL skills should be taught before others, and within specific grades or age ranges. However, SEL programs and interventions frequently target the same skills in the same ways across multiple years.[21] Elementary interventions that align their content

and goals with children's sequence of skill development may be more successful than interventions that target the same skills, regardless of age.

Evidence from SEL Programs

Recent interest and investment in social-emotional skill development is due in large part to the growing evidence that SEL programs affect academic, behavioral, emotional, social, and cognitive outcomes. Our understanding of what works is guided largely by two comprehensive meta-analytic reviews (a meta-analysis is a strategy for analyzing findings across different studies to reach a synthesis), which compiled and analyzed findings from a large number of studies of school-based SEL and/or behavioral learning programs (213 studies in one case and 75 in the other).[22]

Both reviews found that universal, school-based SEL programs produced statistically significant positive effects on a host of social-emotional and related outcomes. That is, students who participated in SEL programs had significantly better outcomes than students who did not. The average effect sizes, or the magnitude of the difference in impacts between groups, ranged from small in some areas to moderate-to-large in others.[23] These results empirically support the widely held belief that SEL programs can produce meaningful changes in students' lives—particularly for the set of outcomes the programs target—and have motivated continued research in this area. Both reviews included studies that didn't use random assignment, meaning that something other than the SEL program being evaluated could have influenced the outcomes that were measured. Because of this, the SEL program effects documented

in these reviews could be inflated, though that's not necessarily so. For this reason, in this article we focus on programs and interventions that have undergone randomized trials.

These meta-analyses suggest that SEL interventions are effective. But as we noted at the outset, results from research on the impact of specific SEL programs often vary. For example, the Social and Character Development Research Consortium (SACD) examined seven SEL programs over three years and found no differences between the groups receiving the interventions and those who did not.[24] Ignoring such null findings could produce an inaccurate picture of the evidence behind SEL interventions. Perhaps more important, we need to carefully consider the range of evidence behind SEL interventions in elementary school, including null, negative, and positive effects—essentially by mapping program theory and targets to outcomes and measures to specific and concrete effects. Otherwise, we limit our understanding of why one study shows effects and another does not, or why similar programs show effects on different outcomes.

A chapter in the recently published *Handbook of Social and Emotional Learning* identifies the core mechanisms or "active ingredients" of evidence-based SEL programs in elementary school.[25] The chapter's broad theoretical framework, which is consistent with others, suggests that effectively using the core components of SEL interventions can affect a set of immediate outcomes (classroom social and instructional environment and student social and emotional skills) and eventually influence long-term social, behavioral,

and academic outcomes.[26] The authors make the logical point that although this general framework applies overall, different programs and approaches prioritize different outcomes and underlying mechanisms. For example, some programs focus on executive function and self-regulation (the cognitive domain), while others prioritize basic social skills and behaviors (the interpersonal domain). Our point isn't that one approach is better or more effective than another; rather, it's that to accurately understand the efficacy of these interventions, we need to clearly understand what they target and how. Therefore, in interpreting intervention programs' effects, we focus particularly on the alignment between program inputs and measured outcomes, the role of context (including features of settings, place of delivery, and participant characteristics), and the importance of considering developmental stages.

Our Approach

Rather than a comprehensive summary of SEL program evaluations, we aim to provide a snapshot of the evidence behind 11 widely used school-based SEL interventions. These interventions have undergone randomized controlled trials that were published in peer-reviewed journals between 2004 and 2015, with a majority published after 2009. We reviewed the following programs: Fast Track PATHS, PATHS, Positive Action, Responsive Classroom, Second Step, RULER, 4Rs, MindUP, Making Choices, Good Behavior Game, and Positive Behavioral Interventions and Supports (PBIS).[27]

To understand each program and represent variation in their approaches, we reviewed

the most recent randomized controlled trial or trials and documented four key elements:

1. Setting. Where does the intervention take place? Categories included the whole school, classroom, miscellaneous (for example, during recess), and among adults.

2. SEL program targets. Which domain or domains does the program focus on? In alignment with the framework we described above, SEL program targets were cognitive, social, and emotional.

3. Program components. What are the program's parts, in addition to the classroom and school-based elements? Categories included training, coaching, parent involvement (such as parent guides, training and home links for families), and other supports (for example, toolkits and other resources).

4. Outcomes. What do the program evaluations measure? Outcomes were organized into two main categories: (1) student-level outcomes, and (2) classroom- and school-level outcomes.

Though all the interventions fall under the SEL umbrella, they can be loosely organized based on their theoretical orientations and theories of change. A theory of change (sometimes referred to as a theory of action) is a road map that describes a program's assumptions and inputs, outputs, and expected outcomes.[28] It typically describes the program's core components, the expected short- and

long-term outcomes, and the mechanisms by which the program will achieve those outcomes. For instance, some programs' theories of change emphasize the regulation of thought and action (MindUP); others highlight emotional literacy and emotional intelligence (RULER) or social problem-solving and conflict resolution (Making Choices, Good Behavior Game, 4Rs); and still others emphasize adult practices and strategies and/or the environment (PBIS, Responsive Classroom). Ideally, the theory of change serves as a blueprint or guide to identifying an intervention's expected outcomes and selecting appropriate measures to capture those outcomes. A key question we examined was whether the program targets and expected outcomes aligned with the measures used and the impacts documented (see table 1). To underscore the differences between SEL programs, we reviewed programs individually and documented the SEL program target of each one.

Summary of the Evidence

In the following section, we summarize our findings for our four key elements (setting, program target, program components, and outcomes).

Setting

Setting refers to the context or contexts of program implementation. School-based programs dominate SEL programming in middle childhood. Within the school, settings include the classroom, the whole school, and other contexts like recess or adult-focused activities. Setting can also indicate the primary recipient of the intervention. Students are the primary focus of programs that conduct their work in classrooms, the whole school, or other within-school settings. By contrast, adult-focused programs deliver material directly to

Table 1. An Overview of Primary SEL Program Targets and Measured Outcomes

Program		Cognitive	Social	Emotional	Academic	Behavioral
Fast Track PATHS	Targets	✓	✓	✓		
	Outcomes	✓	✓			✓
PATHS	Targets	✓	✓	✓		
	Outcomes		✓		✓	✓
MindUP	Targets	✓	✓			
	Outcomes	✓	✓	✓	✓	✓
RULER	Targets			✓		
	Outcomes			✓		
4Rs	Targets	✓	✓			
	Outcomes	✓	✓		✓	✓
Positive Action	Targets	✓	✓			
	Outcomes			✓	✓	✓
Second Step	Targets	✓	✓	✓		
	Outcomes	✓	✓	✓		✓
Responsive Classroom	Targets		✓			
	Outcomes				✓	
Making Choices	Targets		✓			
	Outcomes	✓	✓			✓
Good Behavior Game	Targets		✓			
	Outcomes		✓			✓

Note: Though we reviewed 11 programs, we didn't include Positive Behavioral Interventions and Supports (PBIS) in this table because it's a different type of program—a noncurricular prevention strategy that changes the school environment by enhancing school systems and procedures rather than a classroom-based curricular approach or a professional development program focused on teaching strategies.

teachers and school staff, investing in adults to drive student-level change.

Nine of the 11 programs we reviewed were designed for and delivered in the classroom. Three of them (PATHS, Fast Track PATHS, and Positive Action) also included a whole-school component. The fact that whole-school approaches in these three programs didn't exist on their own suggests that they're intended to reinforce classroom-level efforts. Two of the programs (Responsive Classroom, PBIS) were adult-focused; PBIS also included whole-school and miscellaneous components.

Most programs were delivered in the classroom, but few studies measured classroom-level outcomes. Similarly, although many programs invested significant resources in implementing aspects of the program in multiple settings, as with those that include whole-school approaches, they didn't measure whole-school outcomes, such as organizational health, teacher turnover, school climate, and structural resources.

Although most SEL programs focus solely or primarily on what goes on in the classroom, children also need SEL skills on playgrounds, in lunchrooms, in hallways and bathrooms, and in out-of-school settings. Student

surveys and hot-spot mapping, in which students draw maps of the areas where they feel unsafe, show that children feel least secure in these unmonitored and sometimes unstructured zones.[29] Students need support to navigate such spaces and to make the entire school environment safe, positive, and conducive to learning. Even when students don't consider them to be dangerous, these contexts offer vital opportunities for students to practice their SEL skills. Future research should investigate the effects of SEL programs on contexts outside the classroom.

Target

SEL program target refers to the domains or areas of focus that the program describes. Based on our organizing framework for SEL skills in middle childhood, we summarize SEL program targets as cognitive, social, and emotional. Typically, a program's lessons, curricula, and other approaches are organized around the SEL targets. For example, the RULER program's SEL target is, broadly, emotions, and RULER's Feelings Word Curriculum focuses on building emotion skills.

Not surprisingly, most programs target skills in more than one domain (table 1).[30] Three programs, PATHS, Fast Track PATHS, and Second Step, targeted all three domains (cognitive, social, and emotional). Three programs targeted skills in two domains, most often cognitive and social (Positive Action, MindUP, and 4Rs). Almost all the programs targeted skills in the social domain (PATHS, Fast Track PATHS, Good Behavior Game, Positive Action, Responsive Classroom, Second Step, 4Rs, MindUP, and Making Choices), which is logical given children's increasing interaction with peers in middle childhood.[31]

Components

Considering program components is important for thinking about whether real-world program implementation is feasible and for understanding the magnitude of impacts in light of the amount of support offered to schoolteachers and staff.

Overall, the 11 programs involved significant time commitment. This reflected not only training and ongoing support, but also the time needed to implement the curriculum in the classroom and school. All the programs required training and many also required follow-up booster sessions. Coaching was also present in many of the programs. Several programs specified a set number of coaching meetings (for example, 4Rs had a minimum of 12 contacts per year). Seven of the programs also encompassed parent components, including training, parent guides, or home links for families. Interestingly, no program's theory of change considered the role of parents and the home environment, and data were collected from parents infrequently. Like the ones we reviewed, SEL programs typically include multiple components (curriculum, training, ongoing support, and family/parent and community activities), but we know little about the role and relative importance of each, making it hard to say whether schools can expect similar findings with different levels of support, a different array of components, or fewer components.

Outcomes

We divided outcomes into two groups: (1) student-level outcomes, which includes cognitive, emotional, social, behavioral, and academic categories, and (2) classroom- and school-level outcomes. At the student level, we include the set of short-term outcome

areas defined above (cognitive, emotional, and social), as well as the behavioral and academic outcomes that theoretical frameworks often describe as being affected in the longer term, but that are typically measured in the evaluations along with short-term outcomes. Some programs, such as 4Rs, specify in very concrete terms their expectations for short- and longer-term changes (for example, changes in social and emotional outcomes after one year of exposure, and in behavior and academics after two years).[32]

Student-level outcomes: cognitive. Few studies measured skills in the cognitive domain. One possible explanation is that in middle childhood, students are acquiring complex cognitive skills—such as organization, planning, and goal-setting—that are often categorized as academic skills and that aren't typically targeted in SEL programs. As a result, few studies in middle childhood measure foundational cognitive skills like executive function, which has been linked to a host of important outcomes, including academic achievement.[33]

Cognitive outcomes in the studies we reviewed included executive function tasks, mindfulness (generally defined as the ability to focus awareness on thoughts, feelings, or perceptions of the present moment without judgment), cognitive concentration (concentration, attention, work completion), and problem-solving. Only one program, MindUP, included measures of executive function skills, finding small but statistically significant effects. MindUP also generated statistically significant, moderately sized effects on mindfulness. Making Choices generated small effects on cognitive concentration for the overall sample, but moderate effects for girls who received the

intervention compared to girls who did not (this difference wasn't seen among boys) and for children who scored poorly based on pretest measures. Problem-solving was measured in the Second Step evaluation, but findings were not statistically significant.

SEL programs have the potential to impact both foundational and more complex cognitive skills. But studies haven't always found statistically significant effects even for programs that targeted this domain, and in general, effect sizes have ranged from small to moderate. Furthermore, most studies included only one measure relevant to the cognitive domain and many studies didn't measure the same skill, which limited our ability to gauge the breadth and depth of the programs' impacts. Given the crucial cognitive development that occurs in the elementary years and the fact that several programs target this domain specifically, it's surprising that programs measured so few cognitive outcomes. Executive function skills, for example, develop rapidly in the early school years, and they form the foundation for other skills in the cognitive domain, such as planning and goal setting, as well as skills in the emotion and social domains.[34]

Student-level outcomes: emotion. Building emotion skills is a focal point of many elementary social-emotional learning programs. Yet the number and type of emotion skills that programs target are poorly aligned with the measured outcomes. Programs tend to target basic or fundamental emotion skills, such as emotion knowledge, emotion vocabulary, and emotion expression. But they measure more complex outcomes that build on or use these basic emotion skills. For example, 40 percent of PATHS lessons focus on skills related to understanding and communicating emotions,

and RULER targets five key emotion skills through the Feeling Words curriculum, but neither study included measures of these basic emotional skills.

Student-level outcomes in the emotion domain were measured infrequently; those that were measured included emotional problems, life satisfaction, emotional control, emotional management, and positive affect. Second Step and Positive Action showed small effects on emotional problems and life satisfaction, while MindUP generated moderate effects on emotional control. Second Step's effects on emotion management and Positive Action's on positive affect weren't statistically significant.

Overall, the 11 programs involved significant time commitment.

In sum, SEL programs' effects on emotion outcomes are mixed, ranging from nonsignificant to moderate, and outcome measures focus narrowly on a set of more complex emotion outcomes rather than skills that the programs specifically target. This misalignment poses a challenge; if we don't understand how SEL programs affect basic emotional skills, we may underestimate or misinterpret their potential in this domain. It also illustrates a larger problem—when programs measure outcomes that are in a certain domain but aren't closely aligned with the program targets in that domain, we may miss important effects.

Student-level outcomes: social. During middle childhood, children's social environments become increasingly important as they navigate more complex friendships

and social situations. They need a variety of interpersonal skills, such as the capacity to develop sophisticated friendships, engage in prosocial and ethical behavior, and solve social conflicts.[35] Most of the studies we reviewed measured social outcomes, and many studies measured several of them. The measured outcomes included social competence, peer nominations of prosocial behavior and peer acceptance, empathy, perspective taking, and social problem-solving.

Social competence was measured frequently; effects ranged from nonsignificant in Making Choices to small in Fast Track PATHS. Effects on peer nominations—in which students are asked to rate their peers based on characteristics like prosocial behavior, aggression, and peer acceptance and rejection—ranged from nonsignificant to large. In Making Choices, notably, children categorized as at-risk by their teachers at the beginning of the study showed moderate to large gains. Effects on empathy ranged from nonsignificant in Second Step to moderate in MindUP; effects on perspective taking were also moderate in MindUP.

When social problem-solving outcomes were measured, 4Rs and PATHS showed generally small effects for hostile attribution bias (a form of cognitive distortion that makes it more likely children will respond to social problems with aggression); in the same programs, effects on reducing the likelihood of using aggression to resolve social conflicts were statistically significant only during the second year of implementation, with small to moderate effect sizes. Effects on normative beliefs about aggression were not significant.

Overall, the studies included a wide range of social outcomes and found a wide range

of effects, providing solid evidence that a variety of SEL programs can build important social skills in middle childhood. The scope of outcomes reflects the large number of social skills that emerge and develop during this period, the wide array of approaches and program targets, and the broad set of measurements the studies employed.

Student-level outcomes: behavioral. Improvements in children's cognitive, social, and emotional skills are expected to produce positive behavioral outcomes, such as reductions in aggression, depression, and anxiety. For example, 4Rs focuses on changing underlying social-cognitive processes, such as aggressive interpersonal negotiation strategies and hostile attribution bias, as a way to reduce children's aggression and violence. This approach is noteworthy for three reasons. First, it targets and measures both the underlying processes and the desired behavioral change. Second, it shows that we need to be clear about the mechanisms for change that underlie a program. Third, it reinforces the link between the brain and behavior—programs can affect the mental processes that underlie behaviors instead of focusing solely on changing the behaviors themselves.[36]

Behavioral outcomes measured by the studies included aggression, conduct problems, acceptance of authority, hyperactivity and on-task behavior, absenteeism, and depression and anxiety. Overall, effects in this area tended to be small. Making Choices significantly reduced aggressive behavior, with stronger effects for racial and ethnic minority children, and 4Rs found statistically significant effects on aggression after the second year of implementation. Other programs either found statistically significantly reduction in aggression (PATHS) or reduced aggression

only in subgroup populations. For example, boys in the control group were more likely than those in Fast Track PATHS to be nominated by peers as aggressive.

Depression and depressive symptoms were measured frequently. Positive Action, 4Rs, and MindUP showed small to moderate statistically significant impacts on depression and anxiety. Finally, Positive Action had large effects on reducing absenteeism.

Overall, SEL programs' effects on behavioral outcomes were mixed, but promising. Many of the programs that improved behavioral outcomes first targeted developmentally relevant processes and cognitions, showing the value of connecting theory, program approaches, and outcomes.

Student-level outcomes: academic. Four of the studies included academic outcomes, reflecting three broad categories: (1) teacher reports of academic ability, academic motivation, and academic skills, (2) grades, and (3) results of state standardized tests of math and reading achievement. In general, effects were found only for outcomes in the first category. Positive Action produced small effects on academic ability and teacher-reported academic motivation, as measured by a single item. A few studies reported effects on academic achievement by subgroup; 4Rs, for example, found moderate effects on academic achievement (measured with reading and math standardized tests) for children identified at the outset of the study as struggling the most with behavior (we should note that this program integrated the SEL curriculum into classroom reading instruction).

Taken together, the effects of SEL programs on student-level outcomes are varied. In each outcome category we see some

statistically significant findings, but also many nonsignificant findings for the same outcomes (for example, two studies found significant effects on aggression and two did not). Of the statistically significant findings, most were small to moderate.

Classroom- and school-level outcomes were measured much less frequently than student-level outcomes, even though most programs specify that they expect to produce shifts in the classroom or school contexts. We should note that when we describe classroom-level outcomes, we're referring to classroom culture and climate, as well as adult and/or teacher classroom practices. Kimberly Schonert-Reichl's article in this issue discusses adult outcomes—as distinct from classroom phenomena—in depth, and therefore we don't consider those outcomes directly.

Teachers and their classroom practices are integral to successful program implementation; typically, teachers receive significant training, coaching, and support. In some cases, teacher practices are the focus of the intervention—for example, Responsive Classroom is a professional development program that promotes a specific teaching approach. Understanding how to improve classroom practices is important for teachers, students, and overall school climate; teachers' burnout and mental health are linked to other important school indicators, such as staff turnover.[37] Teachers also play a pivotal role in classroom dynamics and in the lives of students.[38] Future studies of SEL programs would benefit from including direct measures of adult outcomes, even if the programs aren't strictly adult focused.

Classroom-level outcomes. The classroom is the primary setting for most SEL programs

in middle childhood, yet only three studies— Second Step, RULER, and 4Rs—included classroom-level measures. All three studies employed a similar measure (for example, the Classroom Assessment Scoring System, or CLASS), and the effect sizes tended to be moderate to large.[39] In addition, some evidence suggests that emotionally supportive and well-organized classrooms can improve student-level outcomes. Thus, measuring and monitoring features of the classroom environment may help us better understand changes in students' skills.[40]

School-level outcomes. Although other programs we reviewed, such as PATHS and Positive Action, had some elements that focused on the whole school environment, PBIS was the only program that took the school as its primary unit of change and the only program to include school-level measures (its evaluation suggested it generated small changes in overall organizational health).

In some ways, it makes sense that only PBIS measured school-level outcomes. Still, school-level factors and outcomes are important even for programs that don't explicitly target the school as a mechanism for change. Schools differ substantially from one another, and measuring school-level outcomes can help us see which features of the environment promote skill development and facilitate or hinder a program's implementation (for example, programs where school-level leaders buy in and allocate resources tend to be more successful).[41] Finally, given the nested structure of schools—with students embedded in classrooms, and classrooms in schools—understanding the school context and environment is likely to help us interpret program effects on students.

Variation in Program Effects

For whom and under what conditions are programs most effective? Variation in program effects is the key to answering that question.[42] The two meta-analyses we cited above examined program delivery and program duration in one case and variation in effects by recommended program characteristics and implementation problems in the other. The studies included in our review focused on understanding how individual-level social and demographic factors—including racial/ethnic background, socioeconomic status, and baseline risk or ability—are related to different program effects for different groups of students.

In some cases program effects are larger for those least at risk, such as those not in low-income schools, and in other cases they're larger for those most at risk, such as students who begin with poorer skills at the start of the year.

For example, in the Fast Track PATHS study, intervention effects were weaker in low-income schools for acceptance of authority, cognitive concentration, and social competence. And some interventions found effects only for specific subgroups. The Good Behavior Game affected aggression only among children who demonstrated low levels of on-task behavior at the outset of the study. And in Making Choices, children who were considered to be at risk of problem behaviors when the study began demonstrated larger gains in social contact and cognitive

concentration. Thus in some cases program effects are larger for those least at risk, such as those not in low-income schools, and in other cases they're larger for those most at risk, such as students who begin with poorer skills at the start of the year. At the school level, then, institutions that are more ready to effectively take on and implement an SEL program may see overall benefits for students. But within schools, those who struggle the most show the greatest short-term gains.

Summary

We reviewed 11 widely used SEL programs for elementary school that underwent randomized controlled trials relatively recently. We summarized the findings from those studies by outcome domain and for different contexts, including classrooms and whole schools. In general, our findings reflect those reported elsewhere: on average, programs generally produce effects on a broad class of outcomes that fall under the umbrella of social and emotional skills. In some cases, we also see effects in areas not necessarily directly targeted by the programs, such as aggression, depression, and academic outcomes. Our review was designed to look a little deeper and to focus on specific effects within the major social and emotional domains defined at the outset, and in particular, to examine how the alignment between program targets and measured outcomes, the role of context, and developmental stage affect the interpretation of intervention program effects.

We found four key points. First, few programs focus directly on aspects of cognitive regulation, such as executive functions including regulation of attention, thought, and action, and goal setting and

planning. Those that do, and that also include measures of cognitive regulation in their evaluations, appear to generate related child-level outcomes. For example, MindUP's program activities include frequent mindfulness practice (in addition to a variety of supports for learning mindfulness and physiological regulation), and its evaluation measures those outcomes directly. Consequently, children show positive growth and change in these specific areas. Second, many programs target basic emotion skills in some way, yet few evaluations include measures of related outcomes. Instead, they measure the sort of more complex emotional phenomena that you might expect to change only after a longer period of exposure to the program; predictably, the effects are small and quite mixed. Even when emotions are a central organizing feature of a program, outcomes in this area aren't well measured. Third, not surprisingly, the social domain dominates during this developmental period; most children are introduced to new social experiences starting in kindergarten, and over the course of elementary school, the social group and peer interaction become increasingly important. Nearly all programs target the social domain, and all evaluations include measures of a variety of social phenomena; the effects in this area are quite robust, particularly for peer reports of social outcomes. Fourth, we see some evidence for small effects in areas of great interest to practitioners and policymakers, including aggressive behavior and academic success. Seeing only small effects in these areas is not all that surprising, as the programs don't necessarily target these complex domains directly. Even small effects in these areas should be considered quite important.

Overall, the different programs generally offer the same theory of change: the intervention is linked to a set of classroom practices (teaching strategies and classroom management) and student skills (social and emotional, and sometimes cognitive) and then to a set of transfer outcomes farther down the road (behavior, academics, and mental health).[43] Yet few studies of the programs have examined this theory directly by including classroom-level outcomes, and then linking those to growth and change in student skills. Studies that do so reveal large effects on teaching strategies and classroom practices, and in some cases show that changes in those areas are partly responsible for changes in student skills.[44] A few programs, such as the CARE intervention, seek to improve adult wellbeing directly, and studies suggest that they are successful.[45] We don't yet know whether those changes are translating into positive effects on student skills in middle childhood, although there is some evidence—based on studies that take place in early childhood or adolescence— that this happens in interventions like My Teaching Partner.[46] Drawing on our findings, we offer three recommendations.

Recommendation 1: Focus More on Teachers, Classrooms

Measuring student skills in isolation provides an incomplete picture of the classroom environment and the interactions that students engage in daily. Teacher- and classroom-level outcomes can give us a richer picture of classroom practices, processes, and relationships, which are likely to affect student-level SEL skills and other key outcomes.[47]

Focus on Teachers

The role of teachers and other adults in SEL interventions differs based on

program type and theory of change. For example, some SEL programs like CARE focus only on building adult skills; other programs like Responsive Classroom provide professional development to train teachers in specific teaching practices and strategies; and other programs like PBIS work to improve school structures and systems. In most programs, lessons, curricula, and other intervention-related content is delivered primarily through teachers, and almost all programs include intensive teacher training and coaching. It's clear that adults are central to SEL interventions, raising the following questions:

1. What are the impacts of SEL interventions, if any, on meaningful adult outcomes, such as teachers' own social-emotional competencies, burnout, etc.? Interventions may be most successful when they promote teachers' own social and emotional skills as well as those of their students.[48]

2. How do the characteristics and skills of teachers and other adults impact intervention implementation and student-level outcomes? Teachers who have higher social-emotional competence and/or experience less stress may be better positioned to interact positively with their students in ways that support social and emotional development. It's possible that changes in student-level outcomes come partly from changes in teachers' skills.

3. How does the student-teacher relationship support the development of social and emotional skills? Some evidence suggests that the quality of student-teacher relationships is instrumental to shaping children's schooling experiences, but few studies include the student-teacher relationship as a mechanism for change and/or explicitly investigate its role in promoting SEL skills.[49]

Focus on the Classroom

The environments in which students are embedded either facilitate or hinder skill development.[50] We need to understand features of the primary setting—in this case, the classroom—to create a comprehensive picture of the mechanisms through which interventions may affect students' skills. Indeed, one group of researchers has hypothesized that interventions may affect students' SEL skills directly via curricula and other activities or indirectly via positive changes in the overall classroom environment.[51] But few studies measure classroom-level outcomes or features of the classroom environment. As a result, current understandings of interventions are for the most part devoid of context.

Studies that do measure features of the classroom environment often use the CLASS observational measure. CLASS assesses teacher-child interaction quality in three domains (emotional support, instructional support, and organizational support) to understand overall classroom climate and quality. In the studies we reviewed, effects measured by CLASS ranged from moderate for classroom emotional support to large for instructional support. Most studies that included

measures of the classroom environment, and all studies that used CLASS, identified statistically significant effects on at least some classroom-level variables. These findings indicate that SEL interventions are making meaningful changes in classroom environments and instructional interactions. What remains to be seen is whether such changes are sufficient, or at a minimum operate as a pathway, to make changes in student skills.

Recommendation 2: Reflect Development

As we've said, middle childhood includes a great many developmental and environmental transitions. To be effective, SEL interventions are likely to work best when they target skills in a manner that reflects developmental growth and the key contexts in which children learn and play. That means targeting and measuring skills in a manner consistent with the developmental principles articulated above: Focus on skills most salient to each grade or age that serve as building blocks for more complex skills later. For example, simple cognitive regulation and emotion skills in the very early grades lead to planning and organizing in second and third grade, and to perspective taking and conflict resolution in fourth and fifth grade. Moreover, studies of SEL programs should articulate a series of reasonable short- and long-term goals or expectations.

Recommendation 3: Rethink Measurement

The measurement of skills in middle childhood should grow narrower in focus but broader in context and depth. By narrower, we mean that researchers, program developers and evaluators, practitioners and other key stakeholders should move

away from expansive measurements of SEL outcomes and, instead, choose measures that are more specific and guided by knowledge of development and skill trajectories. By broader, we mean that measurement should be expanded to focus on contexts, including classroom-, school-, and adult-level outcomes. Ignoring ecological principles of development—that is, the environment in which children live and learn, —may obscure meaningful program-related changes. Broadening measurement can also mean expanding data sources, for example, by collecting data from teachers and school staff about their experiences with the program, or what worked and what didn't in their schools or classrooms. Further, collecting data about outcomes related to coaching and parent skills and knowledge could give us more information about the range of factors that affect program implementation and effectiveness.

We also suggest increased methodological clarity and rigor. In particular, we recommend caution when interpreting the effects of programs when the data were analyzed at the individual child level but randomization occurred at the classroom or school level. Such analyses can result in overestimating program effects.

Remaining Challenges

Despite promising evidence in favor of programs and interventions focused on social and emotional skills, a number of important challenges remain:

1. Insufficient dosage, duration, and effectiveness. SEL programs often take the form of short lessons, implemented during one weekly half-hour or hour-long section of a language arts, social studies, or

other class.[52] In our experience, these lessons are often abridged or skipped because of tight schedules and the need to spend class time on academic content. For example, sometimes schools adopt programs without setting aside time in the daily schedule, leaving it to teachers to find extra time or adapt the curriculum. When this happens, programs often aren't sustained, and students experience little continuity from one year to the next. Furthermore, despite recommendations that schools adopt evidence-based programs, many schools use programs that haven't been well tested.[53]

2. Fragmentation and marginalization. In many schools, SEL skills aren't seen as a core part of the educational mission; they may be viewed as extracurricular, add-on, or secondary. As a result, there is little effort to apply the skills learned during SEL programming. A growing number of programs have tried to solve this problem by integrating SEL skills with academic content (for example, by using history, language arts, and social studies curricula to build cultural sensitivity, respect for diversity, and social/ethical awareness), but such integration in schools is rare.[54]

3. Sole focus on classrooms. As we've said, most SEL programs focus solely or primarily on what goes on in the classroom. But SEL skills are also needed on playgrounds, in lunchrooms, in hallways and bathrooms, and in out-of-school

settings.[55] Students need support to navigate such spaces and to make the entire school environment safe, positive, and conducive to learning. Even when students don't consider them to be dangerous, these non-classroom contexts offer vital opportunities to practice SEL skills. At any age, children frequently encounter sharing, entering into social situations, and social inclusion and exclusion in parts of the school beyond the classroom.

4. Limited staff training. Broadly speaking, teachers, other school staff, and the adults who staff out-of-school settings typically receive little training (beyond that provided through specific interventions) in how to promote SEL skills, deal with peer conflict, or address other SEL-related issues.[56] For example, preservice teacher training pays little attention to these issues beyond basic behavior management strategies, and teachers get little in-service support on these topics through effective approaches like coaching and mentoring. Staff members other than teachers receive even less training and support, despite the fact that cafeteria monitors, bus drivers, coaches, and other non-teaching staff work with children during many of the interactions that most demand effective SEL strategies and skills.

5. Limited use of data. Few schools use data to make decisions about the selection, implementation, or assessment of the programs and

strategies they use despite a more general trend toward data-driven decision-making in schools. Schools and their partners thus struggle to select and use programs most suited to their contexts and to the specific challenges they face, to monitor results, and to hold themselves accountable.

Conclusions

Returning to the broad question we asked at the outset of this article, What are the sources of variation in the impacts of SEL programs designed for the elementary years? For example, what's the difference between the SACD study and the specific interventions we describe here? Our review suggests that what appears to be variation in impacts may instead be an artifact of imprecise program targets misaligned with too-general outcome measures. In short, when a variety of programs, each with a specific theory or approach, are joined under a universal heading and studied using broad and general measures, we are less likely to see effects. In contrast, when theory, evaluation plan, and measurement are closely aligned, we do see effects. This sort of precision and alignment can help those who select and implement programs determine which approaches are likely to meet their interests and needs.

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