

Social-Emotional Learning and Academic Achievement in Middle School: Implications for Early Programming

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Background. Studies of how early education programs influence children's social-emotional, behavioral, and academic development over time promote a better understanding of how to allocate resources and design programming in early childhood. Pre-adolescence, when youth are in middle school, is a key period for evaluating the effectiveness of such programs because of its importance for social-emotional and academic development (Albert et al., 2013). Moreover, there is a strong relationship between middle school performance and later life outcomes (e.g. high school completion; Neild & Balfanz, 2006).

Evidence from a randomized controlled trial of *INSIGHTS into Children's Temperament (INSIGHTS)* indicated short-term positive impacts as math and reading achievement (O'Connor, Capella, McCormick, & McClowry, 2014). For the current study, we hypothesized that these gains would be retained through middle school, with the potential for gains to diminish over time due to fade out. It was also expected that gains would be greater for children who had higher levels of baseline risk, based on theories of prevention science that assert that children with higher initial risk have the most to gain from intervention (Bierman et al., 2010; Durlak et al., 2011).

Objective. The current paper examines the impacts of the SEL program, *INSIGHTS*, on academic achievement in middle school. The study further considers variation in impacts by baseline risk, as defined by low academic achievement in kindergarten and early behavioral problems.

Setting and Research Design. Between 2008 and 2012, 22 elementary schools serving primarily lower-income racial/ethnic minority students in three New York City school districts were randomly assigned to participate in the *INSIGHTS* program or a control condition.

Participants. The total sample from the original efficacy study was $N = 435$ students. Of these students, 194 (45%) remained in the sample throughout middle school, while 55% are missing outcome data for the follow-up study because they could not be re-contacted or left the school district before middle school. Approximately 77% of children were black, non-Hispanic, 20% were white, Hispanic, 2% were white, and the remaining youth were biracial. Eighty-seven percent of participants were eligible for free and reduced lunch, and 3% were classified as dual language learners. Fifty-six percent of the participants were in *INSIGHTS* during the initial efficacy trial, while 44% were in the control condition.

Intervention. *INSIGHTS* is a comprehensive school-based preventive social-emotional learning intervention that helps teachers and parents recognize a child's temperament and respond with warmth and discipline strategies that support adaptive social-emotional and behavioral outcomes. Children enrolled in *INSIGHTS* schools participated in two consecutive years of intervention, consisting of ten 45-minute in-classroom sessions per year with a facilitator during kindergarten and first grade. Kindergarten and first grade teachers received the intervention (10 2-hour

training sessions on the *INSIGHTS* curriculum and homework) when target students were enrolled in their grade. A parent program, which consisted of 10 total sessions, was offered to parents at *INSIGHTS* schools.

Data. Data for this study come from an efficacy study of the *INSIGHTS* intervention (O'Connor et al., 2014) and a middle-school follow-up study (2016-2019; PI, O'Connor). Direct assessments of academic achievement (e.g., Woodcock-Johnson III Letter-Word Identification and Applied Problems) were given to children whose parents consented for them to participate when they were in kindergarten (baseline). At the same time, teachers completed the Sutter-Eyberg Student Behavior Inventory (SESBI), which captures student conduct problems. Parents provided information about additional demographic characteristics, such as child gender, race/ethnicity, eligibility for free and reduced priced lunch, dual language learner status, whether they attended pre-k, and whether they were in special education in kindergarten. For the follow-up study, families who participated in the original efficacy study were re-contacted and direct assessments of academic achievement (e.g., WJ-III Letter-Word Identification and Applied Problems) were administered to middle-school students who re-consented to participate.

Analysis. Baseline risk was determined by behavior problems and academic achievement relative to sample means. Multiple regressions were utilized to answer the research questions. We regressed WJ-III Letter-Word Identification and Applied Problems separately on a dummy variable for treatment, adjusting for covariates and baseline WJ-III scores. Next, we added an interaction term between baseline WJ-III scores and treatment to the models to determine whether treatment effects differed by kindergarten achievement. We also regressed WJ-III Letter-Word Identification and Applied Problems separately on treatment, adjusting for covariates and baseline SESBI scores. Finally, we added an interaction term between baseline SESBI scores and treatment.

Findings. Results from preliminary multiple regression analyses did not reveal any statistically significant main effects of *INSIGHTS* assignment on middle-school academic achievement. However, a statistically significant interaction between baseline WJ-III Letter-Word and treatment was found, predicting middle-school letter and word identification abilities, $t(113) = 6.32$ $SE = 2.78$, $p = 0.03$ (see Table 1 and Figure 1). This significant interaction suggests that children with higher baseline reading ability benefited more from the treatment. Baseline behavior problems was not predictive of later academic achievement, and no other significant interactions were found.

Conclusions. Although we had not hypothesized that children with stronger reading ability would benefit more from treatment, it is a phenomenon that has been observed in the literature (White, Harding, O'Connor, McCormick, Cappella, & McClowry, in progress). Participating in an intervention enhances the early academic achievement of students who begin school at a higher level. Additional analyses will be conducted to further understand this finding.

Further, despite positive short-term impacts of *INSIGHTS* as well as other SEL programs (see Durlak et al. 2011 for a review), findings from the current study highlight the importance of conducting follow-up studies through pre-adolescence. Notwithstanding these preliminary

results, there remains much to be learned about the potential long-term impacts of *INSIGHTS* across other domains (e.g. social-emotional skills and behavior). Moreover, investment in social-emotional interventions in early childhood may be more effective when extended with periodic booster sessions beyond the implementation period.

Table 1

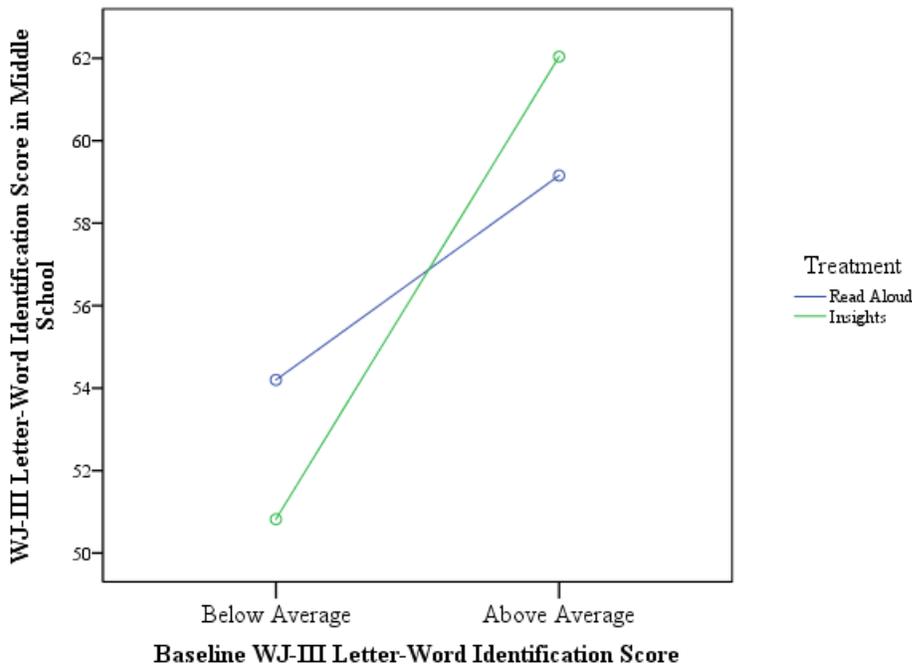
OLS Regression Predicting Woodcock-Johnson Letter Word Identification (LWID) in Middle School

	<i>B</i>	<i>SE</i>	<i>t</i>	95% CI	
Treatment (A)	-4.58*	1.96	-2.34	-8.46	-0.70
Baseline <i>LWID</i> (B)	3.68	2.03	1.81	-0.34	7.71
A*B	7.01*	2.71	2.59	1.65	12.37
Child female	-0.39	1.39	-0.28	-3.14	2.37
Child black	-0.32	2.24	-0.14	-4.75	4.11
Child Hispanic	1.22	2.43	0.50	-3.59	6.03
Dual language learner	2.18	3.64	0.60	-5.03	9.40
Attended pre-k	-0.43	1.64	-0.26	-3.67	2.81
Special education kindergarten	-0.49	7.54	-0.06	-15.42	14.45
FRPL	-3.99*	1.86	-2.15	-7.68	-0.31
Constant	59.49*	3.27	18.20	53.01	65.97

Note. N = 120; * $p < .05$

Figure 1

Interaction between baseline Woodcock-Johnson III Letter-Word Identification and treatment condition, predicting middle school Woodcock-Johnson III



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