SEL Interventions in Early Childhood

Megan M. McClelland, Shauna L. Tominey, Sara A. Schmitt, and Robert Duncan

Summary

Young children who enter school without sufficient social and emotional learning (SEL) skills may have a hard time learning. Yet early childhood educators say they don't get enough training to effectively help children develop such skills.

In this article, Megan McClelland, Shauna Tominey, Sara Schmitt, and Robert Duncan examine the theory and science behind early childhood SEL interventions. Reviewing evaluation results, they find that several interventions are promising, though we need to know more about how and why their results vary for different groups of children.

Three strategies appear to make interventions more successful, the authors write. First, many effective SEL interventions include training or professional development for early childhood teachers; some also emphasize building teachers' own SEL skills. Second, effective interventions embed direct instruction and practice of targeted skills into daily activities, giving children repeated opportunities to practice SEL skills in different contexts; it's best if these activities grow more complex over time. Third, effective interventions engage children's families, so that kids have a chance to work on their SEL skills both at school and at home. Family components may include teaching adults how to help children build SEL skills or teaching adults themselves how to practice and model such skills.

Are early childhood SEL interventions cost-effective? The short answer is that it's too soon to be sure. We won't know how the costs and benefits stack up without further research that follows participants into later childhood and adulthood. In this context, we particularly need to understand how the long-term benefits of shorter, less intensive, and less costly programs compare to the benefits of more intensive and costlier ones.

www.futureofchildren.org

Megan McClelland is the Katherine E. Smith Endowed Professor in Child Development in the College of Public Health and Human Sciences at Oregon State University. Shauna Tominey is an assistant professor of practice and a parenting education specialist in the College of Public Health and Human Sciences at Oregon State University. Sara Schmitt is an assistant professor in the Department of Human Development and Family Studies of the College of Health and Human Sciences at Purdue University. Robert Duncan is a postdoctoral fellow with the Irvine Network on Interventions in Development in the School of Education at the University of California, Irvine. This article was supported by grants from the US Department of Education, Institute of Education Sciences to Oregon State University (#R305A100566, R305A150192, R305A150196) and the University of California, Irvine (#R305B120013).

Pamela Morris of New York University reviewed and critiqued a draft of this article. The authors thank the participants in the *Future of Children* "Social and Emotional Learning" conference at Princeton University for their feedback.

To be ready to enter school, young children need social and emotional learning (SEL) skills such as getting along with others, paying attention, following directions, and managing emotions. Yet teachers report that many children enter school without these skills, which can make it challenging for them to learn.[1] And early childhood educators often feel that they don't receive enough training to effectively help children develop SEL skills.[2] In response, policymakers and practitioners have focused on SEL, and interventions that promote SEL skills for young children have proliferated. SEL interventions take many approaches, and their very diversity makes it challenging to determine which components and approaches are most effective. To ensure that all children have the skills to thrive, we need to pinpoint what works under what conditions and with what populations.

In this article, we examine the science behind SEL interventions. We start by clarifying key terms related to SEL skills and reviewing the approaches used in current early childhood SEL interventions. We discuss the theories that guide these interventions, as well as results from intervention studies, including a look at how results vary for different groups of children. Next we examine intervention characteristics that relate to SEL growth and review the potential financial and societal benefit of SEL interventions. We conclude by discussing the limitations of current SEL interventions and making recommendations for research and policy.

Social and Emotional Learning: Key Terms

Social and emotional learning (SEL) refers to a broad range of social, emotional, and behavioral skills for children. We highlight three main components of SEL skills: emotional processes, social/interpersonal skills, and cognitive regulation.[3]

The first component, emotional processes, encompasses the skills children need to manage their emotions effectively and recognize the emotions of others. Emotional processes include skills such as emotion knowledge (the ability to recognize and label emotions accurately), emotion regulation (managing emotions and controlling how and when we express them), perspective taking, and empathy.[4] The second component, social/interpersonal skills, includes behaviors that help children and adults interact positively and effectively with others.[5] For example, social/interpersonal skills include recognizing and understanding social cues, effectively interpreting others' behaviors, and having positive interactions with others.[6] The third SEL skills component, cognitive regulation, focuses on cognitive flexibility, working memory, and inhibitory control (also referred to as executive function). Cognitive regulation skills are mental processes that help children focus and switch from one task to another, listen to and remember instructions, and inhibit impulses.

These SEL components are interrelated.[7] For example, during a music and movement activity in the classroom, a child may use cognitive regulation to pay attention to and follow the teacher's instructions, and social/interpersonal skills to cooperate with a friend in a partner dance. In addition, she may need to use emotional processes to manage her frustration if another classmate bumps into her.

Children's SEL skills grow significantly during early childhood. Research shows that when children participate in SEL

interventions, not only can their behavior improve, but we may also see changes in their brain structure and function.[8] In addition, multiple studies have found that participating in preschool SEL interventions is significantly related to growth in academic achievement and SEL skills, in both the short and long term.[9] But some studies find stronger effects than others; some studies find effects for some children but not for others; and some studies find no effects at all. Many things could explain these different results: the specific SEL skills targeted by an intervention, the approach used to teach SEL skills, the characteristics of the teachers delivering the intervention, or the characteristics of the children who participate. Untangling what works in SEL interventions can help us understand how best to support the development of these skills for young children. Children are complex (just ask any parent!), and many things influence their development. These influences can be either biological (for example, children's temperament and personality), or environmental (for example, family, school, and social and cultural contexts).[10] The connections between biological and environmental influences set the stage for understanding SEL skills development and early childhood interventions that promote these skills.

Promoting SEL Skills in Early Childhood

To best capture the context in which most children receive care before formal schooling, in this section we examine SEL interventions designed for center-based early education settings such as preschool classrooms.[11] We focus on studies that use a randomized controlled design, meaning that children or groups of children are randomly assigned to either participate in an intervention (treatment group) or not (control group). After the intervention, children in the treatment and control groups are compared on key outcomes. Randomized controlled studies are considered the gold standard for evaluating interventions because they let us estimate whether an intervention actually causes the effects we see.[12] We organize the interventions we review by their theoretical frameworks.

When children participate in SEL interventions, not only can their behavior improve, but we may also see changes in their brain structure and function.

SEL Models

SEL interventions, like many preschool and school-based interventions, are based on evidence from research and follow a particular theoretical perspective. Different approaches emphasize different practices and skills. For example, some interventions help educators directly teach children SEL skills through classroom curricula, based on principles such as social learning theory and pretend play models of learning. Other interventions, such as those based on coercion theory, focus on professional development to support classroom management strategies that strengthen children's SEL throughout the day. In the following section, we organize our discussion of SEL interventions by their theoretical frameworks and summarize results from each intervention. Because each intervention uses different measures to assess change, we

talk about their impacts in terms of small, medium, and large effect sizes. In general, small effect sizes are those that we can observe and measure statistically through a research study, but that we might not see with the naked eye (for example, small but consistent improvements in children's scores on SEL assessments). Large effect sizes are those that are not only measurable through research, but are also large enough that parents and teachers can likely see them. When possible, we explain what these changes mean in relation to children's skills or outcomes.

Social learning theory models. Some SEL interventions are grounded in social learning theories; that is, they focus on how children interpret social cues and respond to social challenges. One example of this approach is called Promoting Alternative Thinking Strategies (PATHS), a classroom-based curriculum consisting of approximately 30 lessons delivered over the course of an academic year. The PATHS curriculum aims to improve preschool children's social-emotional competence and cognitive regulation, and to reduce problem behaviors. Evaluation studies, primarily with low-income preschool children, indicate that PATHS has been effective at improving preschoolers' social-emotional competence.[13] When used as part of the Head Start Research-Based, Developmentally Informed (REDI) program, an enhanced Head Start curriculum that focuses on language and literacy and on social-emotional competence, PATHS has shown positive effects ranging from small to large on children's social-emotional competence, cognitive regulation, and literacy. These effects have persisted into elementary school.[14]

The Kids in Transition (KITS) SEL intervention focuses on how children process social information. It targets specific populations: children in the foster care system and those with developmental disabilities and/or behavioral problems. Designed as a short-term booster program to support school readiness as children transition out of preschool, KITS is delivered over the two summer months before kindergarten. It consists of classroom-based play sessions twice per week in which children are explicitly taught SEL skills. In three studies, KITS has produced small improvements in social competence and cognitive regulation, as well as small reductions in aggressive and oppositional behaviors.[15]

Another SEL program, I Can Problem Solve (ICPS), gives educators classroom lessons designed to help children recognize emotions in themselves and others, and practice perspective taking and the ability to think actively of prosocial solutions to problems. Educators receive support not only to implement the curriculum, but also to embed key principles from the curriculum into teacher-child interactions and children's interactions with one another in the classroom.[16] By directly measuring children's ability to brainstorm solutions, two randomized controlled trials and one quasi-experimental trial of ICPS found medium-size increases in preschool children's abilities to solve interpersonal problems.[17] And teachers report that children who participate in ICPS exhibit fewer problem behaviors in the classroom than children who don't. In sum, interventions rooted in social learning theories that emphasize the development of social skills have had positive impacts on social problem solving and cognitive regulation, and have reduced problem behaviors and aggression.

Pretend-play models. Some SEL interventions, such as the Tools of the Mind curriculum, emphasize practicing social roles during play. Some studies have found that Tools of the Mind can significantly improve children's cognitive regulation and reduce teacher ratings of children's problem behaviors.[18] A recent evaluation of the program with kindergarten children found medium-to-large positive effects on SEL and academic skills; moreover, the effects for literacy and vocabulary grew stronger over time.[19] But in a separate study with prekindergarten children, Tools of the Mind didn't improve SEL skills and may even have had some negative effects.[20] Although we have some evidence that Tools of the Mind is associated with improved SEL skills, these mixed results show that it's unclear for whom and under what conditions it works best.

Coercion theory models. Some interventions emphasize developing teachers' own abilities, including their classroom management skills. These interventions stem from coercion theory, which describes a cycle of escalating negative interactions between children with behavior problems and their parents, teachers and peers, leading to more negative behavior. Interventions using this framework focus on how teachers can help children de-escalate intense emotions and learn from watching teachers and peers model appropriate behavior. One such intervention is the Chicago School Readiness Project (CSRP), and its larger-scale successor, Foundations of Learning. CSRP and Foundations of Learning equip preschool teachers (primarily teachers of children from low-income households) with the skills to effectively manage their classrooms and build positive relationships with their students, thereby promoting SEL skills. In both programs, teachers attend a series of workshops on classroom management strategies, such as developing classroom rules and routines, and effective methods for promoting children's social-emotional skills, such as problem solving and anger management. Teachers also meet weekly with clinical consultants to discuss individual children and the classroom as a whole. Beyond weekly meetings, consultants offer one stress management workshop and individualized stress management techniques to teachers over the course of the academic year.

CSRP has been rigorously evaluated with long-term follow-ups. Results from two studies of CSRP and Foundations of Learning generally show small-to-medium positive impacts on SEL skills. But findings have been mixed with respect to which SEL skills show improvements. For example, both studies show small-to-medium effects on reducing children's behavior problems, but only one evaluation of CSRP showed positive effects on children's cognitive regulation and academic outcomes.[21] Despite these mixed findings, using professional development to help teachers model SEL skills and manage children's behavior could be an important way to improve children's SEL skills.

The Incredible Years series also targets teachers' abilities to help children de-escalate and learn from watching teachers model appropriate behavior.[22] Incredible Years was designed to prevent and reduce conduct problems in young children by boosting emotion regulation and social competence. It includes teacher and parent training programs coupled with child-training resources and materials. Multiple randomized controlled trials, including long-term follow-ups, have assessed its impacts on preschool classrooms and individual

children. One study—with a sample of children from low-income backgrounds—found that children in a Head Start program that used Incredible Years demonstrated fewer conduct problems than children in a Head Start program that didn't.[23] The study also found that children in an Incredible Years program who were rated at high risk for conduct problems when the study began were more likely to fall within the normal range for these behaviors one year later than children in a control group also rated at high risk for conduct problems at the study's onset. A second study found that children in Incredible Years demonstrated greater gains in emotion regulation and social competence, and greater decreases in conduct problems compared to children at control schools.[24] Overall, interventions based on coercion theory that emphasize modeling and classroom management strategies have improved multiple SEL domains (with small-to-medium effects), including social-emotional competence and cognitive regulation, and decreased problem behaviors.

Cognitive regulation models. Some interventions are designed to improve a single SEL skill or specific subset of skills, such as cognitive regulation, which refers to a specific subset of executive function skills, including cognitive flexibility, working memory, and inhibitory control. An example is the Red Light, Purple Light circle-time intervention, which includes cognitively complex music and movement games for use in preschool classrooms. Two studies found that children in the intervention group showed medium-size improvements in cognitive regulation (at least one standard deviation), larger improvements in early math (about a one year age equivalent gain in math over six months), and smaller improvements in literacy (about half a standard deviation).[25]

Other interventions have focused on processes that help children reflect on how they're thinking, that is, metacognition, and mindfulness meditation or yoga practices. For example, reflection training is designed to help children reflect on their thoughts while they complete a task to improve their performance. In one study, children who failed the initial training for a common cognitive-regulation task were given corrective feedback and were taught to reflect on the different rules. In three experiments, children who received such reflection training performed the task significantly better. Moreover, one of the experiments assessed brain reactivity, and improved performance was also accompanied by neural changes. These results indicate that cognitive regulation is malleable at both the behavioral and neural level.[26]

Other cognitive regulation interventions embed mindfulness training (for example, calming activities) or yoga in preschool curricula.[27] In one randomized controlled study, the mindfulness-based Kindness Curriculum showed small-to-medium impacts on children's cognitive regulation.[28] In another study, children in intervention classrooms were exposed to about 40 hours of mindful yoga over the school year. Children who participated showed significant improvements on cognitive regulation compared to children in a control group. As is often the case (see the section on differential intervention effects, below), results were strongest for children who initially performed more poorly than their peers on executive function tasks.

Despite their different theoretical approaches, we can identify three common themes among the interventions we've discussed. The first is the presence of

targeted support for both teachers and children; that is, most of the programs include professional development for educators as well as a classroom curriculum. Second, interventions are especially effective when they focus on skills that are strongly associated with the targeted outcomes. Third, age-appropriate play-based learning methods help children succeed in these programs. But despite these common themes, SEL interventions have had mixed results. In the next section, we discuss what may make interventions effective, for whom, and in what context.

Understanding for whom and under what conditions interventions work best can guide research, practice, and policy.

Differential Intervention Effects

Some interventions are more effective than others, some work best with certain groups or in certain conditions, and some interventions may not be effective at all. It's also possible that some interventions only appear to be ineffective because we're not measuring the right things or not measuring them in the right way. Given the many factors that influence children's development and that their experiences in early childhood settings vary, a one-size-fits-all approach to intervention may not help all children. Understanding for whom and under what conditions interventions work best can guide research, practice, and policy. Moreover, understanding differential intervention effects may help us reconcile the conflicting results we see.[29] What child, teacher, and classroom characteristics might make interventions more or less effective? And how do characteristics of the interventions themselves, such as the quality of implementation and the level of exposure, interact with those factors?

Researchers have proposed two conflicting hypotheses for differential intervention effects. The first is the compensatory hypothesis, which suggests that children from low-income families and those who start preschool with lower skills will benefit more from interventions because they're at greater risk and have more room for improvement. In contrast, the accumulated advantages hypothesis, also called the Matthew effect, predicts that children from higher-income families who start preschool with stronger skills will benefit more from intervention because they're better able to take advantage of learning opportunities and more capable of building on these initial skills. Research on SEL interventions generally supports the compensatory hypothesis. For example, many studies have shown that SEL programs have the strongest effects for children who start with lower baseline levels of SEL skills and/or achievement.[30] Additionally, poor and minority children usually benefit the most from SEL interventions (they are also more likely to start with lower levels of these skills). In a study of Tools of the Mind that found overall positive results on cognitive regulation, for example, children from high-poverty schools showed the largest gains. Effects for stress physiology as measured by cortisol followed a similar pattern. In the Red Light, Purple Light intervention, low-income English language learners showed the largest improvements in

cognitive regulation, and they were the only group that showed intervention-related gains in early math skills. Specifically, children in the intervention gained as much in math in six months as those without the intervention gained in one year. These results suggest that focusing SEL interventions on children most at risk for lower baseline skills could be an effective way to boost these skills for children who are struggling with them the most and thus, could narrow school readiness gaps. However, we need more work on diverse groups of children. In addition, children benefit more when their SEL skills are reinforced at home, which is less likely to happen in families with fewer resources.

Dosage

The level of exposure to an intervention—also known as *dosage*—can produce differential effects.[31] For example, a study of the Un Buen Comienzo (UBC) preschool intervention in Santiago, Chile, found that overall, classroom quality improved but children's language and literacy skills did not.[32] However, children's rate of absenteeism, which directly influenced their exposure to the intervention, was related to whether their language and literacy skills improved.[33] That is, the intervention had positive impacts on children's language and literacy skills only for those with the lowest rates of absenteeism. Although UBC focused on professional development for teachers, it showed that the degree of exposure to an intervention is related to its effectiveness.

But how much exposure is needed for an intervention to be effective? The answer probably depends on the intervention and the needs of the children receiving it. For example, in the first evaluation of Red Light, Purple Light, children who attended at least 11 of 15 sessions showed the strongest gains (particularly those who had the lowest initial cognitive regulation scores).[34] But for many interventions, we still don't know how much exposure is enough. Thus, tracking and testing intervention exposure may be critical to adequately assessing effectiveness.

Fidelity of Implementation

The quality of an intervention's implementation also influences its effectiveness. One large review found that when studies reported no problems with implementing an SEL intervention, they showed improvements on all six assessed SEL and academic achievement outcomes.[35] In contrast, studies where implementation faced problems showed significant effects on just two of the six SEL and academic achievement outcomes. Similarly, in a study of PATHS, greater implementation fidelity was related to improvements in several SEL outcomes, including problem solving and social competence, and reductions in overt aggression.[36]

Studies of Tools of the Mind have also investigated implementation fidelity; the findings in these studies have been mixed. In fact, one study reported that greater fidelity was associated with smaller gains in prekindergarten achievement scores and smaller gains in cognitive regulation at the end of first grade.[37] However, these findings were consistent with the study's overall conclusion that Tools of the Mind was ineffective at boosting achievement scores and cognitive regulation. Other studies have shown that Tools of the Mind has beneficial effects, but the inconsistencies across studies highlight the need to measure how well teachers follow through with program activities in the classroom. We should also

consider whether the various components of fidelity (adherence, quality, exposure, and responsiveness) affect children's outcomes in different ways. To do this effectively, we need to develop measures that accurately assess these components.

To effectively implement an SEL intervention, teachers must be able to model strong SEL skills.

Strategies Related to SEL Intervention Success

Evaluations of SEL interventions have highlighted several strategies that affect their success. First, many effective SEL interventions include training or professional development for early childhood teachers; some also emphasize building teachers' own SEL skills, in addition to children's. For example, PATHS and Tools of the Mind give teachers multiday training sessions to prepare them to deliver the curricula; they also offer regular mentoring to ensure successful implementation.[38] Some interventions include stress management services for teachers.[39] Others (for example, RULER) seek to develop teachers' own SEL skills, specifically their emotional intelligence. Indeed, to effectively implement an SEL intervention, teachers must be able to model strong SEL skills.[40]

A second strategy that makes SEL interventions effective is embedding direct instruction and practice of targeted skills into daily activities. Children benefit the most from SEL instruction when they have repeated opportunities to practice SEL skills in different contexts.[41] Moreover, it's best if SEL activities grow more complex over time and engage children, like the music and movement games do in Red Light, Purple Light.[42] For example, in the first week of the intervention children learned the freeze game, in which they dance when music is playing and stop dancing when the music stops. More complex rules were added later—for example, dancing slowly to slow music and quickly to fast music, and then doing the opposite—to ensure that children's cognitive regulation skills were being challenged. Because it's also important that adults carry out the activities with fidelity, SEL interventions should be feasible to implement in different contexts.

A third strategy related to intervention success is family engagement, which helps ensure that children develop SEL skills both at school and at home. Some successful programs (for example, Incredible Years and RULER) incorporate a parenting component. Family engagement activities in such interventions may include integrating SEL curriculum content into family newsletters, home visits, or through sharing curriculum activities with parents during family workshops or activities with children at school. Family components can include instruction on how to support children's SEL skills development and how to practice and model these skills for adults at home.

Costs and Benefits

We know little about the cost-effectiveness of recently developed SEL programs, although research shows that some are costly to administer.[43] But cost-benefit analyses of well-known early childhood interventions provide evidence that may apply to SEL interventions. High-quality early childhood

programs are often considered cost-effective investments for society, in part because of the financial benefits associated with SEL-related outcomes.[44] We highlight two evaluations of early childhood programs that followed participants into adulthood—the Chicago Child-Parent Center (CCPC) and High/Scope Perry Preschool. Cost-benefit analyses of each program found favorable results for cost effectiveness, though the mechanisms driving their effects on participants' life outcomes are somewhat unclear. [45] Psychologists and economists argue that the lasting benefits may come partly from enhanced SEL skills, which continue to produce positive impacts on various outcomes throughout participants' lives.[46]

The CCPC early childhood program targeted low-income, predominantly African-American children and their parents (we focus here only on the program effects associated with child participants). A cost-benefit analysis indicates that CCPC returned an estimated $7.14 to society for every dollar invested.[47] Along with parenting support, CCPC broadly targeted academic skills like literacy in early childhood, but its many beneficial societal returns seem to come from differences in SEL-related outcomes. For example, children in the program needed fewer school remedial services, and they had fewer arrests and higher rates of school completion through adolescence and young adulthood.[48]

Like CCPC, High/Scope Perry Preschool targeted low-income, African-American children from disadvantaged backgrounds. It included center-based care, home visits, and group meetings with parents.[49] According to cost-benefit analyses, Perry Preschool returned an estimated $12.90 to society for every dollar invested.[50] Children in the Perry program incurred considerably fewer societal costs as adults, including lower rates of criminal activity and arrests, in addition to higher wages. It isn't clear to what degree these positive long-term impacts can be attributed to enhanced SEL skills. What we do know is that the program's positive effects on IQ faded by the time children were eight years old, but the beneficial effects on SEL-related outcomes (for example, lower rates of criminal activity) persisted into adulthood.[51]

CCPC and Perry Preschool started early in children's lives, and although the programs didn't explicitly target SEL skill development, they targeted many skills that would fall under today's SEL definitions and produced long-term beneficial effects on SEL-related outcomes. Furthermore, both programs provided childcare- and parenting-support services, which fits with emerging evidence that two-generation approaches (that is, approaches that simultaneously focus on parents and children) can help break the cycle of poverty through improved parent and child outcomes (for example, higher employment and income for parents and cognitive and social skills for children).[52] The programs were also conducted among relatively high-risk populations, which may have made them more effective than they would have been in the general population.

Now we need similar long-term studies and cost-benefit analyses of recently developed SEL programs. Following participants in SEL programs from early childhood through adulthood could help us understand how more intensive programs compare to less intensive ones. For instance, do we see changes in adolescent criminal activity or high school graduation based on participation in the Tools of the Mind or CSRP programs? Can shorter and less expensive interventions

(for example, KITS and Red Light, Purple Light) have long-term benefits similar to those of more expensive ones? One Tools of the Mind evaluation found that some of the intervention's positive effects grew stronger in the second year, suggesting that more intensive training for children may pay off in the long run. However, findings like this need to be balanced against the higher cost of Tools of the Mind compared to shorter, less expensive, and more targeted programs.

Conclusions

Our review has focused on the current understanding of SEL interventions in early childhood and the questions that remain. We examined findings from a number of interventions that target SEL skills using different theoretical foundations. Although each of these approaches helps shed light on how we can improve the various components of SEL skills, they make SEL programs difficult to compare. Not only do programs use different approaches, they also target different skills and often use different measures to assess skills. Thus, even when we find common factors across programs, we may not be able to pinpoint which of them matter most. Although finding intervention effects is encouraging, the small-to-moderate effects—and sometimes the lack of effects—that we see in some SEL interventions suggest that we still have a lot of work to do before we can effectively promote SEL skills for all children, especially in diverse early childhood education settings.

We also need to understand whether intervention gains in SEL skills transfer to other skills, such as academic achievement. Many studies have shown that children with higher SEL skills tend to have higher academic skills. We know less about how boosts in children's SEL skills from interventions affect academic achievement, although work in this area is expanding.[53] Finally, we need to explore the long-term effects and cost-effectiveness of more recently developed early childhood SEL interventions on a variety of child, adolescent, and adult outcomes like criminal activity, grade retention, and high school completion.

Policy Implications

The research we've reviewed here shows that SEL interventions can have meaningful effects on children's development. Understanding for whom and in what contexts interventions work best can help guide how we adapt existing interventions or develop new programs and curricula that meet the needs of children from diverse backgrounds. In turn, such knowledge could help guide policymakers' funding decisions and target programs to those who need them most. Although looking at overall intervention effects should continue to be a priority, examining differential effects will help move the conversation away from overly simplistic arguments about whether an intervention works and help us meet the needs of different groups of children.

ENDNOTES

1. Joseph A. Durlak et al., "The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions," *Child Development* 82 (2011): 405–32, doi: 10.1111/j.1467-8624.2010.01564.x; Joseph E. Zins, *Building Academic Success on Social and Emotional Learning: What Does the Research Say?* (New York: Teachers College Press, 2004); Kathryn S. Whitted, "Understanding How Social and Emotional Skill Deficits Contribute to School Failure," *Preventing School Failure: Alternative Education for Children and Youth* 55 (2011): 10–16, doi: 10.1080/10459880903286755.

2. Mary Louise Hemmeter, Rosa Milagros Santos, and Michaelene M. Ostrosky, "Preparing Early Childhood Educators to Address Young Children's Social-Emotional Development and Challenging Behavior: A Survey of Higher Education Programs in Nine States," *Journal of Early Intervention* 30 (2008): 321–40, doi: 10.1177/1053815108320900.

3. Stephanie M. Jones and Suzanne M. Bouffard, "Social and Emotional Learning in Schools: From Programs to Strategies," *Social Policy Report* 26, no. 4 (2012), http://www.srcd.org/sites/default/files/documents/spr_264_final_2.pdf.

4. Carroll Izard et al., "Emotion Knowledge as a Predictor of Social Behavior and Academic Competence in Children at Risk," *Psychological Science* 12 (2001): 18–23; James J. Gross, *Handbook of Emotion Regulation*, 2nd ed. (New York: Guilford Press, 2015).

5. Linda Rose-Krasnor, "The Nature of Social Competence: A Theoretical Review," *Social Development* 6 (1997): 111–35.

6. Jones and Bouffard, "From Programs to Strategies."

7. Susanne A. Denham et al., "Preschool Emotional Competence: Pathway to Social Competence?" *Child Development* 74 (2003): 238–56, doi: 10.1111/1467-8624.00533; Megan M. McClelland et al., "Self-Regulation: The Integration of Cognition and Emotion," in *Handbook of Life-Span Development*, vol. 1, *Cognition, Biology, and Methods*, ed. Richard Lerner and Willis F. Overton (Hoboken, NJ: Wiley and Sons, 2010), 509–53.

8. Clancy Blair and C. Cybele Raver, "Closing the Achievement Gap through Modification of Neurocognitive and Neuroendocrine Function: Results from a Cluster Randomized Controlled Trial of an Innovative Approach to the Education of Children in Kindergarten," *PLoS ONE* 9, no. 11 (2014): e112393, doi: 10.1371/journal.pone.0112393; Sara A. Schmitt et al., "Strengthening School Readiness for Head Start Children: Evaluation of a Self-Regulation Intervention," *Early Childhood Research Quarterly* 30(A) (2015): 20–31, doi: 10.1016/j.ecresq.2014.08.001; Stacey D. Espinet, Jacob E. Anderson, and Philip David Zelazo, "Reflection Training Improves Executive Function in Preschool-Age Children: Behavioral and Neural Effects," *Developmental Cognitive Neuroscience* 4 (2013): 3–15.

9. Damon E. Jones, Mark Greenberg, and Max Crowley, "Early Social-Emotional Functioning and Public Health: The Relationship between Kindergarten Social Competence and Future Wellness," *American Journal of Public Health* 105 (2015): 2283–90, doi: 10.2105/AJPH.2015.302630; Megan M. McClelland, et al. "Relations between Preschool Attention Span-Persistence and Age 25 Educational Outcomes," *Early Childhood Research Quarterly* 28 (2013): 314–24, doi: 10.1016/j.ecresq.2012.07.008; David J. Schonfeld, et al., "Cluster-Randomized Trial Demonstrating Impact on Academic Achievement of Elementary Social-Emotional Learning," *School Psychology Quarterly* 30 (2015): 406–20; Durlak et al., "Meta-Analysis."

10. McClelland et al., "Self-Regulation"; Clancy Blair and C. Cybele Raver, "School Readiness and Self-Regulation: A Developmental Psychobiological Approach," *Annual Review of Psychology* 66 (2015): 711–31, doi: 10.1146/annurev-psych-010814-015221.

11. Milagros Nores and W. Steven Barnett, *Access to High Quality Early Care and Education: Readiness and Opportunity Gaps in America* (New Brunswick, NJ: Center on Enhancing Early Learning Outcomes, 2014), http://ceelo.org/wp-content/uploads/2014/05/ceelo_policy_report_access_quality_ece.pdf

12. William R. Shadish, Thomas D. Cook, and Donald T. Campbell, *Experimental and Quasi-Experimental Designs for Generalized Causal Inference* (Boston: Houghton Mifflin, 2002).

13. Celene E. Domitrovich, Rebecca C. Cortes, and Mark T. Greenberg, "Improving Young Children's Social and Emotional Competence: A Randomized Trial of the Preschool 'PATHS' Curriculum," *Journal of Primary Prevention* 28, no. 2 (2007): 67–91, doi: 10.1007/s10935-007-0081-0.

14. Karen L. Bierman, et al., "Promoting Academic and Social-Emotional School Readiness: The Head Start REDI Program," *Child Development* 79 (2008): 1802–17, doi: 10.1111/j.1467-8624.2008.01227.x; Karen L. Bierman, et al., "Effects of Head Start REDI on Children's Outcomes 1 year Later in Different Kindergarten Contexts," *Child Development* 85 (2014): 140–59, doi: 10.1111/cdev.12117.

15. Katherine C. Pears, Philip A. Fisher, and Kimberly D. Bronz, "An Intervention to Promote Social Emotional School Readiness in Foster Children: Preliminary Outcomes From a Pilot Study," *School Psychology Review* 36 (2007): 665–73; Katherine C. Pears et al., "Immediate Effects of a School Readiness Intervention for Children in Foster Care," *Early Education and Developmen*t 24 (2013): 771–791, doi: 10.1080/10409289.2013.736037; Katherine C. Pears, et al., "Improving Child Self-Regulation and Parenting in Families of Pre-Kindergarten Children with Developmental Disabilities and Behavioral Difficulties," *Prevention Science* 16 (2014): 222–32, doi: 10.1007/s11121-014-0482-2.

16. Myrna B. Shure, "I Can Problem Solve (ICPS): Interpersonal Cognitive Problem Solving for Young Children," *Early Child Development and Care* 96 (1993): 49–64, doi: 10.1080/0300443930960106.

17. Carolyn L. Feis, and Craig Simons, "Training Preschool Children in Interpersonal Cognitive Problem-Solving Skills: A Replication," *Prevention in Human Services* 3, no. 4 (1985): 59–70, doi: 10.1300/J293v03n04_07; Carl A. Ridley, and Sharon R. Vaughn, "Interpersonal Problem Solving: An Intervention Program for Preschool Children," *Journal of Applied Developmental Psychology* 3 (1982): 177–90, doi: 10.1016/0193-3973(82)90014-4.

18. W. Steven Barnett et al., "Educational Effects of the Tools of the Mind Curriculum: A Randomized Trial," *Early Childhood Research Quarterly* 23 (2008): 299–313, doi: 10.1016/j.ecresq.2008.03.001; Adele W. Diamond et al., "Preschool Program Improves Cognitive Control," *Science* 318 (5855) (2007): 1387–88, doi: 10.1126/science.1151148.

19. Blair and Raver, "Closing the Achievement Gap."

20. Sandra Jo Wilson and Dale Farran, "Experimental Evaluation of the Tools of the Mind Curriculum," paper presented at the Society for Research on Educational Effectiveness Spring Conference, Washington, DC, March 8–10, 2012.

21. Pamela Morris et al., *Using Classroom Management to Improve Preschoolers' Social and Emotional Skills: Final Impact and Implementation Findings from the Foundations of Learning Demonstration in Newark and Chicago* (New York: MDRC, 2013); C. Cybele Raver et al. "CSRP's Impact on Low-Income Preschoolers' Pre-Academic Skills: Self-Regulation as a Mediating Mechanism," *Child Development* 82 (2011): 362–78, doi: 10.1111/j.1467-8624.2010.01561.x.

22. Carolyn Webster Stratton and Keith C. Herman, "Disseminating Incredible Years Series Early-Intervention Programs: Integrating and Sustaining Services between School and Home," *Psychology in the Schools* 47 (2010): 36–54, doi: 10.1002/pits.20450.

23. Carolyn Webster-Stratton, M. Jamila Reid, and Mary Hammond, "Preventing Conduct Problems, Promoting Social Competence: A Parent and Teacher Training Partnership in Head Start," *Journal of Clinical Child Psychology* 30 (2001): 283–302, doi: 10.1207/S15374424JCCP3003_2

24. Carolyn Webster-Stratton, M. Jamila Reid, and Mike Stoolmiller, "Preventing Conduct Problems and Improving School Readiness: Evaluation of the Incredible Years Teacher and Child Training Programs in High-Risk Schools," *Journal of Child Psychology and Psychiatry* 49 (2008): 471–88, doi: 10.1111/j.1469-7610.2007.01861.x.

25. Sara A. Schmitt et al., "Strengthening School Readiness"; Shauna L. Tominey, and Megan M. McClelland, "Red Light, Purple Light: Findings from a Randomized Trial Using Circle Time Games to Improve Behavioral Self-Regulation in Preschool," *Early Education & Development* 22 (2011): 489–519, doi: 10.1080/10409289.2011.574258

26. Espinet, Anderson, and Zelazo, "Reflection Training"; Rachel A. Razza, Dessa Bergen-Cico, and Kimberly Raymond, "Enhancing Preschoolers' Self-Regulation Via Mindful Yoga," *Journal of Child and Family Studies* 24 (2015): 372–85, doi: 10.1007/s10826-013-9847-6.

27. Lisa Flook et al., "Promoting Prosocial Behavior and Self-Regulatory Skills in Preschool Children through a Mindfulness-Based Kindness Curriculum," *Developmental Psychology* 51 (2015): 44–51, doi: 10.1037/a0038256.

28. Ibid.

29. Blair and Raver, "Closing the Achievement Gap"; Wilson and Farran, "Experimental Evaluation."

30. Bierman et al., "Promoting"; Bierman et al., "Effects of Head Start REDI"; Shauna L. Tominey and Megan M. McClelland, "Red Light, Purple Light"; Razza, Bergen-Cico, and Raymond, "Mindful Yoga"; Adele W. Diamond and Daphne S. Ling, "Conclusions about Interventions, Programs, and Approaches for Improving Executive Functions That Appear Justified and Those That, Despite Much Hype, Do Not," *Developmental Cognitive Neuroscience* 18 (2016), 34–48, doi: 10.1016/j.dcn.2015.11.005.

31. Jones and Bouffard, "From Programs to Strategies."

32. Hirokazu Yoshikawa et al., "Experimental Impacts of a Teacher Professional Development Program in Chile on Preschool Classroom Quality and Child Outcomes," *Developmental Psychology* 51 (2015): 309–22, doi: 10.1037/a0038785.

33. Mary Catherine Arbour et al., "Experimental Impacts of a Preschool Intervention in Chile on Children's Language Outcomes: Moderation by Student Absenteeism," *Journal of Research on Educational Effectiveness* 9 (2016): S117–49, doi: 10.1080/19345747.2015.1109013.

34. Tominey and McClelland, "Red Light, Purple Light."

35. Durlak et al., "Meta-Analysis."

36. Celene E. Domitrovich et al., "Implementation Quality: Lessons Learned in the Context of the Head Start REDI Trial," *Early Childhood Research Quarterly* 25 (2010): 284–98, doi: 10.1016/j.ecresq.2010.04.001.

37. Farran and Wilson, "Achievement and Self-Regulation."

38. Domitrovich et al., "Improving"; Bierman et al., "Promoting"; Barnett et al., "Educational Effects."

39. Morris et al., "Using Classroom Management"; Raver et al., "CSRP's Impact."

40. Susan E. Rivers et al., "Developing Emotional Skills in Early Childhood Settings Using Preschool RULER," *Psychology of Education Review* 37, no. 2 (2013): 19–25; Patricia A. Jennings and Mark T. Greenberg, "The Prosocial Classroom: Teacher Social and Emotional Competence in Relation to Student and Classroom Outcomes," *Review of Educational Research* 79 (2009): 491–525, doi: 10.3102/0034654308325693.

41. Karen L. Bierman and Stephen A. Erath, "Promoting Social Competence in Early Childhood: Classroom Curricula and Social Skills Coaching Programs, " in *Blackwell Handbook of Early Childhood Development*, ed. Kathleen McCartney and Deborah Phillips (Malden, MA: Blackwell, 2006), 595–615.
42. Diamond and Ling, "Conclusions"; Schmitt et al., "Strengthening School Readiness"; Tominey and McClelland, "Red Light, Purple Light."
43. Katherine Long et al., "Cost Analysis of a School-Based Social and Emotional Learning and Literacy Intervention," *Journal of Benefit-Cost Analysis* 6 (2015): 545–71, doi: 10.1017/bca.2015.6.
44. James J. Heckman and Tim Kautz, "Fostering and Measuring Skills: Interventions That Improve Character and Cognition," working paper no. 19656, National Bureau of Economic Research, Cambridge, MA, 2013.
45. Drew H. Bailey et al., "Persistence and Fadeout in the Impacts of Child and Adolescent Interventions," working paper no. 2015-27, Life Course Centre, University of Queensland, Brisbane, Australia, 2015.
46. Blair and Raver, "School Readiness and Self-Regulation"; Heckman and Kautz, "Fostering and Measuring Skills."
47. Arthur J. Reynolds et al., "Age 21 Cost-Benefit Analysis of the Title I Chicago Child-Parent Centers," *Educational Evaluation and Policy Analysis* 24 (2002): 267–303, doi: 10.3102/01623737024004267.
48. Ibid.
49. Clive R. Belfield et al., "The High/Scope Perry Preschool Program Cost–Benefit Analysis Using Data from the Age-40 Followup," *Journal of Human Resources* 41 (2006): 162–90.
50. Ibid.
51. Lawrence J. Schweinhart et al., *Lifetime Effects: The High/Scope Perry Preschool Study through Age* 40 (Ypsilanti, MI: High/Scope Press, 2005); Belfield et al., "High/Scope Perry Preschool Program."
52. P. Lindsay Chase-Lansdale and Jeanne Brooks-Gunn, "Two-Generation Programs in the Twenty-First Century," *Future of Children* 24, no. 1 (2014): 13–39.
53. Durlak et al., "Meta-Analysis"; Blair and Raver, "Closing the Achievement Gap"; Schmitt et al., "Strengthening School Readiness"; Bierman et al., "Effects of Head Start REDI"; Tominey and McClelland, "Red Light, Purple Light."