

Enhancing Outcomes of an Evidence-Based Social-Emotional Program  
with a School Support Model

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## A. Significance

The U.S. Department of Education's Investing in Innovation (i3) Fund offers an extraordinary opportunity to improve academic and behavioral outcomes for many students in the nation's lowest-performing schools. Although many of the persistently lowest-achieving schools defined under i3's Absolute Priority 2b (AP2b) have experienced years of intensive school improvement planning, many have not shown sufficient progress on student outcomes. As stated in the i3 announcement, an important reason for these schools' continuing challenges is their students' lack of the "non-cognitive skills" essential to academic achievement and school success. We define these non-cognitive skills as "**social-emotional skills**" because social and emotional competence is essential to persistence, motivation, and engagement in learning. The term **social-emotional learning (SEL)** refers to the process of acquiring and mastering these skills. These skills are derived from a large body of educational and psychological research. The term SEL was established by the Collaborative for Academic, Social, and Emotional Learning (CASEL) in its 1997 ASCD book, *Promoting Social and Emotional Learning: Guidelines for Educators*. CASEL includes 5 skill domains in its definition of SEL which include emotional, cognitive, and behavioral skills necessary for success in school and life.

We agree that no turnaround strategy can be optimally successful until students' capacities for school connection and academic engagement are addressed. Students, particularly in these disadvantaged schools, must be taught foundational skills in learning environments that help them engage productively in their school work, build healthy relationships with teachers and peers, and plan for a successful future because many enter school without the skills and dispositions to be successful. *Nurturing SEL skills and positive peer and student-teacher relationships is a pathway to higher achievement for students in low-performing schools*

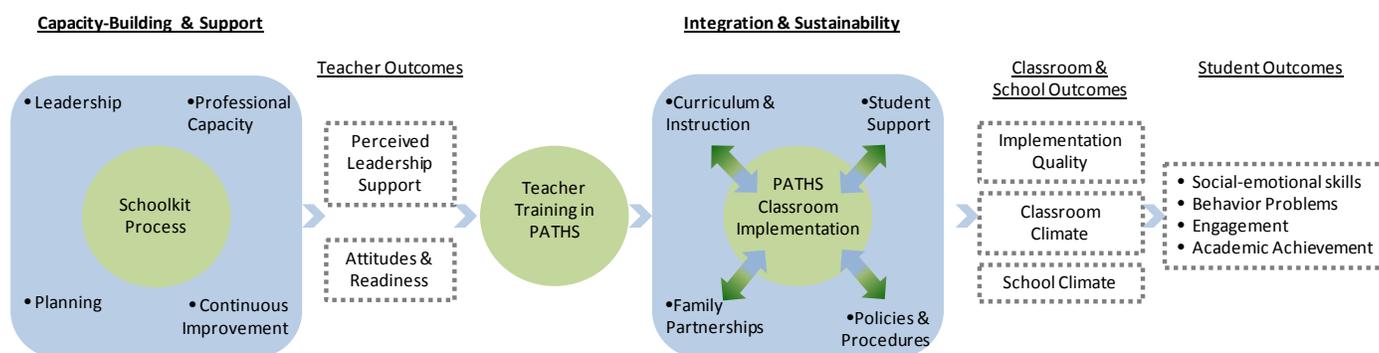
***because these factors promote achievement and mitigate the effects of poverty (i.e., promote resilience) on mental health problems, school failure, and drop out<sup>1</sup>.***

There are evidence-based strategies for promoting SEL through direct instruction in classrooms and innovative teaching practices that create environments to foster SEL. The Promoting Alternative THinking Strategies<sup>®</sup> (PATHS<sup>®</sup>) Curriculum is one of these classroom-based programs empirically proven to promote social-emotional skills, positive peer relationships, engagement and learning in the classroom. Unfortunately, the organizational climate and professional capacity in most low-performing schools is not sufficient to support high-quality implementation of programs such as PATHS which is necessary to optimize their effectiveness in educational settings<sup>2</sup>. ***As required of all i3 grants, the proposed project will generate evidence of effectiveness by testing the impact of the CASEL SchoolKit (a novel, school-wide intervention for maximizing the effectiveness of SEL programs).*** As shown in the intervention logic model, we hypothesize that building schools' capacity with the *SchoolKit* will enhance the implementation quality of the PATHS curriculum. We also expect that the *SchoolKit* intervention will create coordinated, school-wide SEL programming for elementary students that is more effective in improving student "non-cognitive" and academic outcomes than standard PATHS implementation which is primarily a classroom-focused approach to SEL promotion.

This project is significant because it goes beyond just implementing an SEL program with fidelity to see if it helps students; the frontier in that work was crossed more than a decade ago. This application represents the next generation of SEL programming and Type II translational research. It is the most ambitious attempt ever to evaluate whether coordinated and integrated SEL efforts are powerful enough to turn around persistently low-performing schools and the academic performance of children who attend them. The support provided by the *SchoolKit* and

the combination of this intervention with PATHS does not currently exist in research or practice, making the proposed project unique. The research team and institutions included in this proposal have both the experience and qualifications to carry out the project. The independence of the evaluation ensures that the findings will be non-biased and makes positive findings even more compelling and significant. The proposed study will contribute to scientific knowledge and expand what is known about evidence-based SEL practice in schools. It will ultimately serve substantially larger numbers of students by validating a replicable, school-wide model for maximizing the effect of evidence-based universal SEL programs. Although classroom-based SEL programs can enhance students' persistence, engagement, mental health, and academic performance, we hypothesize that a coordinated, more comprehensive approach that combines classroom-based SEL with school-wide components will be a more effective strategy.

**Figure 1. Logic Model of PATHS + *SchoolKit* Intervention**



**Social-Emotional Skills and Academic Achievement.** There is increasing evidence that “non-cognitive skills”, especially SEL skills, undergird the behaviors that promote engaged learning and long-term academic success<sup>3-8</sup>. Students who become more self-aware and confident about their learning abilities try harder in school<sup>9</sup>. Students who set high academic goals, have self-discipline, motivate themselves, manage their stress, and organize their approach

to work learn more and get better grades.<sup>10,11</sup> Also, students who use problem-solving skills to overcome obstacles and make responsible decisions about studying and completing homework do better academically.<sup>12</sup> Further, neuroscience research suggests that SEL programs may improve central executive cognitive functions by building greater cognitive-affective regulation in pre-frontal areas of the cortex.<sup>13</sup> SEL skills not only promote individual dispositions such as persistence and motivation but also facilitate interpersonal competencies that indirectly impact achievement through the quality of relationships student form with teachers and peers.

In addition to student-centered explanations for higher academic performance, interpersonal, instructional, and environmental factors support achievement by creating a positive classroom and school climate that, in turn, promotes student SEL skills, engagement, and positive behavior. These supports include high expectations and support for academic success; caring teacher-student relationships; commitment to school and peers; and teaching approaches that create safe and orderly environments.<sup>14-17</sup> It is likely that a combination of improvements in student SEL skills, the school environment, teacher practices and expectations, and student-teacher relationships contribute to students' behavior change and academic performance.<sup>18,19</sup>

**Evidence-Based SEL Programs.** CASEL and its collaborators conducted a recent meta-analytic review<sup>5</sup> that examined the effects of SEL programs across diverse student outcomes. The review of 213 studies (270,034 students) included 47% that used randomized designs, with 56% of programs delivered in elementary-schools. Compared to controls, students exposed to an SEL intervention demonstrated enhanced SEL skills/attitudes (e.g., motivation), positive social behaviors, fewer conduct problems, and less emotional distress. The effect sizes of outcomes ranged from .22 to .57. Further, *academic performance was significantly improved*, with mean effect sizes for test scores of 0.27 which translated to an 11% point difference between groups on

standardized achievement scores. Programs implemented by school personnel (compared to other individuals) and with high levels of implementation quality produced stronger effects.

Promoting Alternative THinking Strategies (PATHS)<sup>20</sup> is one of the most extensively researched and effectively replicated classroom-based SEL programs available to schools<sup>21</sup>. PATHS has been identified by numerous federal agencies and registries as an effective program and is the only universal SEL curriculum recognized as a proven program by the Blueprints for Violence Prevention. PATHS provides teachers at each grade level with a scope and sequence of lessons (<http://www.channing-bete.com/prevention-programs/paths/>) that directly teach SEL skills. It also includes daily practices to promote skill generalization and teaching strategies to create a positive classroom climate and help teachers integrate the curriculum with instruction.

PATHS has the strongest evidence-base of any elementary SEL program and has been proven effective in numerous randomized trials.<sup>22</sup> Trials to test the effects of PATHS have been conducted in urban and rural schools both in the U.S. and internationally.<sup>23</sup> Results from efficacy trials indicate that PATHS leads to significant improvements in children's emotional understanding, ability to communicate clearly with others (i.e. verbal fluency), self-control, frustration tolerance, and social problem-solving skills.<sup>24-27</sup> PATHS also shows effects on cognitive outcomes. In several studies, PATHS participants have shown significant improvement in executive functions, inhibitory control, working memory, efficiency of problem-solving, and planning ability compared to controls<sup>25,28</sup>. The skills children gain from PATHS facilitate positive coping, classroom behavior, and academic engagement.<sup>23,26</sup> In one trial that included four U.S. school districts, first graders in PATHS schools showed lower levels of peer-nominated aggression, hyperactivity, and disruptive behavior relative to control children. Independent observers rated PATHS classrooms as having a more positive climate<sup>29</sup>. By grade 3, results

continued to show differences in peer relations, and higher teacher ratings of classroom engagement—a key outcome in i3’s AP2b<sup>30</sup>. The effect sizes of both behavior and cognitive change in PATHS trials has ranged from about .20 to about .40, and they do not differ by economic disadvantage or student minority status.

**Implementation Research.** While evidence-based programs are essential, the extent to which they are implemented with quality is critical for producing effective outcomes. This is supported by meta-analyses which demonstrate programs that were carefully monitored<sup>31</sup> or implemented better produced more change.<sup>32,33</sup> Process evaluations have consistently shown programs implemented with fidelity demonstrate superior outcomes.<sup>32,34–36</sup>

Although SEL programs have the potential to improve engagement and achievement among students in poverty, implementation quality is often lower in high-risk schools.<sup>2,37</sup> Herman and colleagues (2008) stated that this is due in part because *many chronically low-performing schools lack the capacity to implement evidence-based programs to improve student outcomes and most intervention models do little to build such capacity*<sup>38</sup>. This underscores the need to couple evidence-based programs with strategies that improve schools’ capacity for implementation. Essential supports underlying schools’ capacity for improvement have been identified through the work of Bryk and colleagues (2010).<sup>39</sup> These supports include school leadership, professional capacity, strong relationships with families and community partners, and a learning climate that is safe, welcoming, and stimulating to all students. Their research indicated that schools strong in most of the essential supports were significantly more likely to show substantial gains in student learning because they were able to implement effective instruction in the classroom.

The implementation process can also be influenced by individual teacher factors and

organizational factors.<sup>40</sup> A PATHS evaluation in the Cleveland Metropolitan Schools, a population with 100% of students meeting poverty criteria, showed significant variation in teacher implementation. Teacher's positive perceptions of PATHS, perceived support from leadership, and efficacy for using PATHS were significantly related to higher-quality implementation, and higher implementation predicted stronger improvements in students' SEL skills and behavior.<sup>41</sup> In another study, the combination of high-quality PATHS implementation and high levels of principal support resulted in better student outcomes.<sup>42</sup> Schools' readiness to undertake innovations on a school-wide basis are vitally important for the success of curricular innovations<sup>43</sup>. Lack of teacher buy-in, infrastructure support, principal leadership, and failure to embed programs into school operations all reduce implementation quality.

***SchoolKit Description.*** The CASEL *SchoolKit*<sup>44</sup> is a school-wide support intervention that is based on strong theory and the empirical research on implementation. It is innovative because it provides strategies for building the capacity of schools to effectively implement and sustain evidence-based SEL programs that are based on individual and organizational factors that influence the implementation of innovations and that directly influence student outcomes. The current version of the *SchoolKit* is adapted from the *CASEL Guide and Toolkit for Sustainable Schoolwide Social and Emotional Learning*<sup>45</sup> developed over several years of field testing across Illinois and in Chicago where CASEL is located. The pilot research evaluating the original model was conducted in six Title I Chicago elementary schools in various stages of corrective action or restructuring. Using a model similar to that proposed here, CASEL provided training and technical assistance to leadership teams at each school over two years. Each school adopted an SEL program, and leadership teams built their schools' capacity to integrate support for SEL school-wide. CASEL monitored implementation and found that most schools that received

support had developed leadership for SEL, had begun integrating SEL in school-wide activities, engaged in continuous quality improvement, and planned for sustainability. Analyses comparing achievement in the six CASEL schools to 12 matched comparison schools suggested a positive impact on achievement test scores<sup>46</sup>. In *SchoolKit* schools, 3<sup>rd</sup> graders meeting or exceeding state expectations on standardized achievement tests increased from 39% to 53% in reading and 51% to 67% in math over a three-year period, while achievement gains were relatively small in comparison schools (45% to 52% in reading, 60% to 61% in math). Similar results were observed among 6<sup>th</sup> graders, as CASEL schools improved 11% in reading and 9% in math, while comparison schools saw gains of only 4% in reading and 5% in math.

The current *SchoolKit* builds on its predecessor by having a more up-to-date research base, incorporating advances in the field of SEL and school improvement, and aligning with educational changes (e.g., Common Core State Standards). The *SchoolKit* consists of a 260-page implementation guidebook and over 40 tools and resources (see examples in Appendix J-8) that facilitate multiple steps for school-wide SEL implementation. During the 2012–2013 academic year CASEL field-tested the updated *SchoolKit* in five elementary K–8 schools and four high schools in the Chicago Public Schools. Feedback from staff and principals was incorporated to enhance the *SchoolKit*'s relevance and usability for practitioners.

Although the development and field-testing of the *SchoolKit* offer promising evidence for the benefits of a schoolwide approach to SEL, statements about the efficacy of this intervention require a more rigorous design with a larger sample and stronger internal validity. Furthermore, the evaluation design did not allow us to draw definitive conclusions about whether CASEL's schoolwide approach is superior to simply implementing a classroom-based SEL program.

## B. Project Design

*The primary goal of the proposed four-year project is to improve students' social, emotional, and academic outcomes by combining the PATHS program with SchoolKit supports for classroom and schoolwide implementation.* A randomized clinical trial will be conducted to test the effectiveness of the CASEL *SchoolKit* in supporting implementation above and beyond what is achieved when PATHS is implemented under standard conditions.

**Project Goal and Objectives.** This effort meets the goal of AP2b by implementing an SEL program that is proven to improve students' non-cognitive abilities and goes beyond that requirement by testing an innovative strategy to enhance program outcomes. As summarized in Appendix J-1, the *SchoolKit* intervention has two primary objectives: (1) improving teacher attitudes and readiness to implement SEL programs, and (2) promoting positive climate and systemic SEL integration. The *SchoolKit* capacity-building strategies, designed to promote the first objective, focus on: (1) leadership, (2) professional capacity, (3) planning, and (4) continuous improvement. *SchoolKit* integration and sustainability strategies, designed to promote the second objective, focus on building connections between SEL programs and (1) curriculum and instruction, (2) student supports, (3) family partnerships, and (4) policies and procedures.

The project will be conducted in Chicago Public Schools (CPS), one of the lowest-performing districts in the nation (letter of support, Appendix G). CPS students attend high-minority schools (86% African-American and Latino) and met the i3 eligibility definition as “high-need” by living in poverty (86% receive free and reduced lunch). The district has a large pool of elementary schools that meet AP2 eligibility requirements from which to recruit the 28 participating schools for the proposed study—58.2% of CPS elementary schools fall below the

25<sup>th</sup> percentile for reading and 54.2% fall below for math. Thus, more than half of CPS schools fall below the rate associated with the bottom quartile statewide for 3<sup>rd</sup>-grade achievement.

All 28 schools that participate in this project will implement the PATHS Curriculum, an evidence-based intervention that fosters the social-emotional skills and behaviors that high-need students require to be engaged learners, reach their academic potential, and be resilient. Half the schools will be randomized to receive the standard PATHS training and support model (the “Standard-PATHS” condition) and the other 14 schools will be randomized to receive the combination of PATHS and the *SchoolKit* intervention (the “PATHS+*SchoolKit*” condition).

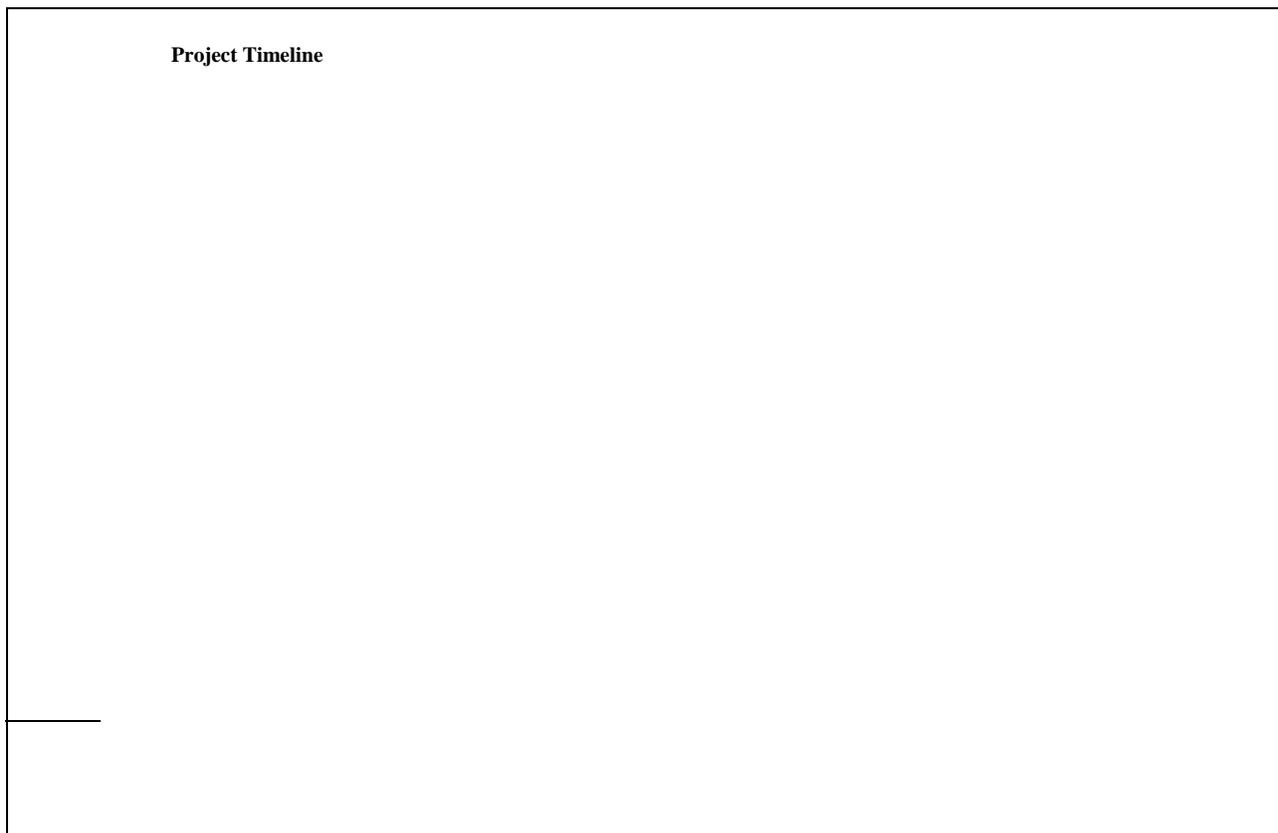
**Project Outcomes.** We expect that the synergistic effects of combining the PATHS program with the *SchoolKit* will provide additional benefits compared to those achieved when PATHS is delivered alone. We expect that these benefits will be demonstrated at multiple points across the two-year period of implementation. By meeting the project objectives, we expect higher levels of PATHS implementation in schools in the PATHS + *SchoolKit* condition, which will result in students in these schools being rated as exhibiting greater social-emotional skills, as exhibiting fewer behavior problems, and as demonstrating higher levels of engagement compared to students in Standard-PATHS schools. At one-year follow-up, school records are hypothesized to show higher levels of academic achievement on standardized tests for students in the PATHS+*SchoolKit* schools compared to students in Standard-PATHS schools.

### ***Project Plan and Activities***

Figure 2 presents the project timeline. The first steps in January 2014 are for the American Institutes for Research (AIR), the external evaluator that has worked with CPS effectively on previous projects, to secure IRB approval and that of the CPS Research Review Board. Schools will then be randomized to condition. Principals will have already been recruited to participate

because CASEL has an existing relationship with the central office staff and network leaders as a result of a district-wide initiative involving CPS called the Collaborating District Initiative (CDI). The *SchoolKit* was also successfully field-tested recently in CPS schools. As shown in the project plans for each condition (Appendix J-2, J-3), principals in both conditions will participate in a meeting in March 2014 conducted by the Project Director and the CASEL CPS Consultant tailored to their condition.

**Figure 2. Project Timeline**



**Standard-PATHS Activities.** As shown in Appendix J-2, the principal meeting in the Standard-PATHS schools will provide an overview of the evaluation activities, provide basic information about PATHS and its approach to training, and give general suggestions for how administrators can support high-quality implementation. This meeting will be followed by a

school-level teacher orientation that provides an overview of the project and evaluation, information about the PATHS curriculum, and how training and support will be provided.

**PATHS Training for Both Conditions.** PATHS training for all K–2 teachers in all 28 schools will be provided by PATHS Education Worldwide (PEW)—a non-profit organization (Letter of Support, Appendix G). The standard model used in both conditions includes two sessions that are each 1-day long (August 2014 and October 2015) conducted for groups of 25–30 teachers by a certified PATHS trainer. In addition, PATHS trainers will visit each classroom in January of both implementation years to observe curriculum delivery by K–2 teachers in all 28 schools, complete a fidelity rating, and provide feedback to each teacher and aggregated feedback to the administration. The same procedures will be followed in 2015–2016 for 3<sup>rd</sup>-grade teachers, make-up trainings will be provided to K–2 teachers as needed, and fidelity observations will be conducted for teachers in grades 2 and 3. In addition, PEW will provide email support to each school on a monthly basis. Each school will identify a designated PATHS liaison (teacher, staff, or administrator) who will have this regular ongoing contact with their PATHS trainer.

**PATHS+*SchoolKit* Activities.** As shown in the Project Plan and Activities table in Appendix J-3, the PATHS + *SchoolKit* condition uses a combination of leadership team meetings, coaching, professional development, and workgroup activities to build capacity for implementation and to promote SEL integration at a school-wide level. As shown in Appendix J-3, the principal orientation meeting for schools in the PATHS+*SchoolKit* condition will be similar to the one provided in the Standard-PATHS condition but will be co-facilitated by the CASEL Trainer and SEL coaches. The orientation will include an overview of the *SchoolKit* intervention and guidance on forming an SEL Leadership Team. Two full-time SEL coaches (SEL Job Description, Appendix F) will be hired by CASEL and will each provide support to 7

schools under the supervision of a CASEL Trainer. The coaches will be hired and trained in the first 2 months of the grant period.

The SEL Leadership Team plays a central role in utilizing the *SchoolKit* and driving SEL implementation in PATHS+*SchoolKit* schools. Ideal SEL Leadership Teams include representatives of major stakeholder groups such as administration, teachers, student support staff (e.g., social workers and psychologist), and parents. This ensures that the knowledge and perspectives of all stakeholders are included in discussions, planning, and decision-making.

Ongoing *SchoolKit* activities include monthly meetings of the SEL coach with the SEL Leadership Team, use of process and planning tools by the SEL Leadership Team and school staff (examples—Appendix J-8), work conducted by small groups of school personnel, and professional development (PD) sessions conducted by CASEL Trainers. As described previously, *SchoolKit* activities are divided into two main categories: Attitudes & Readiness and Climate & Integration. Activities in both domains will begin simultaneously and develop incrementally over time.

In spring 2014, capacity-building components of the *SchoolKit* will be implemented to help principals work with the SEL Leadership Team to (1) learn about SEL, (2) create a shared vision for SEL in their school, (3) begin to develop a long-term implementation plan and integrate SEL into improvement efforts, and (4) promote readiness in K-2 teachers for PATHS implementation by developing buy-in and anticipating implementation barriers. Before PATHS training, *SchoolKit* integration activities will focus on curriculum and instruction and family partnerships. Two small workgroups formed to focus on these topics will meet over the summer of 2014. One group will plan ways to integrate PATHS into lesson plans and develop a crosswalk between PATHS, Illinois SEL and academic learning standards, and Common Core State Standards. The

other group will identify ways to integrate PATHS with the school's existing strategies for building partnerships with families.

After the first PATHS training in August 2014, SEL Leadership Teams will continue to build professional capacity with teachers by using tools to foster discussions and proactive planning about PATHS. At the school level, support from the administration and between teachers will be developed to prevent and address implementation problems (e.g., adjusting schedules to create time for PATHS).

In fall 2014, SEL Leadership Team meetings and coaching support will continue to focus on developing a long-term SEL plan and enhancing knowledge of and buy-in for SEL among the broader school community. An "Introduction to SEL" PD session is one of several strategies designed to build the professional capacity of teachers who are not yet implementing PATHS and non-teaching school staff. Tools are provided to help the principal and SEL Leadership Team engage staff in self-reflection around adult SEL competencies.

Starting in January 2015, the principal and SEL Leadership Team will be encouraged to develop a plan for communicating the SEL vision to the broader school community, and PATHS fidelity data will be reviewed by the principal and PATHS teachers. *SchoolKit* activities in February 2015 focus on integration and planning as the SEL Leadership Team continues to refine the communication plan and a workgroup of grade level representatives will examine general teaching practices that support SEL. While all PATHS schools will have been provided a summary of fidelity data after the annual observations, PATHS+*SchoolKit* schools will be provided with tools and coaching support in March 2015 for using these data to motivate staff, guide planning and decision-making, and make improvements to practice. During the last two

months of the school year *SchoolKit* activities will resume integration and continuous improvement activities while workgroups will update planning documents for the coming year.

The *SchoolKit* process will continue across the two-year period in which PATHS is implemented. The capacity and support activities will expand as needed (e.g., creating peer support networks or professional learning communities around PATHS and SEL). Integration activities will also continue to deepen over time. Just as language and content alignment will occur for the school curriculum (e.g., language arts, social studies) with PATHS, the SEL Leadership Team will work to integrate and align PATHS with school policies and procedures.

### **C. Management Plan**

This proposed project requires the combined expertise and effort of experienced partners who share a strong history of collaboration. Dr. Mark Greenberg, **Penn State Prevention Research Center (PRC)**, is the co-developer of PATHS, one of the nation's most effective evidence-based, classroom SEL programs for elementary students. Penn State meets eligibility requirements as an i3 applicant. Numerous trials of interventions studies that have significantly improved both student achievement and the quality of teachers' classroom practices have been conducted by Dr. Greenberg and his research colleagues. **Penn State** will partner with **CASEL**, the world's leading organization in advancing SEL research and expanding evidence-based SEL practice, and **Chicago Public Schools** (letter, Appendix G). The **American Institutes for Research (AIR)**, one of the largest education and social science research organizations in the world, will conduct the independent evaluation (letter, Appendix G). The **NoVo Foundation**, CASEL's primary sponsor and an organization that has incorporated SEL into its mission, has already committed to providing the required private-sector match (letter, Appendix G).

**Penn State** is partnering with the **Chicago Public Schools (CPS)**, a district that has

prioritized SEL. CPS is one of eight districts currently participating in a large-scale reform initiative organized around SEL led by CASEL called the Collaborating District Initiative (CDI). The CDI is designed to improve the behavior and academic performance of students by working with district leadership to infuse SEL systematically throughout district and school policies and practices. Currently the CDI works in 2 of CPS's 19 networks; schools in the proposed study are not in CDI but will expand CPS's SEL programming. **AIR** is also evaluating the CDI so it is very familiar with working with CPS to collect and report data. Thus far, **NoVo Foundation** has granted \$250,000 annually to each CDI district, including CPS, over a 3-year period. Districts are encouraged to leverage these funds to expand their SEL programming. Given that the *SchoolKit* is CASEL's primary strategy for school-wide support of SEL programming, this project is directly aligned with the goals of the CDI. The strength of the research team, history of collaborative relationships, and open communication across all parties will contribute to project success and help to overcome risks that might undermine project implementation and evaluation.

**Project Structure and Communication.** The project structure includes an overall Management Team (organizational chart, Appendix J-4), a CPS Committee, and an Advisory Board. Dr. Greenberg will provide overall management as Principal Investigator (PI) and will be responsible for maintaining and adhering to timelines, problem-solving when obstacles arise, and reporting to the DOE project officer. He will monitor costs of project-required products and services to ensure the efficient use of resources.

The Management Team will coordinate all project activities and ensure that they are executed as specified in the project timeline and project plans (Appendix J-2 & J-3). This ongoing progress will be tracked against the plan using a project management tracking tool (Appendix J-5). Dr. Greenberg will convene the Management Team by phone bi-weekly. The

team includes Roger Weissberg (Co-PI), Celene Domitrovich (Project Director), Sue Keister and Ruth Cross (CASEL Trainers), Pamela Randall (CASEL Senior SEL Consultant to CPS), Dorothy Morelli (CEO of PATHS Education Worldwide), Karen Van Ausdal (SEL Lead for CPS), and Kimberly Kendziora (AIR Evaluation Director). In addition, the Management Team will have yearly face-to-face meetings. The Project Director (Dr. Domitrovich), CASEL Consultant (Dr. Randall), and CPS SEL Lead (Ms. Van Ausdal) will serve as a CPS Committee within the Management Team, coordinating all activities within the district and providing monthly progress reports to the Management Team.

An Advisory Board formed to provide broad oversight to the project will meet quarterly with the Management Team by phone and will include Paul Goren (CASEL Vice President for Research and Knowledge Use), CASEL Board Members (Larry Aber, TBN), two CPS principals and two CPS teachers, and David Osher (Vice President, AIR).

**Progress Monitoring.** The Management Team will monitor progress on the following sets of key activities in its bi-weekly meetings: (1) PATHS training and support, (2) *Schoolkit* implementation (see project plan for both conditions in Appendix J-2 and J-3), and (3) the evaluation. Implementation of key activities will be monitored against due dates and performance targets using the project management tracking tool in Appendix J-5. Sign-in sheets will be used at trainings to assess attendance and anonymous evaluations will be collected and submitted to PEW and the Management Team. A report regarding the PATHS fidelity observations will be provided to the Management Team by PEW after the January observations. To monitor the *SchoolKit* implementation, SEL coaches will be asked to complete and submit meeting and coaching logs on a monthly basis to the CASEL Trainers. The meeting log documents the dates and attendees of SEL Leadership Team meetings and small staff workgroup

meetings. The coaching log documents the number of hours the SEL coach spends in each school, the target of their support, and what kind of support is provided. The CASEL Trainers will compare the log data against the project plan for schools in the PATHS+*SchoolKit* condition to ensure comparable progress across all 14 schools. Trainers will also share these data with the Management Team. The outcome evaluation will be monitored through ongoing reports provided by the AIR Evaluation Director to the Management Team. Reports will compare completion rates of the data collected by teacher reports, surveys, and school records data against the targets outlined in the project management tracking tool.

#### **D. Personnel and Institutional Capacity for Dissemination**

This proposal brings together expert institutions and individuals in all areas required to meet the objectives of the project (see Appendix F for resumes).

*Dr. Mark Greenberg (PI)* is the Founding Director of the Penn State Prevention Research Center. Since 1981, he has been a PI on numerous IES- and NIH-funded projects to study school and community interventions to prevent risk and promote positive behavioral and educational outcomes, including multiple replications of PATHS. He is the author of more than 300 journal articles and book chapters on child development and school-based prevention. He received the Presidential Award from the Society for Prevention Research in 2013 and the Society for Child Development Distinguished Contributions to Public Policy for Children Award in 2009.

*Dr. Roger P. Weissberg (Co-PI)* is the President of CASEL and the NoVo Foundation Endowed Chair in Social and Emotional Learning at the University of Illinois at Chicago. For the past 35 years, Dr. Weissberg has designed evidence-based strategies for districts, schools, and teachers to promote children's academic and SEL. He has worked with hundreds of schools on SEL implementation, and has been recognized with the field's top awards, including election to

the National Academy of Education. Dr. Weissberg has provided leadership on many large-scale federal, state, and foundation grants and authored more than 200 publications. He leads CASEL's efforts to advance the science of SEL and to expand evidence-based practice through its National Collaborating District Initiative (CDI).

***Dr. Celene Domitrovich (Project Director)*** is the Director for Research at CASEL and has faculty appointments at both Penn State and the University of Illinois at Chicago. She has worked for 15 years in the field of SEL, mental health, and prevention and is an expert in the development and implementation of school-based SEL interventions. Dr. Domitrovich is a co-author of the Preschool PATHS Curriculum, and is a member of the CASEL *SchoolKit* development team. In 2011 she received the Zins Award for research in SEL by CASEL.

***Dr. Kimberly Kendziora (Evaluation Director)*** has worked at AIR for 15 years, focusing almost exclusively on the evaluation of school-based student support initiatives. She is currently leading evaluations of CASEL's CDI initiative and a district-wide evaluation of PATHS in the Cleveland School District.

***Ms. Susan Keister (CASEL Trainer)*** has been a consultant to CASEL since 2003, and currently serves as a CDI District Consultant and a contributing author of CASEL's toolkits for systemic SEL implementation. She is also the lead trainer and developer of more than 80 professional learning workshops on systemic implementation of SEL.

***Ms. Ruth Cross (CASEL Trainer)*** is also one of the primary developers of the CASEL *SchoolKit* and a resident trainer at CASEL. She currently leads a partnership with the DuPage (IL) Regional Office of Education to build a replicable model of systemic SEL implementation. Ms. Cross has 34 years of experience as a teacher, principal, and assistant superintendent.

***Dr. Pamela Randall (CASEL Senior Consultant to CPS)***, is CASEL's Senior District

Advisor. She has served as an interim superintendant and a school-improvement officer, supervising principals to create high-quality teams and programs focused on student academic growth. Prior to joining CASEL in 2011, Dr. Randall served as an area instruction officer and deputy chief officer in the Office of High School Programs of the Chicago Public Schools.

**CASEL Capacity for *SchoolKit* Dissemination.** For 20 years, CASEL has been the nation's leading organization in advancing the science and expanding the evidence-based practice of programming to promote children's social, emotional, and academic learning. As part of CASEL's commitment to establishing SEL as an essential part of K-12 education nationwide, it will draw upon a range of dissemination mechanisms and partnership strategies to maximize the impact of the i3 project. As a nationally trusted source for SEL best-practices and current research, CASEL's newsletters and academic publications regularly reach its broad network of contacts in federal and state education agencies, school districts, human service organizations, and academic institutions. CASEL's website ([casel.org](http://casel.org)) hosts a wide range of research, policy and practice resources, including *Safe and Sound: An Educational Leader's Guide to Evidence-Based Social and Emotional Learning Programs*, which has already been downloaded over 150,000 times. In partnership with the NoVo Foundation and with a long history of strong collaborative relationships with researchers, educators, policymakers, and philanthropists, CASEL has the experienced personnel, financial resources, and management capacity to ensure that once validated, the *SchoolKit* can be brought to scale.

## **E. Project Evaluation**

AIR will determine whether outcomes at the student, teacher, and building levels differ when the PATHS curriculum is conducted in combination with the *SchoolKit* or alone delivered under standard conditions by using a matched-pair cluster randomized trial. Schools will be the unit of

randomization and the effectiveness of the *SchoolKit* intervention will be conducted at the level of scale proposed in the application. The evaluation is guided by three research questions:

1. What is the impact of the *SchoolKit* on teacher perceptions of support provided by school leaders, and their attitudes and readiness to implement PATHS?
2. What is the impact of introducing the *SchoolKit* process on classroom and school climate and teacher implementation quality of PATHS?
3. What is the impact of the *SchoolKit* on student social-emotional skills, behavior problems, learning engagement, and academic performance?

The hypotheses are that compared to controls: (1) teachers in the *PATHS+SchoolKit* condition will report higher levels of perceived support, more positive attitudes, and greater readiness; (2) teacher and staff reports of climate will be more positive and fidelity and dosage of PATHS will be higher; and (3) teacher ratings of student social-emotional skills and achievement will be higher in *PATHS+Schoolkit* schools.

**Design Overview.** The evaluation will use a cluster randomized trial in which student outcomes for schools in the *PATHS+SchoolKit* condition are compared to outcomes of students from schools in the Standard-PATHS condition, implementing PATHS only with typical levels of support provided by the program developers. Prior to randomization, AIR will use a pairwise matching procedure to maximize demographic similarity of *PATHS+SchoolKit* and Standard-PATHS school groups. The matching of school pairs will be based on school-level characteristics. Pairwise matching not only ensures balance on key variables and increases precision but also can protect against selection bias due to schools dropping out after the start of the study<sup>47</sup>.

**Sampling Plan.** From the pool of CPS schools that meet the eligibility criteria of lowest-performing schools, AIR will match the schools into 14 pairs on a number of school-level characteristics to represent important dimensions related to the targeted student outcomes. An algorithm will be used to compute the distance from each school to every other school along variables drawn from the CPS 2012–13 administrative database (e.g., school size, percent of students eligible for free or reduced price lunch, racial/ethnic composition, student attendance and achievement, average spending per student, and school safety). AIR will use a uniform random number generator to generate, in sequence, 14 random numbers ranging from 0 to 1 that will be assigned to the first school in each pair. The first school in each pair will be assigned to PATHS+*SchoolKit* or Standard-PATHS based on the randomly generated number. After random assignment, the two groups will be compared across the school level characteristics used in the matching procedures.

Students in Grades 1 and 2 ( $N = 4,200$ ) in the 28 participating schools will be included in the evaluation to follow a cohort of students for two years. It is anticipated that approximately 80% of students will have permission to participate ( $N = 3,360$ ). All teachers who teach first and second grades during the 2014–15 academic year will be included in the study. We estimate that there are 3 classes per grade, resulting in 6 teachers per school in each grade, for a total of 168 teachers for these grades in the 28 schools. Administrative and instructional staff teaching other grades will be surveyed as well regarding perceptions of school environment and leadership.

**Measures & Data Collection Schedule.** Figure 3 provides an overview of the measures used to assess the proximal and distal targets of the *SchoolKit* intervention shown in the logic model and the time points at which they will be collected. Descriptions of each measure are provided in

Appendix J-6. All have been used extensively in research with urban populations and have excellent reliability and validity.

As shown in the project timeline, in spring 2014 AIR will send consent packages home to parents of first- and second-grade children in the 28 schools, informing them of the study and seeking consent for their child. Teachers of these students will be asked to complete ratings of the social-emotional skill and behavior of each child in the class with consent. Teachers will be compensated at the union wage of \$39.11 per hour for their ratings at each assessment point.

**Figure 3. Measures and Data Collection Schedule**

Construct	Measure	Informant	Sp 14		Sp15	Sp16	Sp17
			BL	PT	PY1	PY2	FU
<b>Covariates</b>			BL	PT	PY1	PY2	FU
Teacher Demographics	Teacher Information Form	Teacher Report	X				
<b>Teacher Outcomes</b>							
Principal Leadership & Support	Perceptions of Administrator Support	Staff Survey	X	X	X	X	
Attitudes & Beliefs	Perceptions of Intervention Attributes Attitudes Towards Programs	K-3 Teacher Report		X	X	X	
Readiness	Teaching and SEL Efficacy Scales	Teacher Report		X	X	X	
<b>Implementation Quality</b>							
Training Acceptance	PATHS Sign in and Evaluation	Teacher Report		X			
PATHS Dosage	PATHS Lesson Log	Teacher Report			X	X	
PATHS Fidelity	PATHS Implementation Rubric	Observation/Teacher Report			X	X	
Schoolkit Activities	Schoolkit Meeting & Coaching Log	SEL Coach		X	X	X	
PATHS Sustainability		Staff Survey					X
<b>Classroom &amp; School Outcomes</b>							
Classroom Climate	Classroom Atmosphere Scale	Observations	X		X	X	X
School Climate	5 Essentials Teacher Survey School-wide SEL Survey	Teacher Report Staff Survey	X		X	X	X
<b>Student Outcomes</b>							
SEL Skills & Behavior	Teacher-Child Rating Scale; TOCA	Teacher Ratings/Admin. Data	X		X	X	X
Engagement & Performance	ACES	Teacher Ratings/Admin. Data			X	X	
Academic Achievement	Standardized tests	School records	X		X	X	X

BL = Baseline (April/May 2014); PT = Pre-PATHS Training (May/June 2014); PY1 = Post Year 1 PATHS Implementation (April/May 2015); PY2 = Post Year 2 PATHS Implementation (April/May 2016); FU = Follow-up (April/May 2017)

Self-report ratings from PATHS teachers will be collected prior to the PATHS training. After the baseline data collection, teacher ratings of students will be collected annually at the end of each academic year. At each wave, teachers will rate the social-emotional skills, behavioral problems, and academic engagement of each child in their class with parent consent. A district-wide staff survey will be administered each spring to assess staff perceptions of classroom and school climate, and to monitor the Standard-PATHS schools to determine if any activities similar

to the *SchoolKit* have been conducted. Trainer ratings of classroom climate and PATHS implementation will be provided to AIR after PATHS trainers conduct classroom observations in January of each program year. In addition, teachers will maintain a log of when they teach PATHS lessons, levels of student engagement, and duration of each lesson. At the end of each implementation year, teachers will complete a self-report PATHS implementation rating.

**Analytic Methods.** In the proposed evaluation, there is a multilevel hierarchical structure. Students are nested within classrooms, teachers are nested within schools, and schools are nested within matched pairs. AIR will conduct impact analyses within an HLM approach to accommodate the nested nature of the design. Estimates of the impact of PATHS+*SchoolKit* on changes in the primary child outcomes as compared to Standard-PATHS will be calculated using a series of 4-level hierarchical linear models (see description in Appendix J-7) with treatment at the school level (level 3) and matched school pairs as fixed effects. Group comparisons controlling for baseline scores will be conducted with teacher ratings of students and observer ratings of classroom climate at both the classroom and school levels. Group comparisons on school records of student academic performance and staff ratings of school climate will also be made at the school level, controlling for any building characteristics that differ between conditions.

Given the annual collection of assessments and the fact that the *SchoolKit* process lasts two years, group comparisons will be initially examined in summer 2015 to see if the effects of the school-wide approach are evident after one year of implementation, but the full effect is not expected to be observed until after two years. The same analytic approach will be used to conduct group comparisons of student behavior and academic achievement collected at the follow-up. Estimates of the impact of introducing the *SchoolKit* will be calculated using 3-level

HLM models with schools at the second level and school pairs at the third level.

AIR conducted power analyses for the above model using the following assumptions: (1) 14 PATHS+*SchoolKit* schools and 14 Standard-PATHS schools; (2) 3 classes for each grade (1<sup>st</sup> and 2<sup>nd</sup> grades) per school; (3) 20 students per classroom; (4) impact based on a four-level model with data from one baseline and two follow-up years; (4) an intra-class correlation of 0.05 and 0.10 at the school level and the classroom respectively; (5) 20% of variance reduced by pair matching; (5) variance reduction of 25% due to school-level covariate adjustment; (6) 80% power; and (7) alpha of 0.05 for a two-tailed test. AIR will estimate pairs as fixed effects because they do not expect the 14 pairs of schools to represent a larger universe of possible school pairs in which PATHS+*SchoolKit* might be implemented. The power analyses indicate that the impact evaluation will have sufficient power to detect an effect size as small as .17 for effects based on two grade levels (6 classrooms) and .19 for effects based on a single grade level (3 classrooms).

Variation in implementation is common for community-based RCTs but typical measurable thresholds for acceptable implementation are between 65% -75% on dosage or fidelity indicators<sup>48</sup>. Based on these levels, the acceptable level of *SchoolKit* implementation will be 7 Leadership Team meetings a year and 7 hours of coaching support each month. Impact analyses will follow an “intent to treat” model in which all schools are included in the outcome analyses regardless of their level of implementation given that this is standard procedure for testing efficacy in randomized trials. However, exploratory analyses using implementation levels as moderators will also be conducted.