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Abstract

NORC at the University of Chicago designed and implemented an impact evaluation of the SEEDS of Learning (SEEDS) professional development (PD) program on behalf of the Kenneth Rainin Foundation, in collaboration with Kidango. SEEDS of Learning is an evidence-based PD program that prepares early childhood educators to help children develop the social-emotional, language, and emergent literacy skills they need to be kindergarten-ready. The purpose of the study was to evaluate the impact of the SEEDS PD program on students' oral language, literacy, and social-emotional outcomes. Using a clustered randomized controlled trial design, the study found positive impacts on early literacy skills, with the largest impacts in Year 2 of implementation, after the program experienced learning over time to better implement the SEEDS program.

Introduction

Early childhood education (ECE) plays a crucial role in shaping the foundational development of young children. The early years are a critical period where children acquire essential language, cognition, and social-emotional development skills. High-quality ECE has been shown to produce long-term benefits that stretch well into adulthood, positively impacting education, employment, and even health outcomes. According to research by the National Academies of Sciences, Engineering, and Medicine children who experience effective early care have better chances of closing the opportunity gaps that often widen as they grow, especially for those from disadvantaged backgrounds (National Academies of Sciences, Engineering, and Medicine, 2023).

However, accessing high-quality ECE remains a significant challenge for many families. The characteristics of a high-quality ECE program include well-trained educators, small teacher-to-child ratios, evidence-based curricula, and an environment that fosters both academic and social-emotional development. Unfortunately, many parents struggle to find such programs for their children. Gaps in access are particularly prominent among marginalized groups. A National Center for Education Statistics (NCES, 2017) survey found that over 20% of parents report the quality of available ECE as a primary concern. The Education Trust underscores this inequality in a study revealing that only 1% of Latino children and 4% of Black children are enrolled in public pre-K programs that meet high-quality standards as set by the National Institute for Early Education Research (NIEER) (Gillispe, 2019).

SEEDS of Early Learning Program and Present Study

SEEDS of Early Learning (SEEDS) is an evidence-based, RTL-based (research, training and learning) professional development program that prepares early childhood educators to help children

develop the social, emotional, language, and literacy skills they need to be ready for kindergarten. It provides preschool teachers with content knowledge and pedagogical training via PD and coaching. SEEDS provides the pedagogical framework in which early education teachers are trained to provide a literacy-rich environment. It is grounded in five specific guiding principles:

1. Sensitivity: Look, listen, and ask questions to understand each child's needs, thoughts, abilities, and feelings.
2. Encouragement: Use intentional affirmations and positive non-verbal communication to create a shared positive learning environment.
3. Education: Embed the 'Big 5' literacy skills in daily routines (the Big 5 are vocabulary, conversation, phonological awareness, book and print rules, and letter knowledge)
4. Development of Skills Through Doing: Help children explore their world through hands-on learning and
5. Self-Image Support: Balance the SEEDS quality interactions to support a child's feeling of being respected and capable.

Together, these principles are hypothesized to drive high-quality interactions between teachers and children. SEEDS is strongly relationship-based, with an interactive focus on each child's skills. This outlook is carried through in a train-the-trainer, coaching-based model of professional development that is crucial for the successful implementation of SEEDS. In this model, coaching is informed by data about children's development, allowing teachers to come to a closer understanding of how they can tailor their instructional strategies to the needs of the children in their classroom.

SEEDS was the PD system undergirding the Reading Corps PreK program, whose independent program evaluation found statistically significant differences among Reading Corps PreK students. Effect sizes ranged from .40 to .72 across five critical emergent literacy skills, including letter names, letter sounds, rhyming, alliteration, and vocabulary (Markovitz, Hernandez, Hedberg, and Silberglitt, 2014). However, because SEEDS was confounded with other Reading Corps program features, it was impossible to isolate the effects of SEEDS.

The purpose of the current study was to evaluate the impact of the SEEDS program on students' oral language, literacy, and social-emotional outcomes. Based on the SEEDS theory of action and prior results found through the Reading Corps evaluation, we hypothesized that impacts on student outcomes would occur through SEEDS' influence on early educator knowledge and practice over time.

Professional Development (PD) for Early Childhood Educators

The SEEDS of Early Learning program utilizes a high-quality PD coaching model shown to be effective in these prior evaluations of PD programs. To address the need for improving the quality of

ECE, professional development for educators is vital, especially in the face of the field’s workforce crisis. Many ECE classrooms are understaffed, and new educators often lack the instructional support necessary to foster the development of strong literacy skills in young children. Effective PD, especially through coaching, equips teachers with the tools to improve classroom practices and deliver high-quality instruction. PD for early childhood educators that incorporate these elements ensures that educators develop skills, knowledge, and practices that are sustainable and lead to positive student outcomes (Sheridan et al., 2008). Desimone & Pak (2017) corroborate these findings in a meta-analysis of instructional coaching as professional development. They identify active learning— learning through interactive means such as observations, analyzing student work, or making presentations— sustained duration of PD activities, coherence with clearly identified school and district goals, and collective participation as the “five features of effective” instructional coaching (Desimone & Pak, 2017).

Importantly, the success of coaching and other PD approaches relies significantly on teacher buy-in. Kraft et al. (2018) note that coaching is unlikely to improve instructional practice unless teachers are invested in the process. Teacher engagement, often achieved through collaborative relationships with coaches, is essential for translating PD into effective classroom strategies (Kraft et al., 2018). Desimone and Pak (2017) reinforce this point, emphasizing that districts and schools should adequately train coaches and allocate time for content-focused collaboration with teachers. For coaching programs to be effective, they must be implemented with a clear focus on instructional support that translates directly to student gains (Darling-Hammond et al., 2009; Matsumura et al., 2012). Additionally, Van Veen et al. (2012) argue that instructional coaching should be context-specific, meaning it should directly address the needs and realities of each unique classroom environment for maximum impact. In order to implement all of these elements of effective PD, states, districts, and schools must provide enough training resources and allocate sufficient time for these coaching sessions (Desimone & Pak, 2017).

When these components of high-quality instructional coaching PD are present, research consistently shows that it improves teaching practice. Landry et al. (2006) in a quasi-experimental statewide intervention targeting the preschool teacher PD demonstrated that coaching positively influences children’s language and literacy outcomes, including vocabulary, auditory comprehension, and phonological awareness. Further research by Landry et al. (2009) and Cusumano et al. (2006) affirmed the effectiveness of coaching, showing significant improvements in children’s letter knowledge, print awareness, and composite language skills. Hindman and Wasik (2012) also found that a two-year coaching-based intervention significantly boosted preschoolers' vocabulary and phonological awareness, underscoring the critical role of sustained PD in achieving lasting literacy gains among young learners. These outcomes are bolstered by Kraft et al. (2018), who reviewed 60 causal studies on coaching and found that coaching-based PD has a significant, positive impact on student achievement, particularly when delivered in well-implemented, smaller-scale programs.

Impact of PD on Classroom Practices and Student Outcomes

Targeted PD, such as SEEDS, can positively affect classroom practices, teacher-student interactions, and, ultimately, student outcomes. For instance, Downer et al. (2024) demonstrate that coaching and coursework focused on teacher-child interactions significantly enhance teachers' ability to engage students and improve instructional practices in language and literacy settings. Their research found that coaching independently contributed to higher engagement levels among children, and although combining coursework and coaching did not produce significantly greater outcomes, both approaches were effective in enriching early literacy development.

Additional research by Brunsek et al. (2004) found that PD programs like the Responsive Interactions for Learning (RIFL) program substantially improved teachers' responsiveness to students' needs, with a reported effect size of 0.60. However, these gains tended to plateau over time, with initial improvements most evident after the first coaching sessions. The study also noted challenges in PD participation due to logistical conflicts, which led to high attrition rates. This finding points to the need for PD to be not only effective but also accessible and sustainable over time to maintain and build on early gains.

Finally, studies on the influence of teacher-student relationships in PD provide additional insights into how teacher behavior impacts student outcomes. Wright et al. (2024) found that positive, conflict-free student-teacher relationships significantly support self-regulation skills in young children, which are essential for early learning success. This study highlights the importance of cultivating close, positive relationships in ECE settings, particularly for economically disadvantaged students who may benefit most from such supportive interactions. The SEEDS program is a high-quality coaching intervention with the flexibility to adapt to the needs of teachers and support sustainability. In the present study we hypothesized that SEEDS would also lead to improved student outcomes based on existing evidence.

Methods

In this section we describe the study design, measures, and analytic approach.

Participants

The study occurred in San Francisco's East Bay Area from 2017 to 2019. Kidango, a leading early learning organization, was the primary research partner. The organization's focus on providing high quality ECE experience, fostering kindergarten readiness, and setting up students for third grade reading proficiency motivated the implementation of the SEEDS program.

Randomization Procedure

The SEEDS pilot program at Kidango was launched in 2016 with one-third of Kidango centers, with the multi-year within-teacher randomized evaluation beginning for the other two-thirds of the centers in 2017. The remaining two-thirds included 26 preschool centers with 459 students - aged four or five years. Centers were randomly assigned to receive the program or serve as a comparison

control group. Half the eligible centers were randomly assigned to receive SEEDS during the 2017-2018 school year (SEEDS Implementation Year 1, N=13), and the other half served as comparison controls (N=13). Of the 459 students in randomized centers, 238 attended centers that received SEEDS, while 221 participated at those that did not. Among students recruited to the study, 137 student observations had to be dropped because they switched classrooms or left Kidango from fall to spring, were absent during one or multiple days of data collection or refused to participate in certain portions of the assessment.

The randomization procedure was stratified to ensure representation along the dimensions of full and part-time programs. The intervention had a staggered adoption such that the teachers in the control centers of the 2017-2018 school year (SEEDS Implementation Year 1) would receive SEEDS in the 2018-2019 school year (SEEDS Implementation Year 2). During the same 2018-2019 school year, teachers who already received one year of SEEDS at the treatment centers would receive an additional year of SEEDS.

Balance analyses found no statistically significant differences between the two experimental conditions in SEEDS Implementation Year 2 of the study there were sample differences in student race and ethnicity when compared to SEEDS Implementation Year 1. The study accounted for this difference by using statistical “controls” for these characteristics during analysis.

Measures

To assess student language, emergent literacy, and executive function outcomes, we used three measures:

1. Individual Growth and Developmental Indicators (IGDI Version 1.0) which assesses children in fall and spring (with a winter option) in skills that predict future reading proficiency. Derived from research at the Minneapolis Public Schools and the St. Croix River Education District, where the IGDI's have long been utilized at scale, the assessment sets benchmark scores where a child is deemed ‘on track.’ a valid, reliable measure of young children’s early literacy through assessment of vocabulary, rhyming, and alliteration fluency (Greenwood, Carta, & McConnell, 2011; Wackerle-Hollman, Schmitt, Bradfield, Rodriguez, & McConnell, 2015). This assessment is typically conducted 1:1 between teacher and student. In the context of the RCT, external assessors conducted the assessments for the fall and spring assessment periods. For the treatment group, the outcomes were shared with teachers afterward. Using external assessors helped ensure the validity and reliability of the data.
 - a. Alliteration: Children are asked to identify as many alliterative pairs as possible within two minutes (e.g., door/drive, book/bear, etc.). The benchmark score for a child to be deemed ‘on track’ is eight correct answers.
 - b. Rhyming: Assessing phonological awareness, one point is given for each pair of rhyming words correctly identified within two minutes. The benchmark is 12.

- c. Vocabulary: Also known as Picture Naming, children are shown pictures in one minute and asked to identify what is depicted. To be considered ‘on track’ 26 correct answers are needed.
2. FastBridge Learning: a valid, reliable measure of young children’s letter name and letter sound fluency (<http://www.fastbridge.org/>)
 - a. Letter Naming: One point is given for each uppercase letter correctly identified within one minute. The benchmark score is 14.
 - b. Letter Sounds: Students are asked to identify as many lowercase letter sounds as possible within one minute, with a benchmark score of 10.
 3. Head, Toes, Knees, and Shoulders assessment (HTKS): a task-based assessment that assesses inhibitory control, working memory, and attention focusing (Cameron Ponitz, McClelland, Matthews, & Morrison, 2008).

Analysis Plan

In the present study, we evaluated the impacts of SEEDS on students through a cluster randomized controlled trial design with a delayed treatment for teachers in the control group. Understanding that new programs require learning time to reach full implementation, the study was designed to test differences in impacts in study Year 1 (SEEDS Implementation Year 1) and study Year 2 (SEEDS Implementation Year 2), where SEEDS Implementation Year 2 reflected a more mature implementation of the program.

Table 1. Study Comparisons by Implementation Year

Comparison Name	SEEDS Implementation Year 1	SEEDS Implementation Year 2
New Program Impact	Treatment vs. Control Year 1	
Second Year Program Impact		Within-subjects Control
Mature Program Impact		Treatment Year 1 vs. Control Year 2

The study tested the impact of a new SEEDS Program implemented by Kidango (the implementation partner) at the end of Year 1 by testing the difference in student outcomes among teachers who received treatment in Year 1 (treatment group teachers) and those who did not (control group teachers). This reflects the impact of the first year of the SEEDS program’s implementation on student outcomes. We refer to this as the “new program impact” comparison.

The study tested the impact of a more mature SEEDS program (with two years of implementation), in two ways. In the second year of implementation, teachers in the Year 1 control group received SEEDS treatment. At the end of the second year, we conducted a within-subjects comparison to test the difference in student outcomes for original control group teachers in Year 1 (control)

versus Year 2 (when control teachers received treatment). We refer to this as the “second year program impact” comparison.

In order to observe potential program growth over time, at the end of study Year 2 we also tested the difference between students among the original control group teachers in Year 2 versus students among the original treatment group teachers in Year 1. This comparison reflects one year of program exposure. The difference being program exposure in Year 2 of implementation versus Year 1, when Kidango had time to learn how best to implement SEEDS within its system. We refer to this comparison as the “mature program impact.”

We conducted qualitative data collection and analysis to test the program theory of change that student impacts would occur through teacher learning and growth. Interviews were conducted with coaches and teachers to learn about their experience with SEEDS and perceived growth. Interviews were conducted in Study Year 3 among both original treatment and control group teachers, which also allowed us to hear about maturation in SEEDS implementation by Kidango over time.

Identification and estimation

A hierarchical linear model (HLM) was used to estimate the aforementioned treatment contrasts. Centers were randomized to treatment and control conditions, with all teachers within a center assigned to the center condition. Groups were equivalent at baseline and statistical adjustments were made to account for differential attrition from the study in year 2 based on student race and ethnicity (See Appendix A). The HLM model was estimated using maximum likelihood estimation. Power analysis was conducted to ensure that the sample sizes were sufficient for reliable estimation of treatment effect contrasts (See Appendix B).

The model had the following features:

1. Random intercept and coefficient on time by center
2. Covariance between the random slope and intercept.
3. Controls: Fall assessment, race, ethnicity, DLL status, gender, household income, age in months, stratum, Pre-K session, and the school and class averages of the Fall assessment.

Results

This section describes the program impact across multiple causal contrasts. The results are reported here in the form of regression-adjusted effect sizes (ES), calculated using regression coefficients on treatment and the standard deviation of the outcome measure (Table 2). This unitless measures makes it easier to compare multiple outcomes analyzed below. Full regression tables are shown in Appendix C.

Contrast 1 (New Program Impact)

The ‘new program impact’ was measured as the relative difference in child outcomes between children of centers assigned to treatment vs. control in the first year of the study (2017-2018). We found SEEDS’ effect was mixed. The impact on picture naming was negligible (ES = -0.06) and statistically insignificant (p = 1.000). However, significant positive effects were observed for letter names (ES = 0.26, p = 0.003), rhyming (ES = 0.31, p = 0.012), alliteration (ES = 0.37, p = 0.002), and letter sounds (ES = 0.44, p < 0.001). No statistically significant impact was found on HTKS (ES = 0.03, p = 1.000).

Contrast 2 (Second Year Program Impact)

The ‘second-year program impact’ was measured as the relative difference in child outcomes within those assigned to the control in SEEDS Implementation Year 1 (2017-2018). The difference is between their outcomes after one year of SEEDS during the 2018-2019 school year (SEEDS Implementation Year 2) and their outcomes when they did not receive SEEDS in 2017-2018. Stronger effects were observed for the second-year program impact. The intervention significantly improved letter naming (ES = 0.45, p = 0.001), rhyming (ES = 0.78, p < 0.001), alliteration (ES = 1.04, p < 0.001), and letter sounds (ES = 1.04, p < 0.001). The impact on picture naming (ES = 0.45, p = 0.187) and HTKS (ES = 0.24, p = 0.180) did not reach statistical significance.

Contrast 3 (Mature Program Impact)

The mature program impact was the relative difference in child outcomes between the 2017 treatment group after experiencing one year of SEEDS and the 2017 control group after experiencing one year of SEEDS, though a year later during the 2018-2019 school year. The Year 1 treatment group had the longest exposure to the SEEDS program and their mature program impact continued to show robust effects, particularly in letter sounds (ES = 0.60, p = 0.003) and alliteration (ES = 0.67, p = 0.014). Picture naming (ES = 0.51, p = 0.029) also reached statistical significance, while letter naming (ES = 0.19, p = 0.606), rhyming (ES = 0.47, p = 0.124), and HTKS (ES = 0.21, p = 0.374) did not yield significant improvements.

Table 2. Student-level Regression-Adjusted Effect Sizes and Bonferroni-Adjusted p-value

Outcome/Effect Size (p-value)	New program impact (contrast 1)	Second-year program impact (contrast 2)	Mature program impact (contrast 3)
	<i>2017 Treatment vs. 2017 Control</i>	<i>Within 2017 control – 2018 (one year of SEEDS) vs. 2017 (no SEEDS)</i>	<i>2017 control in 2018 vs. 2017 treatment</i>
Picture names	-0.06 (1.000)	0.45 (0.187)	0.51 (0.029)
Letter names	0.26 (0.003)	0.45 (0.001)	0.19 (0.606)
Rhyming	0.31 (0.012)	0.78 (0.000)	0.47 (0.124)
Alliteration	0.37 (0.002)	1.04 (0.000)	0.67 (0.014)
Letter sounds	0.44 (0.000)	1.04 (0.000)	0.60 (0.003)
HTKS	0.03 (1.000)	0.24 (0.180)	0.21 (0.374)
<i>Note: Effect size from HLM model including student-level covariates</i>			

Although it is challenging to make a direct comparison due to methodological differences, these results are comparable to several other well-regarded preK program evaluations that assessed similar skills. For example, effect sizes for language skills in Boston’s Pre-K program were between 0.44 and 0.62. Other programs, including Head Start, Tennessee, Tulsa, North Carolina, and Georgia, have recorded effect sizes for language and literacy between 0.09 and 1.20. SEEDS has been an integral part of the Minnesota Reading Corps: the largest AmeriCorps tutoring program in the nation, with the overarching goal of promoting reading proficiency so that children are successful readers by third grade. In 2015, the NORC evaluated the Minnesota Reading Corps with a rigorous quasi experimental design study (Markovitz, Hedberg and Silbergliitt, 2015). This evaluation found statistically significant effects for four- and five-year-olds in all five of the critical emergent literacy skills that were assessed (see below), with effect sizes ranging from 0.40 to 0.72.

Qualitative findings

To further understand these quantitative findings and identify mechanisms through which changes occurred, interviews were conducted with regional directors (RDs; N=7), center directors (CDs; N=10), and teachers (N=9) in 2020, after completion of student data collection. Interviews were conducted with participants in SEEDS Implementation Year 1 and SEEDS Implementation Year 2. In this section we describe these qualitative findings.

SEEDS Improved Practices and Knowledge Over Time

The RDs responsible for content training commented that time and experience were the largest drivers of change and training improvement across the cohorts. One of the CDs said that by the 3rd year, the training process had improved and “*everything became so much simpler.*” By SEEDS Implementation Year 2, SEEDS practices became more embedded, improve efficiency and collaboration as experienced staff supported new learners. “*I think we tightened up as we went on—it wasn’t always as efficient as it is now. I think that now that everybody’s been trained, and everyone’s on board, there’s more brains to share ideas. And people that have been doing it longer share with the newbies. We’ve gotten better.*” While all the CDs reported conducting RTI to set goals, the frequency of assessments varied, with administrations ranging from a weekly basis to once every three months.

Across all respondent groups, teachers, CDs and RDs, the improvement in goal setting was also identified as an integral factor in the success of SEEDS implementation by SEEDS Implementation Year 2. RDs reported having more data and a better system for evaluating student learning using RTI leading to clearer expectations and improved fidelity across cohorts.

Teacher and CD Enthusiasm and Readiness for SEEDS Training Participation Increased Over Time

Each successive cohort entered training with greater buy-in due to word-of-mouth and observed success, improving engagement. Teachers and CDs felt confident in their analysis because—in their eyes—it was supported by data: they saw the largest improvements in child outcomes

between year 1 and 2 with rhyming, alliteration, and letter sounds; these are the content areas of SEEDS cited most by CDs and teachers as particularly challenging to implement.

Increased buy-in from teachers and CDs over time was something RDs pointed to directly as a factor in the success of SEEDS and the improvements measured across study years. RDs speculated that the improvements in child outcomes observed in the data and clear expectations communicated during training helped increase buy-in.

Flexibility in Adaptations Over Time

Most CDs felt confident in implementing SEEDS with integrity, though one Implementation Year 1 CD expressed uncertainty about expectations: *“I guess it was up to you to bring it back to your classroom and implement it when and how you decided.”* Implementation Year 2 CDs were more likely than previous cohorts to discuss flexibility and adaptations based on children’s needs, likely due to the increase familiarity with the SEEDS program. While many teachers balanced SEEDS integrity with creativity, some struggled with feeling restricted by scripts or unclear on acceptable improvisation. However, as they gained familiarity with the program, they became more confident in where they could be more flexible.

Discussion

While earlier studies reflected the promise of the SEEDS program, the present study rigorously tested the causal impact of SEEDS on student learning. Overall, the results indicate that the program's impact strengthened over time, with the second year and mature program conditions showing more significant improvements than the early implementation. While the new program had modest but statistically significant effects on letter names, rhyming, alliteration, and letter sounds, the second year and mature program conditions demonstrated consistently strong gains in these skills, particularly for letter sounds and alliteration. Picture naming showed a significant improvement only in the mature program contrast, while HTKS did not exhibit meaningful changes across any condition. These findings suggest that full implementation and extended experience with the SEEDS program yields greater benefits. This was reflected in feedback from teachers and staff, who indicated increased program efficiency over time, as well as comfort with the material that further supported classroom practices. This also implies that teachers can realize gains in closed set skills such as letter recognition quickly - in the first year of implementation.

Open set skills like vocabulary and executive function are much harder to improve as evidenced by their smaller effect sizes in other studies. It takes time for teachers to change and improve practice to affect these outcomes. We see that for vocabulary, in line with what we saw in the Minnesota Reading Corps study discussed earlier. This study adds another data point to the literature documenting the positive impacts of high-quality teacher PD with embedded coaching. It also allowed us to isolate and estimate the impact of SEEDS that was confounded in the Minnesota Reading Corps PreK evaluation and showed SEEDS effectiveness in the absence of an additional tutor in the classroom.

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Appendices

A. Sample Characteristics

Table A1 shows the proportion of students by each characteristic in SEEDS Implementation Year 1 (2017-2018) and SEEDS Implementation Year 2 (2018-2019).

Table A1. Study Sample Characteristics

Student Characteristics	SEEDS Implementation Year 1 2017-18	SEEDS Implementation Year 2 2018-19
Female	53.5%	49.3%
Hispanic/Latino	56.2%	47.3%
Dual Language Learner	36.5%	27.5%
Race		
American Indian or Alaska Native	2.1%	1.8%
Asian	26.8%	27.9%
Black	9.1%	15.5%
Native Hawaiian or Other Pacific Islander	1.8%	4.4%
White	60.1%	50.4%
Preschool Enrollment		
Part-time only	55.7%	53.5%
Full-time only	10.9%	11.3%
Part-time and Full-time	33.5%	35.2%

B. Power Analysis

A power analysis was conducted during the study design phase. The assumed parameters included an intraclass correlation of 0.2, a student-level R-square of 0.5, a school-level R-square of 0.5, and a desired power of 0.8. Assuming 26 centers randomized into two groups, with 15 students per center, the minimum detectable effect size was found to be 0.408.

C. Regression Tables

Table C1 shows regression coefficients and standard errors for HLM models including student-level covariates. Each column reflects one of six outcomes, picture naming, letter naming, rhyming, alliteration, letter sounds, and HTKS.

Table C1. Regression Models with Treatment Coefficients for Spring Student Outcomes

	Picture Naming	Letter Naming	Rhyming	Alliteration	Letter Sounds	HTKS
	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
	(standard error)	(standard error)	(standard error)	(standard error)	(standard error)	(standard error)
Year and Treatment Group						
2017 Treatment (Reference)						
2017 (Control)	0.473	-4.667	-1.621	-1.587	-4.067	-0.434
	(0.888)	(1.328)	(0.524)	(0.441)	(0.991)	(1.282)
2018 (Treatment)	2.348	2.144	1.728	2.360	1.846	3.595
	(1.554)	(2.012)	(0.823)	(0.838)	(1.286)	(1.434)
2018 (Control)	3.955	3.421	2.456	2.897	5.542	2.938
	(1.405)	(2.086)	(1.061)	(0.954)	(1.600)	(1.577)
Controls						
Student fall outcome score	x	x	x	x	x	x
School and class fall outcome averages	x	x	x	x	x	x
Student background characteristics	x	x	x	x	x	x
Sampling strata	x	x	x	x	x	x
Half-day program	x	x	x	x	x	x
Constant	13.570	8.806	4.462	4.145	8.137	8.353
	(2.285)	(2.360)	(1.079)	(0.864)	(1.359)	(2.293)
N	913	882	629	556	743	918

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