

An Examination of the Efficacy of INSIGHTS in Enhancing the Academic and Behavioral Development of Children in Early Grades

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The primary aim of this group randomized trial was to test the efficacy of INSIGHTS Into Children's Temperament (INSIGHTS) in increasing the academic achievement and sustained attention and reducing the disruptive behavior problems of low-income kindergarten and 1st grade children. Twenty-two urban elementary schools serving low-income families were randomly assigned to INSIGHTS or a supplemental reading program that served as an attention-control condition. Data on 435 students in 122 classrooms were collected at 5 time points across kindergarten and 1st grade. Students received intervention in the 2nd half of kindergarten and the 1st half of 1st grade. Their teachers and parents participated in the program at the same time. Two-level hierarchical linear models were used to examine both within- and between-child changes in achievement across kindergarten and 1st grades. Results revealed that children enrolled in INSIGHTS experienced growth in math and reading achievement and sustained attention that was significantly faster than that of children enrolled in the supplemental reading program. In addition, although children participating in INSIGHTS evidenced decreases in behavior problems over time, children enrolled in the supplemental reading program demonstrated increases. Effects on math and reading were partially mediated through a reduction in behavior problems, and effects on reading were partially mediated through an improvement in sustained attention. Results indicate that INSIGHTS enhances the academic development of early elementary school children and supports the need for policies that provide social-emotional intervention for children at risk for academic problems.

Keywords: social-emotional, achievement, intervention, urban schools

Growing up in poverty significantly increases the likelihood that children will begin school well behind their more economically advantaged peers in key academic skill areas (Zill et al., 2003). Negative academic trajectories during the early school years are difficult to shift and linked to deleterious academic outcomes (Alexander, Entwisle, Blyth, & McAdoo, 1988; Rutter & Maughan, 2002). Equally important, many poor children will start school with inadequate social-emotional skills that will further impede their progress in school (Campbell & von Stauffenberg, 2008; McClelland, Acock, & Morrison, 2006; Rutter & Maughan, 2002; Ryan, Fauth, & Brooks-Gunn, 2006). Social-emotional competence is intertwined with academic progress during the early school years, particularly in prekindergarten to third grade. Em-

pirically based pre-referral intervention programs that support children's social-emotional development are needed to support at-risk students so that they can achieve their multifaceted potential for academic success.

Social-Emotional Learning Programs and Academic Outcomes

Developmental research has shown that social-emotional competencies are associated with greater well-being and better school performance, whereas failure to achieve such competencies predicts a variety of personal, social, and academic difficulties (Eisenberg, Damon, & Lerner, 2006; Guerra & Bradshaw, 2008; Masten & Coatsworth, 1998; Weissberg & Greenberg, 1998). A number of preventive-interventions aim to improve the academic outcomes of children by enhancing their social-emotional and behavioral development (Bradshaw, Zmuda, Kellam, & Ialongo, 2009). Social-emotional learning programs (SELS) intervene on an interrelated set of cognitive, affective, and behavioral skills critical for successful academic performance. They include the recognition and management of emotions, appreciating the perspectives of others, initiating and maintaining positive relationships, and using critical thinking skills to make constructive decisions when interpersonal dilemmas occur (Elias et al., 1997; Jones & Bouffard, 2012).

Social-emotional competencies also promote children's engagement in instructional activities in the classroom setting that, in turn, enhance their academic achievement (Eisenberg, Valiente, & Eggum, 2010). Likewise, SEL programs work to prevent or reduce behavior issues because young children who demonstrate dysregu-

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lated or disruptive behavior in the classroom have fewer opportunities to learn from peers and teachers, consequently achieving lower levels of academic skills (Arnold et al., 2006; Raver, Garner, & Smith-Donald, 2007). In addition, SELs maintain that responsive learning environments support teacher–student and peer relationships, family involvement, improved classroom management and instructional practices, and whole-school community-building activities (Cook et al., 1999; Hawkins, Smith, & Catalano, 2004; Schaps, Battistich, & Solomon, 2004).

The impact of SEL interventions, however, has been mixed. In general, universal programs appear to hold the most promise by targeting the teacher or classroom (Ialongo, Edelson, Werthamer-Larsson, Crockett, & Kellam, 1995; Kellam & Rebok, 1992). Positive outcomes have been found in universal programs on the collective classroom level and on child-level skills (Brown, Jones, LaRusso, & Aber, 2010; Webster-Stratton, Reid, & Stoolmiller, 2008). Individual studies and narrative reviews report positive outcomes such as greater student concentration and fewer problem behaviors (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Kellam et al., 2008; Webster-Stratton et al., 2008; Zins, Weissberg, Wang, & Walberg, 2004). Several studies also report a positive, robust effect of SEL programs on children’s academic achievement (Durlak et al., 2011). For example, a large, cluster randomized control trial of the Chicago School Readiness Project (CSRP)—an emotionally and behaviorally focused classroom-based intervention designed to support low-income preschoolers’ school readiness—revealed positive effects on preschool children’s preacademic skills, as measured by vocabulary, letter naming, and math skills (Raver et al., 2011). Similarly, efficacy trials of the Incredible Years Program, a comprehensive intervention designed to promote social competence and reduce disruptive behavior, also evidenced positive impacts on children’s early school readiness skills (Webster-Stratton et al., 2008).

In sharp contrast to the previous reports on SEL interventions, a recent evaluation by the Institute of Education Sciences of seven social and character development programs, which include SEL programs, found no direct effects on third- to fifth-grade students’ social-emotional skills or academic achievement (Social and Character Development Research Consortium, 2010). The Institute of Education Sciences report raises questions about the efficacy of such programs to enhance children’s behavioral development and academic skills. Other researchers have also questioned the underlying premise that promoting children’s social and emotional skills can improve their academic and behavioral outcomes (Duncan, Ludwig, & Magnuson, 2007; Zeidner, Roberts, & Matthews, 2002).

The inconsistent findings regarding SEL programs necessitates that more research be conducted to clarify their impact. In their meta-analytic review, Durlak et al. (2011) concluded that examining effects on academic outcomes is especially critical. Yet, only 16% of the SEL studies in their review collected information on academic achievement and only one examined separate effects on reading and math achievement. The lack of identified academic outcomes among many SELs is a serious limitation. Enhancing academic skills, especially math, is important for supporting children at risk for academic underachievement. For example, analyzing data from six longitudinal studies, Duncan, Dowsett, et al. (2007) found that school-entry math, reading, and attentional skills were all predictive of future achievement.

Another constraint regarding SEL programming is the limited amount of knowledge about what mediates identified outcomes. One theory motivating the implementation of social-emotional learning posits that SEL programs first enhance distinct components of children’s self-regulation. *Self-regulation* refers to the adaptive processes that individuals use to respond appropriately to the expectations and demands of their environment and to exhibit attentional control and behavior regulation (Rothbart, Sheese, Rueda, & Posner, 2011). *Attentional control* refers to an individual’s capacity to choose what to pay attention to and what to ignore (Astle & Scerif, 2009). *Behavior regulation* includes children’s abilities to monitor their emotions and inhibit aggressive reactive responses, such as rule breaking and defiance, in favor of socially appropriate alternatives (Cole, Usher, & Cargo, 1993). Children’s attentional capacities grow and their disruptive behaviors decline as they gain self-regulatory skills (Cole et al., 1993).

When children’s abilities to regulate their behaviors and emotions in the classroom setting are improved, they are better able to pay attention to classroom instruction and less likely to engage in disruptive behaviors that take their focus off academic learning. In doing so, their development of core academic skills in language, literature, and math is likely to be enhanced. The development of these self-regulation skills is especially important in the transition to elementary school, as higher levels of sustained attention and less disruptive behaviors are expected as children advance in school. As a result, children who are unable to pay attention or control their behavior often experience academic difficulties as well as relational difficulties with teachers and peers (Rimm-Kaufman, LaParo, Downer, & Pianta, 2005).

Although self-regulation is critical for success in the early primary grades (Liew, 2012), only a few empirical studies have examined whether self-regulation functions as a mediator in SEL programming. Two exceptions are the recent studies of the Head Start Research-Based, Developmentally Informed (REDI) Program (see Bierman et al., 2008) and the Chicago School Readiness Project (CSRP; see Raver et al., 2011), both of which were designed to support low-income preschoolers’ school readiness. The emotionally and behaviorally focused classroom-based REDI and CSRP interventions demonstrated positive changes in children’s self-regulation that, in turn, were related to increases in their early school readiness skills. No previous studies of which we are aware, however, have examined the mediating role of self-regulation in SEL programs for primary school-age children. Yet, self-regulation is still malleable in young children through the socialization practices of their parents and teachers (Rothbart et al., 2011). Moreover, even young children can use strategies to strengthen their own self-regulation.

Many SEL programs presuppose that behavioral supports, program content, and teacher strategies are applicable for all students. A child’s temperament, however, is a critical factor in children’s development of self-regulatory capacities. Indeed, Rothbart et al. (2011) argued that *temperament* itself refers to constitutionally based individual differences in reactivity and self-regulation in the domains of affect, activity, and attention. Thus, it may be critical to address differences in children’s temperaments that predict discrepancies in self-regulatory abilities when delivering SEL programming. Temperament research asserts that varying environmental supports are differentially effective depending on a particular child’s temperament (Shiner et al., 2012). In the SEL

intervention, INSIGHTS Into Children's Temperament (INSIGHTS), temperament theory is used as the framework for enhancing core dimensions of a child's self-regulation: attentional control and disruptive behaviors. Understanding a young child's temperament is important because associations between academic outcomes in first grade and temperament are stronger than those related to cognitive aptitude (Entwisle, Alexander, & Olson, 2005).

An Overview of INSIGHTS

INSIGHTS is a comprehensive intervention with teacher, parent, and classroom programs that work synergistically to support children's ability to self-regulate by enhancing their attentional and behavioral repertoire. Better self-regulated behavior, in turn, is expected to enhance the children's academic skills. The curriculum for the intervention is briefly summarized in the Appendix.

In their sessions, parents and teachers learn how to recognize the consistent behavioral style a child exhibits across settings as an expression of temperament. Then parents and teachers are encouraged to reframe their perceptions by appreciating that every temperament has strengths as well as issues that concern parents and teachers. Although temperament is not amenable to change, adult responses are and can greatly influence children's behavior.

Acceptance of a child's temperament does not imply permissiveness. Instead, teachers and parents explore the ideal combination of warmth and discipline strategies for a particular child's temperament. The aim is to enhance goodness of fit, the consonance of a child's particular temperament to the demands, expectations, and opportunities of the environment (Chess, 1984). Responsive parents and teachers support children's self-regulation when they invariably encounter temperamentally challenging situations by using scaffolding and stretching strategies. By understanding the child's temperament, the caregiver discerns whether the situation is likely to overwhelm the child and should, therefore, be avoided or reduced in its magnitude. If, instead, the child is likely to manage the situation with support, then a responsive parent or teacher applies strategies that gently stretch the child's relevant emotional, attentional, or behavioral repertoire. With enough support and effortful control by the child, the self-regulatory capacity of a child can be expanded and become more automatic (Denissen, van Aken, Penke, & Wood, 2013; Rothbart et al., 2011).

The classroom program also seeks to expand children's self-regulation. During the first 4 weeks, children are introduced to four puppets with different temperaments. The children explore how, on the basis of a puppet's particular temperament, some situations are easy and others are more challenging. During the remaining weeks, the children work with the puppets to apply problem-solving strategies when confronted with daily dilemmas.

In a previous prevention trial (McClowry et al., 2005), INSIGHTS was efficacious in reducing children's disruptive behaviors at home, especially among children who were at diagnostic levels of one or more disruptive behavior disorders, including attention-deficit/hyperactivity disorder, oppositional defiant disorder, and conduct disorder. A second study (O'Connor et al., 2012) demonstrated that the intervention enhanced parenting efficacy. Earlier findings from the current study found short-term effects of INSIGHTS on the classwide learning context, including teacher practices and classroom behaviors (Cappella et al., in press), as

well as the classroom engagement and mathematical development of shy kindergarten students (O'Connor, Cappella, McCormick, & McClowry, in press).

Current Study

In this study, we examined the efficacy of INSIGHTS in supporting the academic skill development of children in urban, low-income schools during kindergarten and first grade. Comparing children attending schools randomly assigned to receive INSIGHTS with others in schools that hosted a supplemental reading program, we examined both within- and between-children differences on standardized measures of math and reading achievement, sustained attention, and behavior problems across five time points in kindergarten and first grade. Then, we tested whether an increase in sustained attention or decrease in behavior problems mediated effects of INSIGHTS on children's math and reading achievement.

Method

Participants and Setting

Twenty-two elementary schools were partners in conducting this study. All schools served families with comparable sociodemographic characteristics in low-income urban neighborhoods. The participants included 435 children and their parents as well as 122 teachers from kindergarten and first grade classrooms. Eleven of the schools hosted the INSIGHTS program; the remaining 11 schools participated in a supplemental reading program. Most parent-child dyads ($n = 329$) enrolled in the study when the children were in kindergarten. The remaining dyads ($n = 106$) enrolled when the children were in first grade.

The children ranged from 4 to 7 years of age at baseline ($M = 5.38$ years, $SD = 0.61$). Half (52%) of the children were boys. Eighty-seven percent of the children qualified for free or reduced-price lunch programs. Approximately 75% of children were Black, non-Hispanic; 16% were Hispanic, non-Black; and the remaining children were biracial. A majority of the parents were the children's biological mothers (84%); others in the program were fathers (8%) and kinship guardians (7%). Approximately 28% of adult respondents had education levels less than a high school degree, 26% had at least a high school degree or general equivalency diploma, 24% had at least some college experience, and the remaining 22% had graduated from a 2- or 4-year college.

Children enrolled in the study were similar in demographic characteristics to the other students at the schools who were invited but were not participants. According to school records, approximately 90% of the children in the partnering schools qualified for free or reduced-price lunch programs, and 78% of children were African American, 43% were Hispanic/Latino, 1% were White, and 6% were other.¹

¹ Because the school district records only provide information on the census question regarding race/ethnicity that identifies Hispanic as an ethnicity rather than a race, the race statistic in the study sample for Hispanic is not directly comparable to the race statistic for Hispanic from the school data.

Sixty kindergarten and 62 first-grade teachers participated (96% women). Teachers reported their race/ethnicity as African American and non-Hispanic (61%), Hispanic and non-Black (10%), White (23%), and Asian or biracial (6%). All teachers reported having earned a bachelor's degree; 96% had a master's degree.

Recruitment and Randomization Procedures

Recruitment for this study was conducted by a racially and ethnically diverse team of field staff. All recruitment strategies were approved by university and school system research boards. Principals serving low-income students in three urban school districts were the first to be contacted. Team members explained the purpose of the study and its related logistics including randomization to one of two intervention conditions: INSIGHTS or a supplemental reading program. Twenty-three principals agreed to participate over 3 consecutive years. Prior to randomization, however, one school withdrew from the study during a principal transition.

Teachers at the participating schools were recruited in small group or individual meetings. Each of the three cohorts began with recruitment of the kindergarten teachers in September. Parents were recruited from participating teachers' classrooms. After a parent consented, child assent was acquired. At the beginning of the following year, first-grade teachers and parents were recruited from the same schools. In all, 96% of the kindergarten and first-grade teachers consented to participate. All of the teachers who consented continued to participate for the duration of the study. Because of resource limitations and concerns about teacher burden, recruitment at each school stopped after all possible efforts to recruit students had been made and at least four students in each classroom were enrolled in the study.

Most children (79%) were enrolled in the study at the beginning of kindergarten. The remaining 21% enrolled when the children were in first grade. Participating students were, however, representative of the school as a whole. On the basis of chi-square tests, there were no significant differences between the children enrolled in the study and others in the school in the percentage of students who were girls, Black, Hispanic, or eligible for free or reduced-price school lunch.

After baseline data were collected in kindergarten, a random numbers table was used to randomize schools to INSIGHTS or the supplemental reading program. Schools were used as the unit of random assignment to limit possible contamination effects that could threaten the internal validity of the study. Eleven schools were randomized to INSIGHTS; the remaining 11 schools hosted the supplemental reading program. Half of the children were in the INSIGHTS program ($n = 225$); the remaining child participants ($n = 210$) were enrolled in the attention-control condition. Similarly, approximately half of teachers ($n = 57$) participated in the INSIGHTS program; the remaining teachers ($n = 65$) were enrolled in the attention-control condition.

Data Collection

Researchers and field staff received group training on all procedures and measures prior to each of the five data collection periods. Time 1 (T1) data were collected at baseline in the winter of the kindergarten year prior to the 10 weeks of kindergarten

intervention. Time 2 (T2) data were collected following intervention in the late spring of the kindergarten year. Time 3 (T3) data were collected in the fall of first grade prior to the 10 weeks of first grade intervention. Time 4 (T4) data were collected after the first grade intervention in the winter of the first grade year, followed by Time 5 (T5) data in late spring.

After consenting to participate, parents provided demographic information and completed the School-Age Temperament Inventory (SATI) at their child's school via audio-enhanced computer-assisted self-interviewing software (Audio-CASI). Parents received \$20 for their time. Teachers completed the Sutter-Eyberg Student Behavior Inventory (SESBI; Eyberg & Pincus, 1999) for each participating student and received \$50 gift cards to purchase classroom supplies.

Data collectors unaware of school study condition conducted individual child assessments, with all children participating in the study at each of the five data time points. Prior to collecting the data, an outside consultant trained them to administer the Applied Problems and Letter Word ID subtests of the Woodcock-Johnson III Tests of Achievement, Form B (WJ-III; Woodcock, McGrew, & Mather, 2001) and Leiter-Revised Attention Sustained Task (Leiter-R; Roid & Miller, 1997) during a 1-day training session in the fall of each year of the study (2008–2010). A graduate research assistant conducted a mock assessment in the lab and observed all data collectors conduct an assessment in the field before impact data were collected from children at the schools. Data collectors subsequently met on a weekly basis to check in about adherence to the protocols and to discuss any data collection problems experienced in the field.

Measures

Demographic characteristics. Parents reported on their child's demographic characteristics—gender, race, and eligibility for free or reduced-price lunch—when they enrolled their child in the study. All demographic characteristics were collected at T1 or T3, depending on whether children enrolled in kindergarten or first grade.

Child temperament. The SATI (McClowry, 1995, 2002) was used to measure child temperament. The SATI is a 38-item 5-point Likert-type scale (ranging from 1 = *never* to 5 = *always*) that was standardized with a racially, ethnically, and socioeconomically diverse sample of 883 parents reporting on their children. The instrument has four dimensions derived from principal factor analysis: negative reactivity (12 items; the intensity and frequency with which the child expresses negative affect), task persistence (11 items; the degree of self-direction that a child exhibits in fulfilling task responsibilities), withdrawal (nine items; the child's initial response to new people and situations), and activity (six items; large motor activity). The score for each dimension was calculated by taking the mean of the dimension's individual items. In the current study, Cronbach's alphas for the SATI were similar to those identified by McClowry (2002; for activity, $\alpha = .77$; for withdrawal, $\alpha = .81$; for task persistence, $\alpha = .85$; for negative reactivity, $\alpha = .87$). Used as a pretreatment covariate, temperament was measured at T1 or T3, depending on whether children enrolled in kindergarten or first grade.

Child sustained attention. Sustained attention was measured at T1–T5 with the Leiter-R (Roid & Miller, 1997). The Leiter-R

assessed children's ability to sustain attention to detail in a repetitive task. Children were shown a target figure (i.e., flower) located at the top of the stimulus and were instructed to scan an array of figures and cross out all of the target figures as quickly as possible. A total adjusted correct (total errors subtracted from total correct) score was calculated. In the current study, the average reliability across time points was .87.

Child behavior problems. Behavior problems were measured at T1–T5 with the 36-item SESBI, the teacher version of the Eyberg Child Behavior Inventory (Eyberg & Pincus, 1999). On a frequency scale ranging from 1–7 (1 = *never*, 3 = *seldom*, 5 = *sometimes*, 7 = *always*), teachers reported on the frequency that a student engaged in a range of disruptive behaviors, such as “acts defiant when told to do something,” “verbally fights with other students,” and “is overactive and restless.” A mean score was calculated by averaging across the individual items for the full scale. The average Cronbach's alpha in the current study, across five time points, was .96.

Child academic achievement. Reading and math achievement were assessed at T1–T5 using the Letter–Word ID and Applied Problems subtests of the WJ-III (Woodcock, McGrew, & Mather, 2001). The Letter–Word ID subtest assesses letter naming and word decoding skills by asking children to identify a series of letters and words. Possible scores range from 0 to 76. The Applied Problems subtest assessed children's simple counting skills and the ability to analyze and solve mathematical word problems. Possible scores range from 0 to 64. The WJ-III typically correlates with measures of cognitive ability ($r_s = .66$ to $.73$ with the Wechsler Preschool and Primary Scale of Intelligence—Revised; Wechsler, 1989) and has internal consistencies ranging from .80 to .90. In the current study, the average reliability across time points for the Letter–Word ID subtest was .84; the average reliability for the Applied Problems subtest was .88.

INSIGHTS Intervention Procedures

Facilitator training. INSIGHTS facilitators had graduate degrees in psychology, education, and educational theater and had previous experience working with at-risk children. The eight facilitators varied in their racial and ethnic backgrounds. Prior to conducting the intervention in the schools, all facilitators attended a graduate-level course in the fall semester to learn the underlying theory and research. New facilitators were also trained by experienced facilitators to use the intervention materials. Each facilitator conducted the full intervention (teacher, parent, and child or classroom components) in the school to which she or he was assigned in kindergarten and in first grade.

Fidelity. To maintain model fidelity, facilitators followed scripts, used material checklists, documented sessions, and received ongoing training and supervision. Deviations or clinical concerns were discussed weekly in meetings with the program developer (see O'Connor et al., 2012). Supervision focused on challenges related to conducting sessions, implementation logistics, and participant concerns.

Parent and teacher sessions were videotaped and reviewed for coverage of content and effectiveness of facilitation (Hulleman & Cordray, 2009). Fidelity coding was conducted by an experienced masters-level psychiatric nurse who assessed that 94% of the curriculum was adequately covered in the teacher sessions and

92% of the curriculum was covered in the parent sessions. On a 5-point scale, the mean ratings of facilitator skills were 3.71 (question asking), 3.92 (quality of praise), 3.54 (validation), and 3.83 (limit setting).

Program delivery. Teachers and parents attended 10 weekly 2-hr facilitated sessions based on a structured curriculum that included didactic content and professionally produced vignettes as well as handouts and group activities. One of the sessions was attended by parents and teachers together; the others were conducted separately. Teachers and parents were given assignments to apply the program content between sessions. On average, teachers completed 91% of assignments and parents completed 48% of assignments. Make-up sessions were offered as needed. Parents received \$20 and teachers received professional development credit and \$40 gift cards for each session they attended.

During the same 10 weeks, the classroom program was delivered in 45-min lessons to all students in the classrooms of participating teachers. The curriculum materials included puppets, workbooks, flash cards, and videotaped vignettes. Although the facilitators had primary responsibility for conducting the classroom sessions, teachers were engaged in the sessions, especially when the students practiced resolving dilemmas. No make-up sessions were conducted, although teachers were asked to use the program materials with the students who missed a session during the week.

Attendance. The average number of teacher sessions attended was 9.44 ($SD = 0.91$). The majority of teachers attended all sessions (70.6%), and another 26.5% attended eight or nine sessions. The average number of classroom sessions attended by the participating children was 8.30 ($SD = 2.25$). Thirty-two percent of children were present for all classrooms sessions and 46.3% were present for eight or nine sessions. The average number of parent sessions attended by parents of participating children was 5.93 ($SD = 4.15$). Twenty-five percent of parents were present for all sessions and 30.3% were present for eight or nine sessions. This amount of child participant intervention dosage is comparable to similar social-emotional learning programs (e.g., Chicago School Readiness Project, Raver et al., 2011; 4Rs, Brown, Jones, LaRusso, & Aber, 2010; Incredible Years, Webster-Stratton, Reid, & Stoolmiller, 2008).

Attention-Control Condition

A supplemental reading program served as the attention-control condition. The rationale for having an attention-control condition was to provide some comparability with the treatment variables that were likely to influence the outcomes. In addition, the program provided the schools in low-income neighborhood with additional literacy-related resources and allowed for a conservative estimate of intervention effects. There was little overlap in content covered in the supplemental reading program and the INSIGHTS intervention.

Students whose parents consented in the attention-control schools participated in a 10-week, 45-min after-school supplemental reading program. Their teachers and parents attended two separate workshops, each 2 hours long, in which strategies to enhance early literacy were presented and reading materials for the children were provided. Experts in early literacy deemed 4 workshop hours adequate because the content was limited to early

literacy strategies and the parents and teachers were encouraged to use the program materials with the children throughout the 10 weeks.

Twenty-four percent of children who were enrolled in the supplemental reading program participated in the full 10 sessions; an additional 19% took part in eight or nine sessions. Thirty percent of parents and 83% of teachers attended both sessions. Parents received \$20 and teachers received professional development credit and \$40 for classroom resources for each workshop. To maintain the fidelity of the attention-control condition, supplemental reading program facilitators had weekly meetings with the project director to ensure that all components of the program were being implemented each week. Supervision of reading coaches dealt with challenges related to conducting the sessions, implementation logistics, and participant concerns. Review of checklists completed by reading coaches indicates that fidelity to the curriculum was high; 95%–100% of topics were covered across the 10 weeks of the program.

Analytic Approach

Missing data analysis. For the child-level variables, there was 0%–20% missing data across study variables. To achieve maximum power given the sample size ($n = 435$), individual students who were missing data points were compared with students who were not missing data points on all baseline characteristics. Little's missing at random test (Little & Rubin, 1987) was used to determine that data were missing at random. As recommended by Graham Olchowski, and Gilreath (2007), a multiple data imputation method was used and 20 separate data sets were imputed by chained equations, using SAS PROC MI in SAS Version 9.2 (Enders, 2013). All unconditional and conditional analyses were run 10 separate times using the multiple imputation import procedure in HLM 7 (Raudenbush, Byrk, Cheong, Congdon, & du Toit, 2011) and final parameter estimates were generated by calculating the mean of the 10 estimates.

Growth curve modeling. Two-level individual growth modeling was used to examine change over four waves of data for each outcome. Individual growth modeling allows one to model change over time in an outcome with repeated measures (Singer & Willett, 2003). All models were fitted with HLM 7 (Raudenbush et al., 2011). The metric of time used was time point (T1–T5). Time was centered at the last assessment time point so that the parameter for the intercept would represent the outcomes at the final intervention follow-up point (T5). To center time, the number 4 was subtracted from the time (assessment point) metric. This was appropriate because growth was modeled over four time periods, after controlling for pretreatment levels of the outcomes with fixed effects. Although no pretreatment differences were identified in preliminary analyses, individual characteristics and baseline levels of the outcomes were included as covariates in models to improve the precision of the estimates (Shadish, Cook, & Campbell, 2001).

Because repeated measures were nested in children, who were nested in schools, the appropriateness of a three-level hierarchical linear model was examined. Initial analyses consisting of three-level unconditional models (Level 1 = repeated measures; Level 2 = students; Level 3 = schools) were run for each of the child outcomes (sustained attention, behavior problems, math achievement, reading achievement) to determine whether there was sig-

nificant between-individuals and between-schools variation in these predictors. On the basis of the estimates obtained from the unconditional model, intraclass correlations were computed. Intraclass correlations represent the proportion of total variance attributed to mean differences between individuals and schools. Unconditional models suggested that there was significant between-individuals variation in these data. As such, a random effect was included at Level 2 in all models, allowing the intercept to vary at the student level (Raudenbush, 2009). In addition, we allowed students to vary at random on the intercept and slopes and covaried the random intercept and slope. However, these same models did not support significant between-schools variation. As such, a two-level model wherein treatment was operationalized as a Level 2 predictor was chosen for all analyses, as the two-level model represented the most appropriate fit for these data and generated more power to detect treatment effects. However, because randomization took place at the school level, school fixed effects were included in models to account for any unobserved pretreatment variables at the school level.

To analyze these data, we first fitted an unconditional growth model to examine children's outcome scores from the first post-treatment time point (T2) through the final time point (T5). Equation 1, as follows, demonstrates the fit of this model.

$$\text{Level 1: } \gamma_{ij} = \beta_{0i} + \beta_{1i}X_{ij} + \varepsilon_{ij} \quad (1)$$

$$\text{Level 2: } \beta_0 = \beta_0 + \alpha_i + u_{0i}$$

$$\beta_{1i} = \beta_1 + u_{1i}$$

As shown in Equation 1, each student's outcome score at the intercept was modeled as a grand mean outcome score at the first posttreatment time point (T2; β_0), as well as a residual term that demonstrates deviations in outcome scores at T2 about the grand mean (u_0). The term α_i represents school fixed effects that account for all time-invariant school-level differences. Additionally, each student's rate of change across time on each outcome score was modeled as a grand mean rate of change in the outcome (β_1), as well as a residual term that demonstrates deviations in the slope (u_{1i}).

A conditional model was then run in which the Level 2 predictor for treatment condition was used to examine between-children differences in treatment effects. Although randomized control trials typically assume that treatment and control groups are equivalent at baseline (Shadish et al., 2001), Raudenbush (1997) argued that statistical analyses that use full information about the covariate–outcome relationship can substantially increase the efficiency of the cluster randomized trial. In these same models, a series of Level 2 covariates—(a) child female (binary; males: 0, female: 1), (b) child Black (binary; no: 0, yes: 1), (c) child Hispanic (binary; no: 0, yes: 1), (d) negative reactivity (continuous: 1–5), (e) task persistence (continuous: 1–5), (f) activity (continuous: 1–5), (g) withdrawal (continuous: 1–5), (h) a fixed effect for behavior problems at T1, (i) a fixed effect for sustained attention at T1, (j) a fixed effect for math achievement at T1, (k) a fixed effect for reading achievement at T1, (l) student cohort (dummy codes were included for Cohort 1 and Cohort 2; Cohort 3 was the referent group, estimates from the cohort covariate are not included in tables for ease of presentation)—were added as Level 2 time-invariant predictors to account for pretreatment of between-

children differences. To accurately estimate the effect of Level 2 predictors on the Level 1 outcomes, we centered all continuous predictors at Level 2 (four dimensions of child temperament, baseline levels of outcomes) around their grand mean (Raudenbush, 2009). Level 2 categorical variables (treatment condition, child female, child Black, child Hispanic, child eligible for free or reduced-price lunch) were not centered, as they were coded dichotomously. Similarly, school fixed effects were included as dummy variables at Level 2, as displayed in Equation 1.

To examine within-child effects of INSIGHTS compared with the supplementary reading program on outcomes, we used treatment condition to predict the Level 1 slope for time in the conditional model. As such, the conditional treatment impact model includes cross-level interactions between time (Level 1) and treatment (Level 2). Significant cross-level interactions indicate that the association between time and the outcome varies as a function of treatment. Significant interaction terms indicate differential growth in outcomes over time for students enrolled in INSIGHTS schools, compared with students enrolled in schools participating in the supplemental reading program. Finally, pseudo R^2 values (Singer & Willett, 2003) and percentage reduction in Akaike information criterion fit indices were calculated to compare the amount of variance in outcome scores explained by the conditional model, relative to the unconditional growth model (Equation 1). Models examining quadratic change in within-child treatment effects were subsequently tested. In these models, the time variable was squared and used as a Level 1 predictor. Treatment at Level 2 was then used to predict the Level 1 quadratic time slope, in addition to the Level 1 linear slope. Finally, effect sizes (ES) for statistically significant findings were calculated following procedures by Feingold (2009) for growth model analysis, yielding ES in the same metric as classical designs, thus facilitating comparisons across studies.

Multilevel mediation. To test whether within-child intervention effects on math and reading achievement were mediated by the key components of self-regulation—sustained attention or behavior problems—we conducted a multilevel regression mediation analysis in three steps (MacKinnon, 2008; Zhang, Zyphur, & Preacher, 2009). In these analyses, the within-child treatment

effect was a Level 1 (time-varying) variable and the hypothesized mediators (sustained attention, behavior problems) and outcomes (math and reading achievement) were also Level 1 (time-varying individual) variables. Figures 1 and 2 display the mediation model we tested along with relevant paths we used to assess the direct and indirect mediation effects. Developed by Zhang et al. (2009), this framework builds on Baron and Kenny's (1986) approach but enables examination of mediated pathways using hierarchical linear models.

In the first step of the mediation analysis, we assessed the effects of within-child treatment effects on the outcomes (math and reading achievement) controlling for Level 2 covariates (Path C in Figures 1 and 2). In the second step, we used separate models to assess the within-child effect treatment effect on the mediators (sustained attention and behavior problems; Path A in Figures 1 and 2). In the third and final step of the mediation analysis, we used two separate models to assess the within-child effects of treatment condition and the time-varying mediators on the outcomes, controlling for Level 2 (Paths B and C' in Figures 1 and 2).

Results

Descriptive Statistics and Results of Randomization

Means and standard deviations for continuous variables and percentages for dichotomous variables (by treatment and control) at all time points are presented in Table 1. In general, child scores on sustained attention, math achievement, reading achievement, and behavioral problems increased over time. Independent samples t tests demonstrated significant pretreatment differences between children enrolled in *INSIGHTS* and the supplemental reading group on reading achievement, $t(433) = 3.12, p < .01$. At baseline, children in *INSIGHTS* evidenced lower overall scores on reading achievement than their peers in the supplemental reading program. Pretreatment differences on all other covariates and outcomes were nonsignificant.

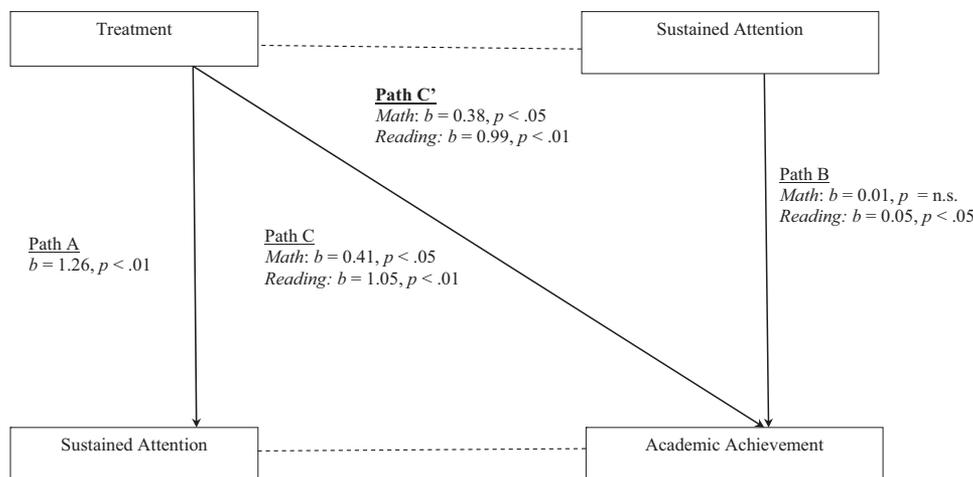


Figure 1. Treatment predicting math and reading achievement, mediated by sustained attention at Level 1.

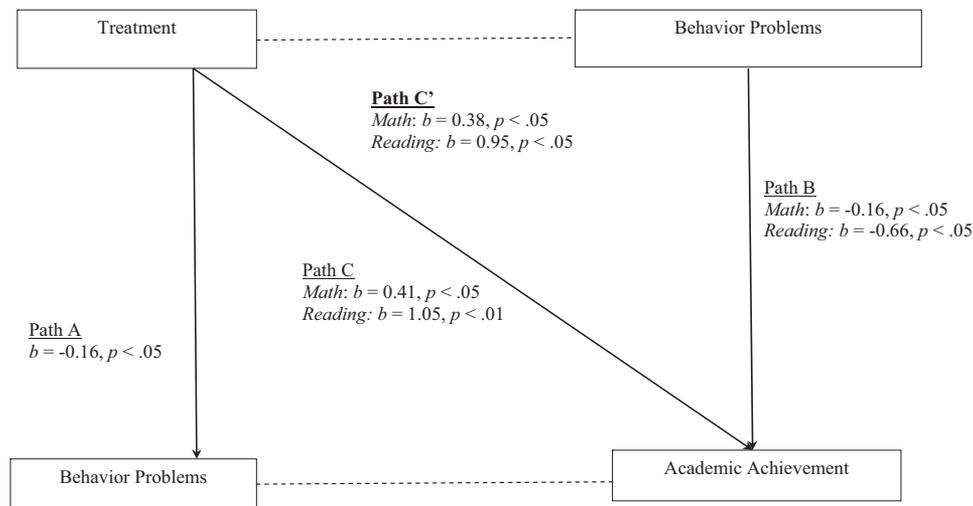


Figure 2. Treatment predicting math and reading achievement, mediated by behavior problems at Level 1.

Individual Growth Modeling

The results of unconditional means models revealed significant grand mean scores for sustained attention, $\gamma = 55.10$, $p < .01$; behavior problems, $\gamma = 2.31$, $p < .01$; math achievement, $\gamma = 19.31$, $p < .01$; and reading achievement, $\gamma = 25.61$, $p < .01$. Results also demonstrated that children's mean scores for all outcomes (i.e., the mean outcome score across all time points) significantly varied around the grand mean. Intraclass correlation calculations indicated that 22.66% of the variation in sustained attention, 54.30% of the variation in behavior problems, 22.07% of the variation in math achievement, and 30.88% of the variation in reading achievement occurred across students.

The results for the unconditional growth model in Equation 1 showed significant grand mean outcome scores at T5 for sustained attention, $\gamma = 58.86$, $p < .01$; behavior problems, $\gamma = 2.34$; $p < .01$, math achievement, $\gamma = 21.58$, $p < .01$; and reading achievement scores, $\gamma = 29.68$, $p < .01$. Findings indicate that scores increased, on average, 2.88 points ($p < .01$) at each time point for sustained attention, 2.13 ($p < .01$) for math achievement, and 3.98 ($p < .01$) for reading achievement. There were no significant changes in behavior problems over time. Furthermore, variance component estimates demonstrated (a) significant variance in observed versus predicted outcome scores within students (for Level 1 sustained attention, $\tau_{10} = 138.44$, $p < .01$; for Level 1 behavior problems, $\tau_{10} = 1.31$, $p < .01$; for Level 1 math achievement, $\tau_{10} = 20.47$, $p < .01$; for Level 1 reading achievement, $\tau_{10} = 26.29$, $p = .03$); (b) significant slope variance for sustained attention, $\tau_{11} = 5.04$, $p < .01$; behavior problems, $\tau_{11} = 0.07$, $p < .01$; and math achievement, $\tau_{11} = 0.71$, $p < .01$; and (c) significant covariation between slope and intercept variance for sustained attention, $\rho = -22.37$, $p < .01$; behavior problems, $\rho = -0.17$, $p = .02$; and math achievement, $\rho = -2.71$, $p < .01$, in outcome trajectories across all students.

INSIGHTS impact analyses. Given that the unconditional growth model demonstrated significant intercepts across study outcomes and significant slope variance across three of the four

outcomes, predictor variables were added to Level 2 of the model to explain this variance at Level 1. The values presented in the top portion of Table 2 indicate the association between the independent variables and the four outcomes after controlling for the other effects in the model and can be interpreted as partial correlations. A significant between-child treatment effect was not detected for any of the outcomes. This finding suggests that, on average, at T5, there was no statistically significant difference in the outcome scores between children enrolled in the INSIGHTS program and children in the attention-control condition. Variance component estimates demonstrated (a) significant variance in observed versus predicted sustained attention, behavior problems, math achievement, and reading achievement scores within students; (b) significant variation in all outcomes at T5; (c) significant variation in the slope for all outcomes; and (d) significant covariance in the slope and intercept for behavior problems and reading achievement. The Level 1 residual variance and the Level 2 intercept and slope variance estimates decreased for all outcomes, indicating that the independent variables in the model were relatively strong predictors of the outcomes within and between individuals.

Cross-level interactions predicting the slope from treatment condition were significant for all four of the outcomes (see Table 2). Within-child analyses revealed that children in INSIGHTS demonstrated faster growth, compared with children in the supplemental reading program, in sustained attention, $\gamma = 1.26$, $p < .01$, $ES = .39$, $\text{pseudo } R^2 = .13$; math achievement, $\gamma = .41$, $p = .02$, $ES = .31$, $\text{pseudo } R^2 = .15$; and reading achievement, $\gamma = 1.05$, $p < .01$, $ES = .55$, $\text{pseudo } R^2 = .15$. These results can be interpreted such that children in INSIGHTS evidenced a 1.23 point greater increase in math scores ($ES = .31$) and a 3.15 point greater increase in reading scores ($ES = .55$) on the WJ-III than the children in the control group, which represents a 0.25 and 0.41 standard deviation difference in growth, respectively, from baseline.

Table 1
Descriptive Statistics for Study Variables Pretest and Posttest

Variable	Pretest (Time 1)		Posttest (Time 2)		Posttest (Time 3)		Posttest (Time 4)		Posttest (Time 5)											
	Treatment		Control		Treatment		Control		Treatment		Control									
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD								
Sustained attention	46.14	12.60	45.58	12.85	51.34	11.99	54.59	9.02	57.95	9.48	56.05	8.74	60.37	8.21	59.39	8.73	61.44	9.03	60.54	9.45
Behavior problems	2.28	1.24	2.15	1.19	2.48	1.39	2.15	1.02	2.18	1.14	2.26	1.03	2.29	1.21	2.35	1.27	2.28	1.36	2.46	1.42
Reading achievement	16.74	7.20	17.76	7.15	20.51	7.56	23.11	7.95	23.65	9.20	26.73	8.37	31.15	8.75	32.86	8.46	33.54	9.07	33.57	8.11
Math achievement	14.46	4.69	14.45	5.24	16.99	4.46	17.48	4.83	18.46	4.86	19.80	3.87	22.37	4.05	22.45	3.54	23.34	4.62	23.17	3.86
Negative reactivity	2.92	0.76	2.86	0.79																
Task persistence	3.79	0.72	3.72	0.73																
Activity	2.89	0.90	2.82	0.90																
Withdrawal	2.44	0.76	2.48	0.80																
Child female	0.47		0.49																	
Child Black	0.77		0.75																	
Child Hispanic	0.17		0.14																	
Eligible for free/reduced-price lunch	0.84		0.83																	

Note. N = 435.

In addition, children in INSIGHTS evidenced reductions in behavior problems over time, $\gamma = -.16, p < .01, ES = .54$, pseudo $R^2 = .17$, compared with children in the supplemental reading group who experienced increases in behavior problems over time. Pseudo R^2 values, which are a way to examine the amount of variation in an outcome explained by the predictors in a multilevel model, suggest that including Level 2 predictors in these models improved the amount of variance explained in all outcomes (Singer & Willett, 2003). Similarly, reductions in Akaike information criterion values suggest that the conditional models represented an improvement in fit over the unconditional growth models. Nonlinear effects of time and the intervention were considered, but there was no evidence suggesting the importance of including a quadratic slope in the impact models.

Mediation analyses. Multilevel mediation analyses were conducted to examine whether intervention effects on math and reading achievement were mediated by sustained attention or behavior problems. As shown in Figures 1 and 2, children in INSIGHTS exhibited faster growth in both math and reading achievement compared with children in the attention-control condition (in math achievement, Path C, $\gamma = .41, p = .02$; in reading achievement, Path C, $\gamma = 1.05, p < .01$). Treatment also predicted faster growth in sustained attention and faster decreases in behavior problems (in sustained attention, Path A, $\gamma = 1.26, p < .01$; in behavior problems, Path A, $\gamma = -.16, p < .01$). Final mediation models, predicting the outcome (math or reading achievement) from treatment and controlling for the mediator (sustained attention or behavior), revealed that the effect of INSIGHTS on reading achievement was partially mediated through both aspects of self-regulation—an increase in sustained attention (see Figure 1) and a reduction in behavior problems (see Figure 2). In addition, the effects of INSIGHTS on math achievement were partially mediated through a reduction in behavior problems (see Figure 2).

Discussion

In the present article, we report on a group randomized intervention study that examined the effects of INSIGHTS versus an attention-control reading program in supporting the academic and behavioral skills of low-income urban children in kindergarten and first grade. Results provide convincing evidence of the benefits of a universal SEL prevention program for children's academic development as well as self-regulatory capacities. Children in INSIGHTS demonstrated increases in math ($ES = .31$) and reading ($ES = .55$) achievement, as well as in sustained attention ($ES = .39$), and decreases in behavior problems ($ES = .54$) compared with their peers in the reading program after statistically accounting for these same skills in the fall of their kindergarten year. ES were larger than those noted in similar SEL programs that, on average, demonstrated ES of .27 for academic skills (see Durlak et al., 2011), as well as those from a meta-analysis of 76 papers on educational interventions that provide benchmark effects for the elementary grades ranging from .22–.23 (Hill, Bloom, Black, & Lipsey, 2008). In addition, compared with those enrolled in the supplemental reading program, children in INSIGHTS evidenced a 3.78 point increase in Leiter-R scores for sustained attention ($ES = .39$) and a .48 point reduction in behavior problems on the SESBI ($ES = .54$), representing .39 and .25 standard deviation changes from baseline, respectively. The impact on behavior problems is lower,

Table 2

Model Summary for Individual Growth Models Examining Sustained Attention, Behavior Problems, Math Achievement, and Reading Achievement

Fixed effect	Sustained attention			Behavior problems			Math achievement			Reading achievement		
	γ	Variance	SE	γ	Variance	SE	γ	Variance	SE	γ	Variance	SE
Between-child estimates												
Intercept	58.06**		1.39	2.53**		0.16	22.61**		0.47	30.01**		1.15
Child female	1.29*		0.66	-0.25**		0.08	-0.26		0.30	-0.58		0.64
Child Black	0.20		0.97	0.12		0.12	-0.60		0.41	1.05		0.93
Child Hispanic	0.12		1.02	-0.16*		0.13	-1.03*		0.45	-0.30		0.99
Elig. free/reduced lunch	0.07		0.07	0.01		0.01	-0.04		0.03	-0.04		0.08
Math achievement, T1	0.14*		0.07	-0.01		0.01	0.26**		0.03	0.27**		0.07
Reading achievement, T1	0.16**		0.04	0.01		0.01	0.03**		0.01	0.49**		0.04
Behavior problems, T1	-0.55*		0.27	0.49**		0.03	-0.19		0.12	-0.72*		0.27
Sustained attention, T1	0.17**		0.02	0.01*		0.01	0.03**		0.01	0.05*		0.03
Task persistent	0.52		0.51	-0.11		0.07	-0.24		0.23	-0.10		0.50
Negative reactivity	0.03		0.53	0.12†		0.07	-0.56*		0.23	-0.57		0.51
Withdrawn	0.60		0.42	-0.02		0.05	-0.30		0.20	-0.74†		0.42
Activity	0.15		0.43	-0.02		0.05	0.27		0.19	0.72†		0.42
Treatment condition	0.94		1.16	-0.18		0.13	-0.01		0.30	-0.73		0.85
Within-child estimates												
Slope	2.31**		0.28	0.09**		0.03	1.89**		0.12	3.36**		0.22
Treatment condition	1.26**		0.38	-0.16*		0.04	0.41*		0.17	1.05**		0.30
Random effects												
Intercept		21.99**	2.81		0.58**	0.06		4.76**	0.58		25.20**	2.60
Slope		4.60**	1.15		0.06**	0.01		0.76**	0.23		1.00**	0.33
Correlation, slope and intercept		-2.23	1.34		0.11**	0.02		0.09	0.26		5.64**	1.08
Level 1 residual		50.77**	2.52		0.64**	0.03		10.51**	0.52		41.69**	1.69
Fit indices												
Pseudo R^2		.13			.17			.15			.15	
% reduction in AIC		0.13			0.17			0.15			0.14	

Note. $N = 435$. Elig. = eligible; T1 = Time 1; AIC = Akaike information criterion. Models include control variables for Cohort 1 (1 = yes; 0 = no) and Cohort 2 (1 = yes; 0 = no). Four dimensions of temperament were used to predict the slope and interacted with treatment but were found to be nonsignificant and thus are excluded from the presentation of results.

† $p < .10$. * $p < .05$. ** $p < .01$.

however, than the .69 ES for social-emotional skills reported by Durlak et al. (2011) in their meta-analysis of SEL programs. Effects on math and reading were partially mediated through a reduction in behavior problems, and effects on reading were partially mediated through an improvement in sustained attention.

Two points are of note. First, the effects of INSIGHTS on reading were greater than those of the supplemental reading program that served as an attention-control condition. Results thus suggest that in early elementary school, SEL programs may be more effective than a low-dose supplemental reading program in supporting children's reading skills. In line with theory proposed by Liew (2012), it may be that SEL programs that help students develop attentional and behavioral skills allow them to better engage in daily classroom activities used in early elementary school (e.g., call and response, shared reading) to promote literacy skills.

Second, INSIGHTS was also effective in supporting children's early math development. SEL programs like INSIGHTS may enable students to develop the self-regulatory skills they need to engage in daily math activities in the early elementary classroom. This is particularly important given recent research indicating that math achievement is the single most powerful predictor of educational attainment (Duncan, Dowsett, et al., 2007). Children who persistently score in the bottom end of the math distribution in elementary school are 13 percentage points less likely to graduate

from high school and 29 percentage points less likely to attend college (Duncan, Dowsett, et al., 2007).

It is interesting that the findings presented in this article contrast with a recent Institute of Education Sciences impact report (Social and Character Development Research Consortium, 2010) that found null and/or negative effects for several SEL programs. INSIGHTS is offered in the early grades, in comparison to the programs reviewed in the Institute of Education Sciences report, which focused on Grades 3–5. Intervention in the early grades may be more promising for interrupting the cascading effects that often follow early academic and behavior problems.

The moderate ES reported here on academic achievement may be attributed to several components of INSIGHTS. First, although INSIGHTS is a classroom-wide intervention, it focuses on enhancing the goodness of fit between individual children and their classroom environment. Such directed responsiveness within the context of a larger intervention may be especially effective at supporting positive behavior and, in turn, the academic skill development of young children who are adjusting to formal schooling. Second, INSIGHTS involves teachers, children, and parents—a comprehensive approach that aims to foster consistency and collaboration between teachers and parents in the strategies they apply to children with different temperaments. Third, the classroom program offers developmentally appropriate empathy and

problem-solving activities intended to assist children in enhancing their own self-regulation.

The current study results are among the first to identify mediating mechanisms of a SEL program on the academic achievement of young low-income children in urban elementary schools. Program effects on reading and math skills were partially attributable to increases in sustained attention and decreases in behavior problems—a finding that supports, at least in part, the notion that academic skills are enhanced by children's social-emotional development. Furthermore, these results indicate that INSIGHTS supported young children's development of the type of self-regulatory skills that are vital to learning, including their abilities to sustain their attention and inhibit inappropriate behaviors. These findings, in conjunction with those from other SEL studies, most notably the REDI program (Bierman et al., 2008), indicate that SEL programs can enhance low-income children's self-regulation skills and, in turn, their academic development in preschool and early elementary school.

Limitations and Directions for Future Research

Several limitations must be noted to provide directions for future research. First, although the sample represents a population prioritized for early intervention—urban schools with high proportions of low-income students—the generalizability of the findings is limited. The homogeneity of the sample prohibited examining differential effects for children from various racial/ethnic and socioeconomic backgrounds. Next, because of limited power at the school level (where randomization occurred), we did not operationalize treatment as a Level 3 variable and instead examined treatment effects at Level 2 (student level). Future work should enroll a greater number of schools that are matched on baseline characteristics to generate sufficient power to detect school-level treatment effects. Another limitation is related to the supplemental reading program that was used as an attention-control condition. Although the reading program reduced the community's legitimate concern about having a control group that would offer no services to the children, it did not provide the same amount of exposure as the treatment condition. Finally, although student and teacher participation in INSIGHTS program activities was quite high, only about half of parents participated in the majority of INSIGHTS sessions. Although this low level of participation is not unprecedented (e.g., Webster-Stratton et al., 2008), we recognize that findings must be interpreted in line with low dosage for the parent component.

Several limitations, however, do provide directions for future research. The INSIGHTS participants took part in the program at varying levels on the basis of when the children enrolled at the school, their school attendance, and parental participation rates. Future analyses should examine whether effects of INSIGHTS differed by intervention dosage. Related, this analysis did not examine what parts of the program were the most effective. Future researchers should examine the relative contributions of the teacher, parent, and classroom programs.

Other mechanisms may be responsible for links between INSIGHTS and academic skill development. For example, concurrent work examining classwide outcomes (see Cappella et al., in press) indicates that INSIGHTS classrooms exhibited gains in emotional support, classroom organization, and academic engage-

ment relative to the attention-control classrooms. Future researchers should examine the possible mediating effect of the classroom context on children's academic development in early elementary school.

Finally, this study tested INSIGHTS using the resources consistent with other efficacy studies. For example, the facilitators had graduate training and the teachers and parents received incentives for participation. In line with Type II translation research (Rohrbach, Grana, Sussman, & Valente, 2006) and community-centered dissemination models (Wandersman, 2003), the next and critical step is to test whether the intervention can be implemented with fidelity and can effectively enhance outcomes when transported to low-income communities without such resources.

Implications and Conclusions

This study has implications for intervention and social policy. The importance of supporting young low-income children cannot be overstated. Children who fail to develop basic literacy skills by third grade are four times more likely than proficient children to fail to complete high school on time (Hernandez, 2011). In contrast, interventions that improve primary grade children's academic skills, however, have long-term benefits. Early competencies in math are linked to long-term outcomes including high school completion and college enrollment (Duncan, 2011). Non-cognitive skills—such as sustained attention and behavior—contribute to academic success and can be supported through universal intervention (Durlak et al., 2011). Efficacious SEL programs like INSIGHTS reinforce that educating young children involves more than teaching academic content. Learning is enhanced within a broader academic learning context when it supports the social-emotional development of children.

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Appendix
INSIGHTS Curriculum Overview

Teachers' and Parents' Content	Children in the Classrooms
<p>The 3Rs: Recognize, Reframe, and Respond</p> <ul style="list-style-type: none"> • Recognize differences in children's temperaments; • Reframe their perspectives so that each temperament has strengths and conversely areas of concerns; • Differentiate caregiver responses that are optimal, adequate, and counterproductive. 	<p>Enhance Empathy Skills</p> <p>With the help of puppets, understand that people have different temperaments that make some situations easy to handle while others are challenging.</p>
<p>The 2Ss: Scaffold and Stretch</p> <ul style="list-style-type: none"> • Scaffold a child when he/she encounters temperament-challenging situations; • If manageable with support, gently stretch the child so that he/she can better regulate emotional, attentional, and behavioral reactions. 	<p>Learn How to Resolve Dilemmas</p> <p>Work with puppets, facilitator, and teacher to learn self-regulation strategies by resolving hypothetical dilemmas using a stoplight (<i>red</i>: recognize dilemma; <i>yellow</i>: think and plan; <i>green</i>: try it out).</p>
<p>The 2Cs: Gain Compliance and Competence</p> <ul style="list-style-type: none"> • Apply disciplining strategies for noncompliant behavior; • Contract with individual children who have repetitive behavior problems; and • Foster social competencies. 	<p>Resolve Real Dilemmas</p> <p>Apply the same problem-solving process and self-regulation strategies to dilemmas that the children experience in their daily lives.</p>

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