Children's Literacy Initiative's Blueprint for Early Learning:
Evaluation Report

Prepared by *Research for Action* • November 2023

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RESEARCH FOR ACTION

About Research for Action

Research for Action (RFA) is a Philadelphia-based nonprofit organization. We seek to use research as the basis for the improvement of educational opportunities and outcomes for traditionally underserved students. Our work is designed to strengthen public schools and postsecondary institutions; to provide research-based recommendations to policymakers, practitioners, and the public at the local, state, and national levels; and to enrich the civic and community dialogue about public education. For more information, please visit our website at www.researchforaction.org.

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Children's Literacy Initiative's *Blueprint for Early Learning*: Evaluation Report

Introduction

Our nation's Pre-K educators are charged with the monumentally important task of preparing children for formal schooling, but many face considerable constraints in their work. However, there is a major mismatch between what teachers need to effectively teach in Pre-K settings and the concomitant training and compensation they are provided. To be prepared for kindergarten, young children need highly skilled early childhood educators who are equal parts child development experts and high-quality content instructors. As advocacy efforts put pressure on policymakers to strengthen training opportunities and compensation across the early childhood education system, Children's Literacy Initiative (CLI) has postulated that state and local decision-makers need a comprehensive Pre-K curriculum based in equal parts on the science of child development and the realities of the current early childhood workforce. Claiming that existing options are too complex to be effective in many programs, their view is that the field needs a structured Pre-K curriculum—what they call "scripted with purpose"—that works just as well for an experienced teacher as it does for a novice and that can be implemented with fidelity over time and at a feasible cost.

CLI's Pre-K Intervention

By design, the CLI's intervention aims to help Pre-K teachers consistently implement effective teaching practices and provide high-quality content for students to learn, facilitating desired child outcomes, including student engagement, learning, and kindergarten readiness. There are four components of CLI's support for early learning: 1) "Scripted with purpose" curriculum and materials; 2) CLI's professional development for classroom teachers; 3) Peer Learning Community for center directors; and 4) Access to online materials for directors and teachers. With this intervention, CLI aimed to support low- and middle-income children enrolled in state-funded universal public Pre-K settings with their intervention, investing in resources for children who live in historically under-resourced communities and the programs that serve them.

Evaluation Overview

Drawing on existing relationships from their work in the K-3 space, CLI recruited **Broward County Public Schools** and the **Early Learning Coalition of Broward County** to participate in the study in Spring 2021. Thirty-five district-operated and community-based Pre-K programs were enrolled and randomized to Blueprint and "business-as-usual" conditions. Overall, the study sample reflected the target population of public Pre-K programs serving a diverse population of low- and middle-income families. The evaluation was guided by three overarching aims: 1) Examine the impact of CLI's intervention on key skills that prepare children for success in Kindergarten ("Impact Study"); 2) Describe thresholds for fidelity of the intervention and document the extent to which CLI met the thresholds in the study ("Implementation Study") and 3) Evaluate the implementation of CLI's intervention in classrooms serving students with disabilities or development delays ("Case Study").

Summary of Findings

The pandemic significantly impacted the research as well as the implementation and impact of CLI's intervention during the study period. Six of the programs that had been consented and randomized for the impact study left the study prior to outcomes data collection. Many remaining program leaders expressed pandemic-related worries and distress throughout the study, relaying to our study team the challenges for their teachers of implementing something new while educators and families were grappling with the continued impacts of COVID on their daily lives. CLI was only able to meet the study's fidelity thresholds for two of the four intervention components: receipt of the curriculum and materials and access to CLI's online learning environment, but not two others: teacher professional development and site leader PLCs. Only 2 out of 16 sites implemented the intervention with full fidelity. **Likely because of implementation challenges associated with the pandemic, our impact study showed no evidence that students in CLI-supported classrooms outperformed students in the comparison or "business-as-usual" context.**

While these findings may be interpreted as lack of evidence for CLI's theory of change, which states that Blueprint should outperform existing curricula, and should do so without the need for extensive professional development due to its "scripted with purpose" design, an alternative perspective is that there is evidence that Blueprint works as well as Creative Curriculum even in its first year of implementation and without significant professional development. More research is needed to understand the experiences of teachers implementing curricula in public Pre-K settings, particularly designs that measure compare the quality of curriculum implementation and cost effectiveness of generating positive student outcomes.

In the case study, we learned of challenges teachers face when adapting general education curricula for specialized Pre-K settings and that those challenges are both expected and not unique to *Blueprint.* Observations of classroom instruction revealed areas of strength (e.g, positive classroom climates and significant student engagement) and room for growth (e.g, responsiveness to student needs and scaffolding) that were shared across study conditions. The case study data in the first year of *Blueprint* implementation did not generate strong evidence of the study's *Blueprint* theory of change, though when reflecting on *Blueprint* and comparing it to other Pre-K curricula, teachers and administrators praised *Blueprint* in some areas but critiqued it in others.

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Introduction

Our nation's Pre-K educators are charged with the monumentally important task of preparing children for formal schooling, but many face considerable constraints in their work. However, there is a major mismatch between what teachers need to effectively teach in Pre-K settings and the concomitant training and compensation they are provided. To be prepared for kindergarten, young children need highly skilled early childhood educators who are equal parts child development experts and high-quality content instructors (NRC, 2015). We ask Pre-K teachers to create positive relational environments and effectively implement high-quality curricula to ensure children learn and grow, in part so they begin kindergarten with the skills they need (Gill et al., 2006). Yet, while 37 state-funded programs require Pre-K teachers to have a bachelor's degree (Friedman-Krauss et al., 2020), most Pre-K teacher programs do not cover the knowledge and competencies needed to work effectively with young children (Moorer et al., 2016). Additionally, despite significant public investment in early childhood programs, many school- and center-based Pre-K programs offer wages that significantly undervalue the skills needed to succeed in the classroom (Bassok et al., 2013).

CLI has identified the need for a "scripted with purpose" comprehensive Pre-K curriculum based in equal parts on the science of child development and the realities of the current workforce

As advocacy efforts put pressure on policymakers to strengthen training opportunities and compensation across the early childhood education system, Children's Literacy Initiative (CLI) has postulated that state and local decision-makers need a comprehensive Pre-K curriculum based in equal parts on the science of child development and the realities of the current early childhood workforce. Claiming that existing options are too complex to be effective in many programs, their view is that the field needs a structured Pre-K curriculum—what they call "scripted with purpose"—that works just as well for an experienced teacher as it does for a novice and that can be implemented with fidelity over time and at a feasible cost.

Critiques of Existing Pre-K Curricula

With the goal of supporting a high-quality learning environment, most states require that publicly funded preschool programs use a research-based curriculum to guide classroom instruction (Jenkins et al., 2019). *Creative Curriculum* and *HighScope*, the most common curricula used in contemporary Pre-K classrooms, are well-known for having a strong research base underlying the content and teaching practices associated with high-quality learning environments and individualized experiences for children (ECLKC, 2021). Both also appear on most state lists of curricula approved for use in state-funded Pre-K classrooms, and *Creative Curriculum* publisher reports that their curriculum is used in more than half of all Head Start classrooms in the U.S. (Teaching Strategies, 2021).

Yet, there is no evidence that children learn more or faster in classrooms using these curricula than in classrooms without any curriculum. According to a review of research by the National Center on Quality Teaching and Learning of the Office of Head Start, of the 13 most commonly used curricula in Head Start programs, eight were rated as having "no evidence," and no curricula were rated as having "full evidence" of impact on children's outcomes (NCECDEL, 2019). What Works Clearinghouse (WWC) reported that *Creative Curriculum*, perhaps the most popular whole-child Pre-K curriculum has no measurable effect on academic indicators of school readiness, including oral language, print knowledge, phonological processing, and math (IES, 2013). Similarly, a recent efficacy trial *HighScope* found that the curriculum had no substantial effect on measures of children's vocabulary development, reading decoding, mathematics skills, approaches to learning, and self-regulation in preschool, relative to the control condition in a sample of 88 Pre-K centers in Alabama (AIR, 2021).

The most popular Pre-K curricula show no evidence of impact and are difficult to implement as intended

Not only do existing options lack evidence of effectiveness but research shows that many popular curricula are difficult to implement with fidelity, perhaps assuming more planning time training than ECE teachers are afforded especially in under-resourced settings. A high-quality curriculum must be implemented well to achieve impact (Hamre et al., 2010; Wasik et al., 2006). Yet, existing comprehensive curricula are so complex to implement that they require significant on-the-job training and professional development to ensure quality (Fortune, 2020; Jenkins & Duncan, 2017; Pence et al., 2008). For example, while reviewed by the Office of Head Start as meeting 11 of 14 markers of high quality and aligned with state early learning standards (NCECDTL, 2019), the potential impact of *Creative Curriculum* suffers from its complexity (Jenkins & Duncan, 2017), particularly in high-need settings and among teachers new to their position who do not have enough planning and collaboration time or lack ongoing training opportunities and support (Fortune, 2020; Provoast, 2020).

Current Reality of the Public Pre-K Workforce

Given these workforce realities, CLI identified a need for a high-quality curriculum that can be implemented with fidelity within the existing early education system and designed *Blueprint for Early Learning* to be feasible to implement in our nation's existing Pre-K environment. The current center-based Pre-K workforce is largely characterized by low educational requirements and attainment, low compensation despite significant state and federal investments, and considerably fewer in-service professional supports, compared to K-12 teachers (Bassok et al., 2013).

Educational attainment and compensation of Pre-K teachers

The minimum educational requirement for Pre-K teachers is low: only 37 of 62 state-funded programs and only half of Head Start teachers nationwide require a bachelor's degree (Friedman-Krauss et al., 2020; OHS, 2016). The value of the degree has also been called into question as existing pre-service teacher education programs do not address competencies needed to work effectively with young children (NCTQ, 2016), and teacher investment in additional credentials is not consistently rewarded with increased compensation (Phillips et al., 2016).

Early educators are paid poverty-level wages and are among the most undervalued workforces in the United States

In 2019, the median hourly wage for preschool teachers was $14.67 as compared to $32.80 for kindergarten teachers, and median wages for preschool teachers *declined* in 21 states from 2017 to 2019 (McClean et al., 2021). In addition to the pervasive negative impacts on educators' financial security and physical and mental well-being, persistent low compensation for educators is associated with high turnover in early education settings (Phillips et al., 2016). About half of all early childhood centers lose at least one teacher each year, and about one-quarter of centers have a turnover rate higher than 20 percent (NSECE, 2015). A study in Louisiana found a 37% turnover rate for early childhood lead teachers (Bassok et al., 2021). These realities result in significant staffing and professional development challenges for centers and concomitant inconsistencies for children (Tran & Winsler, 2011).

Teaching supports in Pre-K settings

In addition to the challenging workforce context related to education and compensation, the day-to-day work of a Pre-K educator is, in general, less supported than her peers teaching elementary grade levels. Compared to K-5 teachers, Pre-K educators receive far fewer professional supports, including time to prepare instruction, the availability of a trained and consistent substitute core, and time and funding for high-quality professional development (McLean, et al. 2021; Schlieber, et al. 2019). For example, Pre-K centers allot teachers an average of 16 minutes per day of paid prep time (Maier & Kou, 2019), whereas elementary school teachers average 47 minutes per day (Saenz-Armstrong, 2021). In a study in Marin County, CA, only 42% of early childhood educators reported having *any* paid lesson planning time at all (Schlieber, et al. 2019). In other words, more than half of early childhood educators had no paid planning time at all. In such cases, staff are forced to choose

between planning after hours, and therefore working without pay, or completing planning tasks while supervising children. There is also a lack of reliable substitute teacher core in Pre-K settings (Schlieber et al., 2019). For example, in a study of Miami-Dade County, FL, 40% of early childhood educators reported that trained substitutes were not "reliably available" to take over for them should they need to take a day off (Whitebook, et al., 2018). Finally, professional development supports are not consistently as robust for Pre-K educators as they are for K-12 educators. Only fifteen states consider paid professional development time to be a measure of program quality for early childhood centers (McLean, et al., 2021).

CLI's *Blueprint for Early Learning*: A curriculum to meet the moment?

In CLI's view, given current workforce realities, Pre-K teachers need a standalone, comprehensive curriculum that is set up to require minimal preparation and that provides easy-to-follow guidance on effective pedagogies and quality implementation for less experienced teachers and guidance on how to adapt and grow for more experienced teachers. In other words, the field needs an effective curriculum coupled with professional development options that are feasible given the resource constraints facing most public Pre-K settings.

According to CLI, a high-quality curriculum needs to include embedded support for teachers to be implemented with fidelity without unsustainable annual costs of training

According to CLI, to lower the cost associated with training and ongoing support while maintaining high-quality implementation, high-quality curricula must be grounded in three fundamental features 1) an ordered scope and sequence that is 2) structured by granular guidance and 3) "scripted with purpose":

- ***Scope and sequence based on learning progressions.*** An explicitly ordered, coordinated, and progressive scope and sequence based on learning progressions for optimal child growth and development is one where each specific, ordered learning objective is tied to an activity along the progression trajectory. Many existing curricular options place a lot of burden on the teacher to interpret, plan, and employ the curriculum precisely because they lack a progressive scope and sequence, meaning the curriculum can be completed in any order and is not tied to specific learning progressions. While this flexibility may be effective in classrooms with highly trained teachers, CLI's view is that the majority of the Pre-K teaching force will struggle to reap the benefits of such a curriculum.

- ***Structured to provide granular guidance.*** An effective scope and sequence needs to be structured to provide granular guidance through daily explicit lesson and center activity language, directions, prompts, and questions.

- ***"Scripted with purpose".*** Furthermore, according to CLI, a structured Pre-K curriculum with daily ordered guidance is most effective if the guidance provides close alignment between a pedagogical concept to practice. CLI's perspective is that teachers need

instructional language that is oriented not only to what they should do each day but how, why, and what options are available to meet the specific needs of their classrooms.

Can a Pre-K curriculum be "scripted with purpose" to be well-suited to an ECE workforce that needs significant investments?

CLI argues that pre-planned scripted lessons may help provide high-quality instruction in Pre-K classrooms with novice teachers and teachers without formal pedagogical training. According to CLI leaders, a tight coupling of theory and practice should support growth in teacher skills while at the same time ensuring high-quality instruction. Such a curriculum must be responsive to the needs of adult learners, embedding a process that is aligned with how teachers learn best and how to grow into their positions without sacrificing quality for students.

Scripted Curricula: What does the evidence say?

The debate about the use of scripted curricula in Pre-K settings largely asks the following questions: Is a scripted curriculum an effective scaffold for a teacher workforce with little formal pedagogical training and a high turnover rate? Or is a scripted curriculum a poor stopgap for, or even a distraction from, the real problem: a lack of professionalization in Pre-K teaching? Would widespread use of a curriculum based on scripted lessons deepen inequalities in Pre-K?

Curricula that provide step-by-step instructions for what a teacher says and does moment-to-moment throughout each lesson are often called "scripted curricula" because they literally provide a script for what the teacher, and sometimes even the students, should be saying at each stage of the lesson (McIntyre et al., 2008). Since 1997, many contemporary scripted elementary school reading programs emerged to fulfill the demand for curricula that explicitly teach the five pillars of reading identified in the National Reading Panel report assembled by Congressional order (Ede, 2006; National Reading Panel, 2000). Scripted reading curricula, including *Open Court Reading* and *Success for All*, were largely adopted by school districts that served a large proportion of low-income students, in part because school districts with more low-income students were more dependent on Reading First funds[1] and because scripted curricula were considered an effective intervention for low-performing, economically disadvantaged students (Ede, 2006; Fitz & Nikolaidis, 2020).

Since their adoption as effective and "scientifically based" reading programs, the research on scripted curricula and reading achievement has been largely, but not exclusively, positive

Many comparisons of scripted reading lessons and unscripted reading lessons find that scripted lessons are more effective at improving reading performance than their teacher-created alternatives

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[1] A No Child Left Behind-ear federal program intended to promote instructional practices validated by scientific research, prioritizing districts and schools with greatest demonstrated need in terms of reading proficiency levels and poverty status
https://ies.ed.gov/ncee/pubs/20094038/summ_a.asp

(Slavin et al., 2011; Stockard, 2010; Borman et al., 2007; Borman et al., 2008; Slavin & Madden, 2001).[2] Yet, there are well-founded concerns that using scripted curricula results in low-quality teaching and that implementing scripted curricula in low-income settings or settings that serve minoritized children contributes to structural inequities in access to high-quality education.

While some educators value the structure and guidance of these materials, others are critical of the rigidity of scripted curricula for both teaching and learning (Timberlake et al., 2017). Scripted curricula are criticized for their inflexibility and uniformity (Demko, 2010; Milner, 2014). Critics of scripted curricula believe that they are a poor replacement for a highly trained teacher who makes strategic adjustments to classroom instruction in response to observed student needs. Critics also worry that scripted curricula are a one-size-fits-all approach and do not always lend themselves to adaptation to different classroom contexts or student backgrounds.

In Pre-K classrooms, a curriculum that provides maximum daily instructional support through granular guidance might be effective given that the workforce mostly has less training and support than teachers in K-12 classrooms

On the other hand, some argue that scripted curricula may be a particularly good fit for Pre-K settings because scripted curricula bypass the need for lesson planning (Jenkins, et al., 2018; Ainsworth, et al., 2012), which takes considerable time, pedagogical knowledge, and professional development to master. The ready-to-use, scaffolded nature of a structured, daily script means that teachers do not *need* to have advanced pedagogical knowledge to successfully deliver a lesson as it is intended, which is a particular benefit for novice teachers and instructors without a formal teaching credential (Remillard & Reinke, 2012). A scripted lesson requires no lesson planning and less preparation than a traditional lesson; each lesson is ready to be used out of the instructional manual. Teachers using a scripted lesson need only to prepare classroom materials (such as visuals, flashcards, or worksheets) and familiarize themselves with the lesson before they are ready to begin teaching.

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[2] However, one study found no differences between the reading achievement of students who experienced scripted and unscripted curricula (McIntyre et al., 2008). At least two studies found that the effectiveness of scripted curricula was mixed depending on student subgroup (Ryder et al., 2010; Vaden-Kiernan, et al. 2018). In one study, students in urban settings performed better with the teacher-created curriculum and students in suburban settings performed better with the scripted curriculum (Ryder et al., 2010). In another study, there were no positive impacts overall for students who experienced a scripted curriculum (Open Court Reading), but positive effects for kindergarten students and Hispanic students (Vaden-Kiernan, et al. 2018).

Summary and Report Roadmap

In this study, we examined the impact and implementation of CLI's *Blueprint for Early Learning*, a curriculum that is "scripted with purpose" and designed to result in more and faster growth in children's kindergarten readiness skills than existing curriculum options, in a variety of Pre-K settings. The study took place in Broward County, FL, where CLI implemented their intervention in 30 classrooms across 16 Pre-K sites, including a mix of district-operated and community-based programs. In the report that follows, we describe CLI's intervention in detail and present findings about its impact and implementation.

Report Roadmap

- ***Section 1: Evaluating CLI's Pre-K Intervention***. In this section, we present the overarching evaluation aims and study timeline, as well as a description of the target population and study setting. We describe site recruitment and retention as well as characteristics of the study sample.

- ***Section 2: Fidelity of Implementation of CLI's Blueprint for Early Learning Intervention.*** In this section we turn to the four key components of CLI's intervention, describing them in detail as well as a description of CLI's theory of change and reflections from local leaders about their expectations for how CLI's intervention would support Pre-K in Broward County. We present findings from the implementation evaluation with a discussion of how implementation was impacted by the pandemic.

- ***Section 3: Impact of CLI's Blueprint for Early Learning on Children's Early Language and Math Skills.*** We describe the research questions shaping the impact evaluation as well as measures used to assess impact. The findings are contextualized in light of the pandemic.

- ***Section 4: A Qualitative Study of Curriculum Implementation in Specialized Pre-K Classrooms.*** We discuss the context of the case study, which explores the how special education teachers in self-contained settings implement general education Pre-K curricula to meet the needs of Pre-K learners with disabilities and developmental delays, and about how curriculum developers can facilitate student learning in a specialized setting.

Our report ends with a review of key findings and implications for CLI's *Blueprint for Early Learning*.

Section 1: Evaluating CLI's Pre-K Intervention

In partnership with CLI, Research for Action (RFA) conducted a year-long study of the impact and implementation of CLI's Pre-K Intervention. This section describes the evaluation aims that guided our approach and describes the characteristics of the target population and study sample.

Evaluation Aims and Timeline

The evaluation was guided by three overarching aims: 1) Examine the impact of CLI's intervention on key skills that prepare children for success as they enter formal schooling in Kindergarten ("Impact Study"); 2) Describe thresholds for fidelity of the intervention and document the extent to which CLI met the thresholds in the study ("Implementation Study") and 3) Evaluate the implementation of CLI's intervention in classrooms serving students with disabilities or development delays ("Case Study"). The study was intended to begin following two years of development and field testing of the curriculum, *Blueprint for Early Learning*. However, the implementation was delayed a year, due to the COVID-19 pandemic. The timeline for the project is displayed in Table 1 below.

Table 1. Timeline of CLI Implementation Activities and Impact Study Years Aligned to School Years

SY 2018-19	SY 2019-20	SY 2020-21	SY 2021-22
Develop *Blueprint*	Field Test and Revise *Blueprint*	All project activities postponed due to COVID-19	Implement *Blueprint* and CLI supports
			Evaluation RCT, Fidelity of Intervention, Case Study

Target Population and Study Setting

Target Population

CLI aimed to target low- and middle-income children enrolled in state-funded universal public Pre-K settings with their intervention, aiming to invest in resources for children and the programs that serve them who live in historically under-resourced communities.

Due to eligibility requirements, *federally-funded Head Start programs* generally serve the most socioeconomically disadvantaged families, while public programs at the state and local levels serve families across a wider spectrum of socioeconomic status (Coley et al., 2016). However, Head Start programs are also highly regulated, requiring health services, family services, and family involvement programs in addition to early education; and to use pre-approved research-based curricula to promote children's learning and development.

In comparison, *state-funded public Pre-K programs* tend to not have the uniformity of quality regulations that Head Start does. Several states operate *universal programs* alongside *means-tested programs* that require families to demonstrate incomes below a specified poverty level. Means-tested programs also tend to have stronger requirements related to the use of approved curricula to be eligible to enroll children receiving state aid.

Recruitment and Study Setting

Drawing on existing relationships from their work in the K-3 space, CLI recruited Broward County Public Schools and the Early Learning Coalition of Broward County to participate in the study in Spring 2021. Leaders from each organization were recruited after the *Blueprint* curriculum was developed and field tested in district-operated programs in Elizabeth and Newark, New Jersey. The study was approved by two IRBs, Solutions IRB and School Board of Broward County (SBBC) IRB. Once research approval was granted, leaders from BCPS and ELC helped organize outreach to district-operated and community-based Pre-K programs to participate.

CLI recruited programs enrolling 4- and 5-year-old children receiving state funds through the Voluntary PreK program (VPK). Florida was one of the first states in the country to provide free prekindergarten for all four-year olds regardless of their family income. The VPK program, which began in 2005, is the nation's second largest state-funded preschool program. Enrollment in the program has grown significantly from its beginning, having served nearly half of the state's four-year olds in its first year and 80% of Florida's four-year olds by 2016-17 (Bassok et al., 2016). To access programs in public and private schools, private childcare centers, and family day care homes, parents or caregivers obtain a VPK certificate from the state to use in the program of their choice.

During the school year, the VPK voucher typically covers tuition for a half-day of programming. It is common for families to supplement tuition to cover a full day of care, either with private tuition or, if they meet eligibility requirements, with additional means-tested state aid through federally-funded Title 1 funds (in district-operated programs) or state-funded School Readiness funds (in community-based programs).[3]

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[3] To be eligible for School Readiness, parents/caregivers must be working or participating in an educational activity such as attending college or trade school at least 20 hours per week. Gross income must be at or below 150 percent of federal poverty level for family size.

A. Broward County Public Schools (BCPS) Early Learning

Broward County Public Schools (BCPS) provides full-day VPK through several models (Table 2). Classrooms were eligible for the study if they fell under the VPK/Enrichment model, which provides free, full school day instruction through VPK and Title I funds. Classrooms in the VPK / ESLS model, which provides full-day instruction in classrooms integrating typically developing students and students with disabilities, were eligible for RFA's case study of implementation of *Blueprint* in specialized settings.

Table 2. Summary of BCPS VPK Models and Study Eligibility

District VPK Model	Eligible for Study	Summary
VPK Enrichment (Title I)	Yes – Impact and Implementation Studies	Provides free, full school day (6 hour) of instruction funds at selected Title 1 schools.
VPK Enrichment (Fee Supported)	No	3 hours of voluntary prekindergarten with an option for 3 additional hours of enrichment supported by tuition
VPK Early Learning Labs	No	Provides 3 hours of PreK, with an option for 3 additional hours of enrichment supported by parent fees. PreK students work with high schoolers during the day.
VPK/ESLS integrated (Office of Exceptional Student Learning Support)	Yes – Case Study	Provides a full school day of instruction in a classroom with typically developing students and students with disabilities. Free and fee-supported VPK/ESLS Integrated program models are available at selected schools.
Head Start/VPK Extended Day	No	Blended HS and VPK funding with 3 free hours of VPK in the afternoon

B. Community-Based Pre-K Programs: Early Learning Coalition of Broward County

CLI developed a partnership with the [Early Learning Coalition of Broward County, Inc.](), one of nearly 30 ELCs in Florida that receive state funding to support families looking for quality early education programs within their local community as well as educators looking for additional professional development opportunities. They prioritize partnerships with programs that serve high-needs families, which tend to be programs that enroll children that receive both VPK and School Readiness (SR) funds.

Site Recruitment and Retention/Attrition

Sites were jointly recruited by CLI and RFA in partnership with BCPS and ELC with the understanding that, once agreeing to participate, sites would be randomized to either treatment or control groups. All sites were informed that sites selected for the treatment group would reap the programmatic benefits of the *Blueprint for Early Learning* curriculum and training for site leaders and teachers and receive financial incentives (e.g., $75 per training attended and $200 incentive for all classrooms in the study for teachers to spend on classroom materials). Sites were also informed that sites selected for the control group would be awarded $1,000 per site as well as $200 per classroom for participating in the study. Sites were also informed that research participants would receive $20 gift card incentives for specific research activities, regardless of randomized study condition.

Site eligibility. RFA administered an intake form to assess study eligibility. To be eligible for the study, sites needed to have at least one English-instructed Pre-K classroom that served mostly 4–5-year-old children utilizing funds from state-funded VPK program. Head Start and School Readiness programs were ineligible due to restrictions on the use of approved curriculum to meet program standards. Several community-based programs enrolled families who braided funds from VPK and School Readiness to cover a full day of tuition. These sites were eligible if their day was structured to allow them to implement *Blueprint* during morning instructional hours, should they be randomized to the treatment group.

Site consent and randomization. RFA expected to recruit 36 district and community-based sites in Broward County, expecting to randomize half to treatment and half to control. We estimated a sample of approximately 1,175 students with pre- and post-outcome measures, assuming between two and three eligible classrooms per site and 15 eligible students per classroom. A total of 49 sites applied, of which 46 were eligible. After reviewing the study data collection requirements and randomization procedures, 35 sites were consented and randomized, with 18 in the treatment group and 17 in the control group (Table 3).

Table 3 Number of centers at each recruitment and study phase, overall and by treatment/control status

Centers...	Overall	Treatment	Control
#Applied to study	49	n/a	n/a
#Eligible	46	n/a	n/a
#Consented and randomized	35	18	17
#Retained throughout study	29	16	13
Center attrition rate	20.0%	11.1%	23.5%

Site attrition. The study experienced significant site-level attrition due to challenges associated with the pandemic. Overall site-level attrition was calculated as the proportion of sites that were randomly assigned to the treatment condition or to the control condition that did not contribute outcome data to the analytic sample. Overall, one in five consented sites left the study prior to outcome data collection, with differential attrition in treatment and control centers of 12.4 percentage points.

Student Recruitment and Retention/Attrition

The impact study's student sample included all eligible students enrolled in a participating site by September 15, 2021. Passive consent for community-based programs was approved by Solutions IRB and the SBBC IRB required active consent for district-operated sites. Any student whose parent/caregiver opted out of the study or did not actively consent to the study was counted as having attrited. Students were also lost from the sample if they left the program at some point throughout the year or stayed but did not complete one (or both) of the baseline and post-treatment assessments. We attempted to minimize this type of attrition by closely coordinating student assessment schedules with classroom teachers and returning to assess absent students.

Table 4. Number of students at each recruitment and study phase, overall and by treatment/control condition, in retained sites (N=29).

Students...	Overall	Treatment	Control
#Eligible students	928	532	396
#Consented students & consent rate	799 (86.1%)	456 (85.7%)	343 (86.6%)
#Students with outcome data & attrition rate	612 (34.1%)	327 (38.5%)	285 (28.0%)

Our analytic samples were significantly smaller than expected, due in part to site-level attrition discussed above as well as smaller-than-expected sites, with an average of two eligible classes in study sites. We also experienced significant attrition due to challenges consenting families to participate in district-operated programs as well as volatile enrollments and absenteeism rates associated with the pandemic. In the 29 retained sites, we consented 86% of eligible students, with similar consent rates in treatment and control conditions. Our analytic sample included 612 students, with 327 in CLI-supported sites and 285 in the control condition, with an overall student-level attrition rate of 34.1% and a differential attrition of 10.5 percentage points (Table 4).

Characteristics of Study Sample

To understand the characteristics of the study setting and sample, RFA triangulated data from the site leader intake form described above (N=29) with administrative student-level data, interviews with BCPS and ELC leaders/staff (N=7), and an intake survey of consented teachers (N=56). Table 5 provides a summary of the characteristics of our study sample.

Table 5. Characteristics of impact/implementation study classrooms and children, 2021-22

Characteristics	Overall	*Blueprint* Classrooms	Business-as-Usual Classrooms
Curriculum being implemented	-	*Blueprint for Early Learning*	*Creative Curriculum, etc*
Number of pre-K centers	29	16	13
Number of pre-K classrooms	56	30	26
Average number of pre-K classrooms in centers	1.9	1.9	2.0
Average class size	16.6	17.7	15.2
Number of children enrolled	928	532	396
Number of children in analytic sample	612	327	285
Age at spring assessment	5.1 years	5.1 years	5.1 years
% Female	53.6%	51.9%	55.5%
Race/ethnicity	-	-	-
% Black	40.0%	37.0%	43.5%
% Hispanic	33.5%	36.1%	30.5%
% White	15.2%	15.3%	15.1%
% Other	9.6%	8.6%	10.9%
% At or above expectations	-	-	-
VPK Math	55.2%	59.6%	50.2%*
VPK Oral Language	42.5%	35.7%	50.2%*
VPK Phonological Awareness	38.7%	33.6%	44.6%*
VPK Print Knowledge	44.1%	38.5%	50.5%*

*Indicates significant treatment/control differences at p<.05.

Of the 29 sites that were retained in our study, 18 were supported by CLI and 13 served as a counterfactual "business-as-usual" condition. BCPS sites transitioned to *Creative Curriculum* as their primary curriculum several years prior to this study. In interviews, we also learned that some sites also use *Haggerty Phonemics Awareness* to supplement *Creative Curriculum* as well as *Conscious Discipline*. Community-based providers implemented a variety of curricula, though most had selected *Creative Curriculum* as well. There were similar numbers of classrooms in the *Blueprint* and Business-as-usual conditions (about 30) and the average number of Pre-K classrooms in each site was similar across conditions (about 2). While not statistically significant, comparison classrooms were on average somewhat smaller, enrolling an average of 15.2 students compared to 17.7 in CLI-supported classrooms.

Overall, the study sample reflected the target population, enrolling public Pre-K programs serving a diverse population of low- and middle-income families

Our analytic student sample was analyzed to provide some information about the student characteristics in our impact and implementation study sample (Table 5). In both treatment conditions, students were on average 5.1 years of age at the time of the spring assessment. The students made up a racially diverse population, with 40% identified as Black, 33.5% as Hispanic, and 15.2% white. Another 9.8% of the students were identified as another race/ethnicity, including Asian and multi-racial students.

In our site leader intake survey, many center directors described their communities as diverse and made up of low- and middle-income families. Center directors highlighted the economic position of families (largely poor or middle class) and many spoke to a diverse and multicultural student body.

Children in *Blueprint* and "Business-as-Usual" classrooms differed on average in fall skill levels, but not with respect to observed demographic characteristics

Pre-K children accessing VPK funding are assessed by the programs they attend using the VPK assessment to determine if a child is on track for exceeding, meeting, or below expectations across four domains: math, oral language, phonological awareness, and print knowledge (citation). Generally, the impact and implementation study sample includes many children who started Pre-K below expectations in each domain. For example, only 38.7% of the study sample achieved phonological awareness scores at or above expectations in the fall of 2021.

While children in each study condition – "*Blueprint*" and "business-as-usual" – were similar on average with respect to demographic characteristics, a larger share of children in the business-as-usual condition met expectations in early language and literacy domains, while a larger share of children in CLI-supported classrooms met or exceeded expectations in the VPK math domain. Treatment group differences in fall skills were statistically significant at the $p < 0.05$ level.

The teachers in our study were highly experienced and credentialed, though varied in educational backgrounds

In the eyes of center directors, teacher strengths include their experience and communication skills. The most mentioned teacher areas for growth were curriculum and classroom management. According to RFA's teacher intake form, a large majority (85%) of lead teachers in the sample had been in the early childhood education (ECE) field for more than 5 years, and nearly all (98%) held an early education credential (the most common is the Child Development Associate (CDA)). Lead teachers' highest educational attainments are varied with a third reporting having finished their formal education at a high school diploma, 20% having earned master's degrees, and the remaining having earned a bachelor's degree. Nearly 90% reported having used a comprehensive Pre-K curriculum prior to the study and three in four had participated in professional development (PD) from a curriculum provider. We did not observe significant differences in teacher characteristics across study conditions.

Broward County Expectations for CLI's Impact

Prior to the study, we asked leaders to reflect on what they saw as the main challenges they had seen in their Pre-K programs and their expectations for how *Blueprint* might operate differently than *Creative Curriculum*. Two district early childhood leaders had positive things to say about *Creative Curriculum*, particularly the "opportunities for hands-on learning" and "child-centered and developmentally appropriate [content]." One leader remarked that, when the district adopted *Creative Curriculum*, he was hopeful because it was much more open-ended, which he felt teachers would respond positively to. However, when CLI recruited the district to the study, leaders were eager to participate because of their observations over time that, **while some teachers' instructional practice thrived with *Creative Curriculum*, not all teachers were able to implement it with fidelity without significant training and support**.

> *The open-endedness of [Creative Curriculum] might be problematic. For some teachers that are just maybe less dug in, maybe they have less instructional chops, less prowess, less time... you'll see that don't seem to be in Creative Curriculum as much as they should, you're not seeing it. You're not seeing the units of study in the rooms as you walk in. [As a result, I've had to be] very fixated on the use of GOLD and the use of Creative Curriculum and trying to make sure that as much training [as needed] was in place, so that we know that the teachers can have everything that they need to implement with fidelity. But man, it is a tall order. It's a heavy lift, heavier than I thought (Pre-K Advisor, Broward County Public Schools).*

This same leader reflected on his expectation that *Blueprint* might be better suited for teachers that need more support, while there might be less of a difference for more seasoned teachers.

> *So, I look at this picture and this overall scene. And I go, "Okay, maybe for some teachers, something that's a little bit more prescriptive will be helpful." Maybe for a teacher that's less creative, maybe the open field is too overwhelming, and something that's a little bit more narrowly focused and prescribed would be helpful for them. (Pre-K Advisor, Broward County Public Schools).*

This perspective was shared by a site leader at a district-operated early childhood learning center:

> *I was actually thinking Blueprint, because it does give lots of information... and plans it out for a teacher, that after a while, a not-so-proficient teacher hopefully will make that click, that they can do certain things, but they have this safety net of the curriculum, whereas [the curriculum we've used before] ... left it completely open to freedom. If somebody was a mediocre teacher and not creative, then the children would be missing out on certain skills. But if you have a mediocre teacher with Blueprint, they're still going to get all those skills. And they're going to get them in an appropriate way (Site Leader, District-operated early learning center)*

Interpreting Study Findings in the Context of the COVID Pandemic

The pandemic disrupted early childhood education in numerous ways, impacting the academic, social, emotional, and overall well-being of young children. It highlighted the importance of adaptability, innovation, and support systems but, at the same time, presented unprecedented challenges to implementing interventions in early childhood education classrooms.

Interpreting CLI's intervention fidelity and impact must include consideration of the context of the pandemic

Interpreting CLI's intervention fidelity and impact must include consideration of the context in which the intervention was implemented, which was delayed in 2020-21 school year due to the COVID-19 pandemic. Implementation took place as communities were opening back up in the 2021-22 school year, but the impact of the pandemic was far from over. As was true across the country, the COVID-19 pandemic had a significant impact on early childhood education in Broward County, FL. The impact of the pandemic was multifaceted and influenced various aspects of early childhood education in Broward County, including in community-based programs and early elementary school settings. Some of the key impacts include program closures; challenges related to the social, emotional, and mental health of young children, parents, and educators, stemming from anxiety, stress, and uncertainty.

Impact of COVID on site retention. During the implementation year, we heard anecdotally from program directors and educators about the challenges and costs associated with the implementation of health and safety measures, such as reduced class sizes, social distancing, mask-wearing, and enhanced sanitation protocols, which research participants felt directly affected the overall learning environment and children's comfort, as well as their ability to implement CLI's intervention with fidelity given the other demands on their resources and attention. While not all sites were forthcoming about the reasons they withdrew from the study, several sites cited unexpectedly low enrollment and volatility, with classrooms being collapsed and teachers hesitant to participate in the study due to the stress associated with their day-to-day. Staffing shortages made it difficult to find coverage for trainings and coaching, and one director in October relayed that it was "a bad time to learn a new curriculum because of the staffing shortages" they were experiencing.

COVID-19 challenges and constraints related to resources and time may have made it difficult for teachers to implement some parts of curricula and consistently implement high-quality practices in some instructional areas this year

Impact of COVID on curriculum implementation. Finally, in formal interviews with teachers across a range of settings, interviewees spoke about the lasting impacts of the pandemic—about students' learning loss, difficulties adjusting to classroom life, and struggles with social and emotional well-being and behavior. Some teachers had students they described as exhibiting significant behavioral issues this year. They reported devoting a great deal of energy to helping those individuals learn and feeling that this focus sometimes hindered their ability to scaffold high-quality learning experiences for other students. **COVID-19 challenges and constraints related to resources and time may have made it difficult for teachers to implement some parts of curricula and consistently implement high-quality practices in some instructional areas this year.**

Section 2: Fidelity of Implementation of CLI's *Blueprint for Early Learning* Intervention

The CLI intervention was implemented in Broward County Public Schools and community-operated early childhood education centers in English-instructed classrooms. As a part of the intervention, CLI provided training sessions to aid teachers in understanding the *Blueprint* curriculum and how to incorporate it within classrooms. Additionally, CLI provided a mix of in-person and virtual coaching as ongoing professional development for teachers and training for school/center leaders. In this section, we describe CLI's intervention, first detailing the key components of the intervention and then turning to CLI's theory of change that articulates why CLI expected that *Blueprint for Early Learning* would outperform existing curricula in terms of improving student outcomes.[4]

Table 6. Children's Literacy Initiative's Pre-K Intervention Components and Outcomes

PROGRAM COMPONENTS	EDUCATOR OUTCOMES	OUTCOMES FOR CHILDREN
• *Blueprint for Early Learning* Pre-K curriculum: "Scripted with purpose" field-generated, developmentally appropriate content and pedagogy, that integrates literacy, math, and science, aligned to national and state early learning standards • Professional development for Pre-K educators through training and coaching (onsite and virtual) • Peer Learning Community meetings for school leaders • Access to online resources supporting the *Blueprint* curriculum (CLI*Blueprint*.org) and Pre-K best practices (The Learning Center)	• Increased teacher knowledge and ability to implement effective instructional practices and implement the curriculum with fidelity • Increased teacher ability to create a positive classroom culture and a literacy-rich classroom environment • Increased center leader capacity to support implementation and co-lead intervention activities	• Increased engagement in learning activities • Improved early language, literacy, and math skills

Note: *Blueprint* for Early Learning is available free to download here: https://cli*Blueprint*.org/

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[4] This section is based on an analysis of a CLI-provided logic model; the curriculum and its supplemental resources; and interviews and meetings with CLI staff.

Key Components of CLI's Intervention

By design, the CLI's intervention aims to help Pre-K teachers consistently implement effective teaching practices and provide high-quality content for students to learn, facilitating desired child outcomes, including student engagement, learning, and kindergarten readiness. There are four components of CLI's support for early learning: 1) "Scripted with purpose" curriculum and materials; 2) CLI's professional development for classroom teachers; 3) Peer Learning Community for center directors; and 4) Access to online materials for directors and teachers. Table 6 (above) outlines CLI's logic model, which provided a framework for our fidelity and impact evaluations.

Support Component #1: *Blueprint for Early Learning* curriculum and evidence-based instructional practices

Blueprint for Early Learning is a comprehensive curriculum with four core components: Thematic teaching guides, interest-area activities with scripted look-fors and interactions, culturally responsive and developmentally appropriate books, and family engagement resources (Table 7).

Table 7. Core components of *Blueprint for Early Learning* Curriculum

CORE CURRICULUM COMPONENTS
Core Component #1: Ten thematic teaching guides
- Daily use of scripted lessons, taught in sequence and as specified   - Daily STEM and literacy lessons   - Weekly socio-emotional lesson   - Complete one thematic guide each month
Core Component #2: Interest-area activities with scripted look-fors and interactions
- At least six different interest areas are offered daily, including math, science, art, dramatic play, and blocks   *Blueprint* guide includes guidance for interacting with children engaged in activities   - Children in centers at least 1 hour/day
Core Component #3: 90 culturally responsive and developmentally appropriate books
- Daily read-aloud with book-related teaching points and relevant vocabulary words   "Words We Are Learning" chart with vocabulary words to be posted in the classroom   - Teachers use all nine books included with each thematic unit each month, including information texts and fiction titles
Core Component #4: Family engagement resources
Blueprint@Home text service and family resources contained in each thematic teaching guide with families/guardians (four per month)

Support Component #2: CLI Professional development for classroom teachers

CLI training. CLI offered f**our 2.5 hour seminars** to help teachers understand the curriculum's developmental underpinnings, the scope and sequence, and how to use the curriculum to impact student learning while expanding their own professional knowledge. Modeling, reflection, guided practice, partner and small group work, and role-playing activities were designed to help educators synthesize learning and prepare them to implement what they learn in their classrooms. Teachers received a $75 stipend for attending the training seminars. Teachers, assistants, and center directors were all invited to attend the trainings.

CLI content-focused coaching. CLI coaching was designed to exceed NIEER quality benchmark of 15 in-service hours for lead and assistant teachers (O'Keefe, 2017). CLI paired each lead teacher with a coach who was available for **20 hours of content-focused coaching** over the course of the year. The goal of CLI coaching was for teachers to develop a solid understanding of *Blueprint* and its practices, increase teacher confidence and comfort with the curriculum, and strengthen teachers' adaptations of *Blueprint* to meet the needs of their learners. Coaching content was tailored to teachers' needs and evolved as teachers became more experienced with *Blueprint*. To manage costs, CLI offered a two-tiered support model:

- **Tier 1 embedded on-site coaching** was designed to build relationships and trust with teachers, understand their specific context, support lesson planning and delivery, model lessons, and provide instructional feedback over time. Each in-person session in the CLI content-focused coaching model included three key elements: 1) a pre-conference, 2) lesson implementation, and 3) a post-conference. Typically, during the pre-conference, coaches and teachers focused on the objectives of the lesson to follow. Then, either the teacher, the coach, or both together implemented the lesson. In the post-conference, the coach and teacher reflected on the lesson and identified what to work on between coaching sessions. This time for feedback and reflection is one of the central elements of an effective professional learning experience for teachers (Darling-Hammond et al 2017).

- **Tier 2 online virtual coaching sessions** with video coaching hours to maintain coaching support and continuity in between on-site sessions. Virtual coaching was designed to provide Pre-K teachers the flexibility they need given the real-life constraints of their context.

Support Component #3: Professional Learning Communities

Because center director buy-in and support are key factors supporting curriculum implementation (Bagiati & Evangelou, 2015; Dufour et al., 2006; Fortune, 2020; Turner et al., 2020), CLI developed and assessed the feasibility of a low-burden, low-cost community of practice structure to meet the needs of centers in low-income communities. Center leaders formed a professional learning community (PLC) and were invited to participate in **four 90-minute sessions** focused on solving specific problems of practice encountered in real-time and learning how to support new and returning teachers with specific look-fors and actionable feedback. Topics included transformative leadership,

culturally-sustaining practice, coaching and continuous improvement, supporting *Blueprint for Early Learning*, digging into data, and family engagement.

Support Component #4: Access to online materials and asynchronous support

All educators in the study had **access to CLI's online resources** supporting the *Blueprint* curriculum (CLI*Blueprint*.org), including a free digital download of the curriculum, with videos, editable family letters, teaching point checklists, and assessments and asynchronous training videos that align with instructional strategies embedded in the curriculum (e.g., "Gathering Time").

CLI's Theory of Change

The research team developed a theory of change for CLI's intervention based on an analysis of a CLI-provided *Blueprint* theory of change; the curriculum itself and its supplemental resources; and interviews and meetings with CLI staff. CLI staff reviewed the theory of change for this study and offered feedback on it, and the research team revised in accordance with that feedback. The theory posits that:

By design, the Blueprint for Early Learning *curriculum helps Pre-K teachers to consistently implement effective teaching practices and provide high-quality content for students to learn, which, in turn, facilitates desired child outcomes, including student engagement, learning, and kindergarten readiness. Some design elements of the curriculum are theorized to be superior to those of "business as usual" curricula and to lead to comparatively stronger teacher and student outcomes, including the rigor and engaging content of Blueprint and its embedded PD content. Training, coaching, and online resources are intended to deepen knowledge and practice but are not required for high-quality implementation.*

Teachers using Blueprint will consistently differentiate to meet students' needs and adapt explicitly scaffolded sections of the curriculum in responsive ways that still connect closely to learning objectives specified in the curriculum. In specialized settings, adaptations of the curriculum (e.g., adaptations to suggested pacing and to expectations for students) are expected.

Theorized Change-Drivers of *Blueprint*

According to interviews with CLI staff, CLI's *Blueprint for Early Learning* there are four key drivers of change embedded in the curriculum and coaching model aimed at improving classroom teaching and learning processes and student outcomes.

- **The explicitly scaffolded nature of the curriculum** makes it easy to use and ensures that desired language, content, and pedagogical approaches are internalized by teachers and implemented in classrooms. The curriculum integrates pedagogical support for teachers by providing specific language, questions, and look-fors to guide developmentally appropriate, culturally- and linguistically-responsive instruction.

- **Superior content that covers an entire teaching day**: As compared to the content for students to learn in the "business as usual" curriculum, the content in *Blueprint* is more purposeful, rigorous, and engaging. The curriculum also covers an entire day of Pre-K teaching; Teachers (who typically lack significant planning time) do not have to create instructional materials to fill gaps.

- **Written professional development content is embedded within *Blueprint* curriculum materials** and facilitates teacher learning and consistent implementation of effective teaching practices and provision of high-quality content for students to learn. Embedded PD content includes adaptations that help teachers consistently differentiate to meet students' needs and adapt explicitly scaffolded sections of the curriculum in responsive ways (e.g., adaptations to suggested pacing) that still connect closely to learning objectives specified in the curriculum.

- **Supplemental professional development** is a mechanism to deepen teacher knowledge that is not required for high-quality implementation of the curriculum. Flexible-to-access supplemental teacher PD includes a suite of services and supports (e.g., trainings, coaching, and peer learning community meetings) that help teachers navigate a new curriculum and accompanying materials.

Fidelity of Implementation Measures

The implementation study utilized primary data collected by RFA, as well as administrative data collected and maintained by CLI that was shared with RFA. During the curriculum development period, RFA and CLI collaborated to define the key components of the *Blueprint* intervention and define thresholds for fidelity. RFA conducted background interviews with CLI staff to describe key components of the intervention, understand data systems for tracking, devise a process for securely transferring data to RFA, and define thresholds for assessing fidelity.

Core Component Thresholds for High Fidelity of Implementation

Each of the four key intervention components – the curriculum, professional development for teachers, leader training/supports, and online resources for teachers – was assigned a threshold for what CLI considered high fidelity of implementation, balancing feasibility of implementation with ensuring the defined thresholds are sufficient to ensure program success in Summer 2021. RFA worked with CLI to define thresholds at the individual, classroom, center, and study levels (Table 8).

For example, for teacher professional development, CLI determined that, for the intervention to succeed, they would expect a teacher to attend at least three training sessions of four offered and receive at least 17 of 20 hours of coaching (either in-person or virtual). To meet fidelity at the classroom level, CLI expected that the lead teacher in the classroom would need to meet the individual level threshold for fidelity. At the center level, all classrooms would need to be instructed by a lead teacher who met the individual threshold. Finally, at the study level, CLI determined that fidelity of the intervention would be met if, center level fidelity would need to have been met in more than 75% of study sites.

Table 8. Overview of Annual CLI Program Component Thresholds for High Implementation

Logic Model Component	Individual Threshold	Classroom Threshold	Center Threshold	Study Threshold
Blueprint for Early Learning Curriculum	N/A	The classroom received the curriculum	100% of classrooms in the school/center received the curriculum	In more than 90% of sites, all classrooms received the curriculum
Teacher Professional Development	Teacher attended at least 3 training sessions AND received at least 17 hours of coaching	The lead teacher in the classroom met the individual threshold	100% of lead teachers met individual level threshold	In more than 75% of sites, the lead teacher in each classroom met the individual level threshold
School/Center Leader Training & Supports	Director/Leader (or designee) attended at least 3 PLC events	N/A	The director or designee of the center attended at least 3 PLC events	In more than 75% of schools, directors/leaders met individual level threshold
Online Resources for teachers	Teacher has access to online resources	The lead teacher in each classroom had access to online resources	100% of lead teachers at the center met the individual threshold	In more than 75% of sites, the lead teacher in all classrooms met the individual threshold

Findings: Implementation Study

With key components of intervention fidelity and thresholds defined, RFA used CLI data to assess fidelity.

Only two of 16 sites fully implemented all four key components of CLI's intervention

Overall, fidelity of the intervention was met for two measures – receipt of the *Blueprint* curriculum and teacher access to online resources, but not for two others – teacher professional development and site leader participation in PLC events. The most challenging component was the leader PLC, leaders from only three centers were able to attend three or more events and in more than half, centers were not able to send anyone to any of the four events that occurred during the study year.

- The *Blueprint* curriculum and materials were received in all study classrooms in 15 of 16 centers. While fidelity was not reached in every center, fidelity was reached across the sample. Sample-level fidelity was reached because every classroom in at least 90% (or 15 out of 16) of study centers received the *Blueprint* curriculum.

- Out of the 16 centers enrolled in the study implementing the intervention, fidelity of the teacher professional development program reached in 11 of them (68%), just shy of the 75% study threshold for fidelity for this component.

- Across the program, implementation was low for the PLC component. For high fidelity to be reached at the center-level, a representative from a center should have attended at least 3 PLC events, which only occurred in three sites. This implementation component was challenging for many centers; In 9 out of 16 centers, no one was able to attend any of the four PLC events that occurred.

- Fidelity for access to online materials was reached at the center-level in all study centers. All lead teachers in enrolled classrooms received the account credentials to use online resources in all centers.

Section 3: Impact of CLI's *Blueprint for Early Learning* on Children's Early Language and Math Skills

Together, the core components of CLI's intervention are expected to improve outcomes for children and teachers and improve classroom language and literacy environments. Leaders in Broward County began the study hopeful that *Blueprint* would meet some of the needs they were seeing across their programs and that many of their teachers needed more support to effectively implement the curriculum in the classroom. To assess the impact of CLI's intervention, RFA conducted a randomized study focusing on impact on children's early language (phonological awareness) and math (numeracy) skills. Details about the study setting and methods can be found in *Section 1: Evaluating CLI's Pre-K Intervention.*

Impact Study Research Questions

Two research questions shaped our impact study:

1. What is the effect of ClI's intervention on Pre-K students' phonological awareness in English-instructed Pre-K classrooms compared to the business-as-usual condition?

2. What is the effect of Cli's intervention on Pre-K students' numeracy skills in English-instructed Pre-K classrooms compared to the business-as-usual condition?

Outcome Measures: Phonological Awareness and Numeracy

Phonological Awareness

Language and literacy development in early childhood encompasses a set of skills that have been widely found to be interrelated. Phonological awareness, letter knowledge, word identification, print knowledge, vocabulary, and sentence imitation are intercorrelated skills predictive of later reading achievement (NICHD, 2000). Longitudinal studies that followed children from Pre-K through early elementary school have confirmed substantial long-term correlations between early oral language skills and 4th and 7th grade reading comprehension (Ehri et al., 2001). Metalinguistic skills, especially phonological awareness, have been found to be strongly correlated with later literacy knowledge while additional studies have found that overall language development at age three was strongly correlated with reading scores at age seven (Dickinson et al., 2003).

Phonological awareness, or the knowledge that spoken words can be broken apart into smaller segments of sound known as phonemes, has been established by a wide body of research as a critical precursor, correlate, and predictor of reading achievement (Bryant et al. 1990; Cronin & Carver 1998; MacLean et al. 1987; Speece et al. 1999; Stanovich 1992; Wagner et al., 1997; Vellutino & Scanlon 2001). Children who are better at detecting syllables, rhymes, or phonemes are quicker to learn to read and this relationship is present even after variability in reading skill due to intelligence, receptive vocabulary, memory skills, and social class is removed statistically (Bryant et al. 1990; MacLean et al. 1987; Wagner et al. 1997). Phonological awareness has also been established as important to children's ability to successfully focus on graphemes (individual alphabetic letters) and to link them to

phonemes (Sensenbaug 1996). More powerful effects on later literacy achievement can be found by combining phonological awareness training with instruction in letter–sound knowledge (phonics) rather than phonological awareness training alone (Bus & van IJzendoorn 1999; Schneider et al. 2000).

To assess impacts of CLI's intervention on children's phonological awareness, RFA administered three phonological awareness subtests of the PALS-PreK instrument: Beginning Sound Awareness, Print and Word Awareness, Rhyme Awareness.[5] Beginning Sound Awareness measures a child's ability to orally segment an initial phoneme. Print and Word Awareness measures a child's understanding of print and words (e.g., pointing to words in the title and left to right directionality). Rhyme Awareness measures a child's ability to identify words that rhyme.

PALS-PreK is a scientifically-based phonological awareness and literacy screening that measures preschoolers' developing knowledge of important literacy fundamentals and offers guidance to teachers for tailoring instruction to children's specific needs. Pilot data and data from regular screenings in Virginia's preschools provide evidence of the reliability[6] (including internal consistency and inter-rater reliability) and validity[7] (including content, construct, and criterion-related validity) of PALS-Pre-K. PALS-PreK is not a normed assessment. Instead, it's a criterion referenced assessment with three subtests, each ranging from 0-10 with higher scores indicating stronger skills.

Early numeracy

Early math knowledge in Pre-K has been found to predict both mathematics *and* reading outcomes across primary and secondary schools (Watts et al. 2014). While early math knowledge extends beyond numeracy knowledge, there is significant consensus that numeracy is a critical foundation (Rittle-Johnson et al. 2016). Numeracy refers to children's knowledge of the meaning of whole numbers and number relations (Steen, 1990) and involves linking to verbal or symbolic number names and is separated into three related, but distinct, topics: counting (counting objects and verbal counting, also called numbering), symbolic mapping (numerical relations), and calculation (arithmetic operations) (Purpura and Lonigan, 2015). Understanding numeracy is central to the development of other critical early math skills like pattern recognition and calculations.

To assess impacts of CLI's intervention on children's early numeracy skills, RFA administered the Woodcock Johnson (WJ) Applied Problems subtest, an individually administered, norm referenced instrument that assesses quantitative reasoning, math achievement, and math knowledge for individuals ages 2 to 92 and older. The Applied Problems subscale is a numeracy and early mathematics measure that requires children to perform relatively simple calculations to analyze and

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[5] https://literacy.virginia.edu/pals-k-assessment

[6] The internal consistency estimates for all PALS-PreK tasks were "in an acceptable range." Cronbach's alpha levels for each task ranged from 0.77 to 0.93, with perfect consistency indicated by a 1.00. Pearson correlation coefficients for each task measured 0.99. Reliabilities were also determined for grade, gender, SES, and ethnicity and were consistent with alphas obtained for the entire sample, suggesting that PALS-PreK tasks are stable across a broad representation of children.

[7] Content validity was ensured in part via an advisory panel composed of experts in early literacy development. Construct validity was measured using exploratory factor analysis and yielded a single factor solution that accounted for 34% to 76% of the total variance in children's scores across all tasks. Concurrent validity varied, ranging from medium-low correlation against the TALS assessment to medium-high against the TERA-3 assessment. Predictive validity was measured by comparing Pre-K scores against that same student's kindergarten score. Correlation was high and significant (r=0.91, p<0.01). Multiple regression analyses indicated that core tasks in Pre-K significantly predicted a large portion of the variance in fall performance on PALS-K (r2 = 0.84).

solve arithmetic problems. It has been widely used with diverse populations of young children. Raw test scores from WJ-Applied Problems can be converted to standardized scores using the normed mean and standard deviation. The Applied Problems subtest has strong evidence of reliability and validity.[8]

Baseline Skill Levels: Voluntary Pre-K Assessment

Due to challenges with site access and BCPS safety protocols related to the pandemic, RFA was unable to administer baseline PALS and WJ assessment data. While imperfect, we leveraged the state assessments of VPK-supported classrooms to serve as a baseline. The VPK Assessment measures were developed by a Florida Center for Reading Research specifically for use by teachers in the VPK program (Lonigan, 2011). The assessment examines four domains: print knowledge, phonological awareness, mathematics, and oral language/vocabulary. Florida law requires VPK providers to administer assessments to all children, within the first and last 30 calendar days of the VPK scheduled, respectively. The main purpose of VPK Assessment measures is to identify children who are at risk of not meeting the criteria for Kindergarten Readiness. We heard from BCPS and ELC leadership that there is limited local buy-in for these measures, though several studies have been conducted showing strong psychometric properties in terms of reliability and validity of the measures (Lonigan 2011).[9]

Findings: Impact Study

Table 9 presents average spring assessment scores *Blueprint* and business-as-usual classrooms. Statistical models adjust for children's fall VPK scores (math, oral language, phonological awareness, and print knowledge) as well as whether centers were district-operated or community based. Effect sizes are calculated based on the standard deviation of the pooled sample. See Appendix A for the details of the statistical model used to generate these estimates.

Our impact study showed no evidence that students in CLI-supported classrooms outperformed students in the comparison or "business-as-usual" context

In our analysis of impacts of CLI's intervention on phonological awareness and early numeracy skills, we did not find evidence that students in CLI-supported classrooms outperformed students in classrooms operating under "business as usual" (Table 9). PALS-PreK provides spring developmental ranges for four-year-olds, which can be used to contextualize the skill levels of the children in our sample. On average, children in both Blueprint and business as usual classrooms scored within the expected developmental range for Beginning Sound Awareness and Rhyme Awareness, but lower than expected in Print and Word Awareness. On average, children in both study conditions had standard scores of around 95, which is considered "Average" for their age.

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[8] The WJ Applied Problems test has an internal consistency between 0.92-0.93. Its test–retest reliability for 2–7-year-old children is .90. The measure is highly correlated (r=0.82-94) with other measures of student achievement, such as the Kaufman Test of Educational Achievement-Second Edition (KTEA-II).

[9] Items were selected to increase precision around scores representing the most likely region of risk (Lonigan 2011). As a result, the standard errors would be more precise (smaller) for scores that are from average to below average than for scores above average. The Item-Response Theory analysis shows that a higher degree of precision of measurement was found for children who were identified to have weaker skills, and this was consistent across all four domains. This finding speaks to the score reliability of the VPK assessment which signals strong psychometric properties.

Table 9. Measures of Children's Kindergarten Readiness in *Blueprint* and Business-as-Usual Classrooms

Domains	Sample average (SD)	Blueprint Classrooms (N=327)	Business-as-Usual Classrooms (N=285)	Effect size difference	Difference (p-value)	Spring Develop-mental Range
Beginning Sound Awareness (Range 0-10)	7.97 (2.78)	7.83	8.01	-0.06	0.624	5-8
Print and Word Awareness (Range 0-10)	6.81 (2.20)	6.60	6.89	-0.13	0.504	7-9
Rhyme Awareness (Range 0-10)	6.07 (2.65)	5.94	6.18	-0.09	0.500	5-7
Numeracy (40-160)	95.76 (12.8)	95.17	95.75	-0.04	-0.583	90-110

Source: RFA assessments of children's phonologial awarenessusing the PALS Pre-K tasks and WJ-Applied Problems subtest. Analytic sample includes 612 students across 29 district- and community-based Pre-K programs in Broward County, FL. Statistical models adjust for children's fall VPK scores (math, oral language, phonological awareness, and print knowledge) as well as whether centers were district-operated or community based. Prior to administering assessments, Pre-LAS was administered to assess the English proficiency of students whose home language is not English. Students who did not pass the Pre-LAS were not assessed. Effect sizes are calculated based on the standard deviation of the pooled sample.

Section 4: A Qualitative Study of Curriculum Implementation in Specialized Pre-K Classrooms

In the 2021-22 school year, RFA and CLI partnered with the Broward County Public Schools (BCPS) Office of Exceptional Student Learning Support (ESLS) to conduct research on general education Pre-K curriculum implementation in nine specialized Pre-K classrooms. RFA conducted this study to generate insights into how Pre-K teachers adapt general education Pre-K curricula to specialized settings as well as evaluative evidence specific to the implementation of *Blueprint* during the first year of its implementation in BCPS.

Case Study Context

Nearly 7% of three- to five-year-olds in the U.S. are served under the Individuals with Disabilities Education Act (US DOE, 2020). In Florida, 6.1% of all three- to five-year-olds are both in a public-school setting and identified with a disability or developmental delay. Of those children, 45% are in a self-contained classroom, such as a specialized classroom. High-quality specialized Pre-K instruction can provide essential preparation for a successful transition to kindergarten for students with disabilities and developmental delays.

High-quality specialized Pre-K instruction can provide essential preparation for a successful transition to kindergarten for students with disabilities and developmental delays

It is theorized that high-quality curricula are one of the key supports for high-quality Pre-K instruction (Jenkins et al., 2019). Most special education Pre-K teachers use curricula that are targeted to meet the needs of a general education population. However, there is scant research about how special education teachers in self-contained settings implement general education Pre-K curricula to meet the needs of Pre-K learners with disabilities and developmental delays, and about how curriculum developers can facilitate student learning in a specialized setting.

Case Study Research Aims and Methodology

Employing a comparative qualitative study design, the research in this section focuses on the implementation of CLI's newly developed *Blueprint for Early Learning* ("*Blueprint*") curriculum in comparison to two established and widely used curricula – *Creative Curriculum* and *DIG (Discover, Inspire, Grow)*.

This case study addresses each of the following research aims:

- Describe contextual factors that shape use of general education curricula in specialized settings

- Describe how teachers adapted general education Pre-K curricula in specialized settings across different curricula and differing levels of curricular PD supports

- Capture trends in instructional practices in specialized Pre-K settings between and across classrooms using different general education curricula and with differing levels of support

- Generate evaluative evidence of the implementation of CLI's *Blueprint for Early Learning* in specialized settings

This study employed a comparative qualitative research design to generate evaluative evidence of *Blueprint* as well as insights into the use, adaptation, and challenges associated with implementing general education curricula in specialized settings. Specifically, we identified Pre-K specialized classrooms implementing *Blueprint* (two of the three study conditions), as well as those implementing either *Creative Curriculum* or *DIG* (the third study condition), to observe and understand the extent of variation in implementation and instructional practices across a variety of general curricula. For the study conditions in which *Blueprint* was implemented, we chose classrooms that were implementing *Blueprint* with and without coaching to understand how coaching might shape implementation. Table 10 summarizes the study conditions, including the curriculum-related PD supports received in each condition.

Table 10. Description of case study conditions

Study Condition	Number of classrooms	Curriculum	Professional Development
Blueprint + CLI supports	3 Classrooms	*Blueprint for Early Learning*	4 total CLI trainings Average of 19.25 coaching hours Access to CLI online resources
Blueprint-Only	2 Classrooms	*Blueprint for Early Learning*	1 CLI introductory training Access to CLI online resources
Non-*Blueprint*	4 Classrooms	*Creative Curriculum or DIG*	No PD specific to their curriculum during the study year

Sample, Data Collection, and Analysis

In Summer 2021, RFA selected nine classrooms at seven BCPS schools to include in this study. Lead teachers in the selected classrooms were highly educated and highly experienced; all but one had five or more years of experience in early childhood education, and all lead teachers had a bachelor's degree or higher. Classrooms were selected to allow a comparison of curriculum use while balancing teacher tenure and level of education across study conditions. Classrooms were randomly assigned to their study conditions.

Data collected for this study included 28 semi-structured interviews and nine observations. Observation and interview tools were piloted and refined before the research team entered the field.

- **_Interviews._** Interviews were primarily conducted with teachers and administrators (as well as a few teaching assistants) in study schools. Eight of the 28 interviews involved learning about background information and best practices from individuals including curriculum developers, an expert in ECE contexts serving students with disabilities, CLI coaches, and district staff.

- **_Observations._** The research team conducted over 14 hours of observations in the nine study classrooms, with observations averaging 96 minutes per classroom.[10] Observations were guided by a tool designed by the research team that adapted more than 20 items from the Pre-K Classroom Assessment Scoring System (CLASS) (citation). While the CLASS tool was not specifically designed for use in specialized settings, the adapted observation tool facilitated reflections on the extent to which teaching practices thought to be effective for a range of learners were evident on the days of the research team's observations.

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[10] While this amount of observation time provided ample data for analysis, the observation data should be considered "snapshot" data and may not be representative of teachers' instructional performance outside of the observations. In some instances, observation data did not align with interview data (e.g., teachers overwhelmingly emphasized student language use in interviews, but observation data did not consistently reflect this emphasis). In such cases, it is possible that there is a discrepancy between what interviewees shared and what takes place in classrooms, or it is possible that the observers simply happened to not observe what interviewees described due to the timing or length of observations.

Findings: Case Study

Contextual factors that influence curriculum implementation in specialized settings

Through an analysis of interview data, the research team identified several contextual factors that shaped curriculum implementation and instructional practices in ways that can make it difficult for teachers in specialized settings to implement a curriculum and consistently implement high-quality practices.

Contextual challenges included the range of student needs in specialized settings, the need for additional in-classroom support, and time to understand and implement all parts of a curriculum

The range of student needs in specialized settings. Teachers in specialized settings taught children identified as having disabilities and developmental delays, who had a range of learning needs. Children also ranged in age from three to five years old. Some students joined classrooms well into the school year (for example, as soon as they turned three years old). Some had no prior experience in school, whereas some had attended school for years.

Teaching assistant support: Interviewees expressed appreciation for situations in which teaching assistants were in their positions for multiple years and in which there were multiple assistants or people in similar support roles in classrooms. However, some interviewees shared that teachers would benefit from additional in-classroom support. Some interviewees felt that additional assistants or specialists in the classroom would help teachers navigate expanded class sizes over the course of the year and would improve their adaptation of the curriculum to meet all students' needs.

Access to resources and time: While teachers in non-*Blueprint* settings had years of experience with the curricular resources they were currently using, most teachers in the study who implemented *Blueprint* did not start the school year with the curriculum in hand.[11] Having to catch up on the curriculum once the school year started (and in some cases missing professional learning experiences) influenced teachers' implementation of *Blueprint*. In the words of one teacher, "we really didn't have the time to unpack it and really look over the curriculum… had we had a start with *Blueprint* from the beginning of the year and [been] more able to make our curriculum map, we might have been a little bit more successful with *Blueprint* for my four-year-olds."

This teacher and others implementing *Blueprint* also noted constraints related to *other resources* and to *time*—for example, lack of access to a printer and funds to buy supplies for centers, and a perceived lack of time to implement all parts of a comprehensive curriculum during comparatively short school days full of transitions, specials, meals, and nap.

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[11] This happened for a variety of reasons, including because some teachers did not begin the school year in the specialized classrooms they would later end up leading.

Teachers' philosophies, convictions, preferences, exposure to other curricula, understandings of student needs, and teaching toolkits all influenced what their teaching looked like

Despite these challenges, teachers were experts in their classrooms. The sample of teachers in this study came to this year of teaching with a wealth of experience in early education and with strong beliefs about what works best for teaching their students. Teachers' philosophies, convictions, preferences, exposure to other curricula, understandings of student needs, and teaching toolkits all influenced what their teaching looked like this year—whereas curriculum implementation may have looked different among a sample of teachers new to the classroom who did not have as many prior teaching experiences shaping their beliefs. In interviews, some teachers indicated that their beliefs and experiences led them to feel that teaching reading skills should be their primary focus with kindergarten-bound students in specialized settings, while others explained that they chose to focus more on helping students acclimate to routines of learning than on mastering foundational reading skills.

Curriculum adaptation and recommended professional learning supports

Adapting general education curricula for specialized Pre-K settings is an expected challenge and one that is not unique to *Blueprint*

In interviews, we heard from teachers and administrators about challenges related to adapting general education curricula for specialized settings, ways teachers adapted curricula to meet student needs, as well as perspectives on recommendations that would help facilitate the implementation of general education curricula in specialized settings.

Interviewees across the three study conditions tended to report that adapting a general curriculum for a specialized setting was a challenge. Teachers from the three study conditions-- not just *Blueprint* settings—described challenges around trying to adapt curricula so that students of all "levels" learned successfully; working with students with language delays, behavioral issues, and/or very short attention spans; and supporting children who were not yet able to engage independently in certain learning activities.

Notably, however, there were interviewees who indicated that the challenge of adapting a general curriculum for a specialized setting was an expected part of a specialized teacher's job, and in one case an administrator suggested that it was ideal for specialized teachers to work with a general curriculum to keep high expectations in focus.

Despite the challenge of adaptation, teachers across the three study conditions reported adapting curriculum scripts and activities when using general curricula in specialized settings. They described adjusting the types of questions they asked students, only doing half a lesson in one sitting, and not using parts of the curriculum that appeared too challenging for students. One teacher in a non-*Blueprint* setting described forgoing parts of lessons focused on settings and characters because those concepts seemed too advanced for the children in their class. Another teacher from the same study condition described using their curriculum as an overall guide but not implementing

specific lessons very frequently because they seemed too challenging for the particular group of students in class this year.

Interviewees suggested potential supports that would help teachers adapt general curricula—*Blueprint* and otherwise—for specialized settings. These suggestions included guidance in how to "break [a non-*Blueprint* curriculum] down into more manageable parts" and additional tips within curricula about how to scaffold lessons and activities for students who need additional support. (One administrator in a context using *Blueprint* felt the curriculum offered helpful suggestions for doing this, and one teacher in a non-*Blueprint* setting greatly appreciated the ways their curriculum did this). One teacher using *Blueprint* suggested that it might be helpful for the curriculum to include more explicit guidance around how to scaffold the learning of students who could not yet complete center activities independently. Another teacher expressed a desire for *Blueprint* to incorporate texts with a wider range of reading levels, pointing out that they had a student in their class with comparatively advanced reading skills and asking, "How do [I] attend to him if I don't have leveled readers?"

Other recommended supports included offering trainings that cater directly to the needs of teachers/teaching assistants, including by considering participants' levels of experience, their desired growth areas, their school contexts (e.g., community-based vs. district schools) and their classroom types (e.g., specialized, integrated, and general education). Some interviewees advocated for the addition of a co-teacher in the classroom to help implement significantly differentiated instruction. Finally, interviewees saw benefits in using the same curriculum across all specialized teachers because it fosters more effective collaboration.

Evidence of high-quality teaching practices across study condition

Observations of classroom instruction revealed areas of strength and room for growth that were shared across study conditions

For this study, RFA adapted the CLASS observation tool to observe classroom instruction and assess evidence of high-quality teaching practices thought to be effective for a range of learners, paying particular attention to evidence of differentiation and opportunities for student language use and development. RFA assessed how frequently and in which settings high-quality instructional practices were observed and whether we saw evidence that curricula and PD significantly shaped instructional quality in any setting. Classroom observation data revealed some shared areas of strength and growth across all classrooms, as well as some instructional areas where practice varied from classroom to classroom.

RFA categorized high-quality instructional practices into four groups based on how frequently and in which setting(s) they were observed: 1) in all or nearly all settings, 2) in few or no classrooms, 3) inconsistently, but in at least one classroom per study condition, and 4) concentrated in *Blueprint* classrooms (Table 11). Appendix B provides more details about what was observed in study classrooms in each instructional area, though we discuss key findings related to areas of particular focus during observations around instructional practices related to language development – as many students in the study were identified as having language delays – as well as practices related to differentiation.

Table 11. Overview: Evidence of high-quality practice within instructional areas

HIGH-QUALITY PRACTICE…	INSTRUCTIONAL PRACTICE AREAS	
…Was evident in all/nearly all classrooms across study conditions	Positive classroom climate Student movement Use of a variety of modalities and materials Maximizing learning time	Routines Preparation Effective facilitation Student engagement
…Could have been stronger in all/nearly all classrooms across study conditions	Frequent conversations* Feedback loops* Student expression* Advanced language*	Repetition and extension/elaboration* Clarity of learning objectives
…Not consistently present across classrooms within conditions	Responsiveness to student needs* Scaffolding*	Analysis and reasoning
…Was concentrated in *Blueprint* classrooms	Open-ended questions	

*Areas of particular focus during observations, given the study's focus on specialized classrooms in which many students were identified as having language delays

Despite the room for growth in responsiveness to children's needs, there was evidence that teachers across the three study conditions knew the children in their classes well. There was also evidence from interviews suggesting that teachers may differentiate content in ways that were difficult to gauge or not seen on observation days. Teachers reported differentiating for students by ensuring that IEP goals drove instructional decisions, modeling language use more for certain students, and using "mixed-ability" groups in which peers could support one another. Some of these strategies would have been difficult for an outside observer to observe in a snapshot of data and may have been in use on the days of the observations.

Evaluative evidence of *Blueprint*'s theory of change in specialized settings

The case study data in the first year of *Blueprint* implementation did not generate strong evidence of the study's *Blueprint* theory of change

As described above, there was a good deal of variation in evidence of high-quality practice within instructional areas. **This variation suggested that overall, data gathered on the days of observations did not generate strong evidence of this study's *Blueprint* theory of change.**

If evidence of more consistent high-quality instructional practice and greater student engagement had been observed in *Blueprint* settings, this might have helped to confirm the theory. Contrary to *Blueprint*'s theory of change, observers did not consistently see high-quality instructional practice, high-quality differentiation, nor higher student engagement concentrated in *Blueprint* settings. It was not the case that teachers receiving coaching tended to ask children questions of exemplary quality that invited elaboration and communication of complex ideas. (However, in classrooms using *Blueprint*, observers did see greater variety of question types than in other classrooms).

While we would have expected to hear as much in interviews with teachers given *Blueprint*'s theory of change, teachers did not find *Blueprint* exceptionally easy to use during their first year of implementation, nor did teaching assistants in classrooms using *Blueprint* appear to play a more significant role in curriculum implementation than in other classrooms. Teachers using *Blueprint* tended to indicate that student outcomes this year did not seem very different from those in other years (when they had used other curricula).

To be clear, these findings should be contextualized within some of the factors—for example, that unlike non-*Blueprint* teachers, *Blueprint* teachers were using their curriculum for the first time—and the fact that there was one observation per classroom reflecting a snapshot in time of instructional practice. The findings should not be taken to suggest that the study's *Blueprint* theory of change might not be confirmed in another setting or with another set of data. Moreover, although data did not suggest that *Blueprint* + PD classrooms (or *Blueprint*-only classrooms) featured consistently stronger instructional practices, interviewees did report added value from *Blueprint* coaching, as described below.

When reflecting on *Blueprint* and comparing it to other Pre-K curricula, teachers and administrators praised *Blueprint* in some areas but critiqued it in others

In interviews, teachers and administrators shared their experiences with *Blueprint* compared to previous curricula (typically DIG). The interviews offered a window into important features of the curriculum that were not directly observed by researchers, such as reflections on materials and content, ease of use, and daily lesson preparation. Teachers and administrators had high praise for the read-aloud books provided with *Blueprint*. Most teachers, however, noted that in the first year of implementation, they did not find the curriculum particularly easy to use, and several of them expressed the need for more depth of "letter work" (phonological content) than was offered in the curriculum.

Books. Both teachers and administrators praised the diversity and high quality of the read-aloud books included in *Blueprint*. One teacher explained that seeing diverse, multicultural characters helped their students make connections with the text, and one administrator shared that the books helped students feel represented, particularly when they featured characters with disabilities. Another teacher described the read-alouds as "an integral part of *Blueprint*" because they helped to prepare students for similar read-alouds in kindergarten.

Other materials. One teacher expressed enthusiasm about the hands-on nature of the activities described in the *Blueprint* curriculum. In contrast, another teacher wished that lessons included more out-of-the-box materials and fewer materials that required printing, extra purchases, or teacher preparation time. This teacher continued to supplement *Blueprint* with DIG materials, including puppets and posters with large images, because students found them engaging and they were readily available.

Thematic units. Teachers appreciated *Blueprint*'s thematic units, but more than one teacher expressed a desire for thematic units that coincide with the cadence of the school year, such as holidays and seasons.

Comprehensiveness. While one administrator expressed appreciation that *Blueprint* was comprehensive—spanning content areas beyond literacy—observers did not see lessons that were more comprehensive in *Blueprint* classrooms as compared to other classrooms.

Literacy and numeracy. Multiple interviewees noted gaps in the amount of math and phonology content in *Blueprint*. Teachers requested more letter work than *Blueprint* provided, including a longer and more in-depth focus on a single letter each week. There was agreement among teacher interviewees that one letter per week is an appropriate pace to allow students to thoroughly internalize the letter, and that *Blueprint*'s approach of focusing on multiple letters per week was too fast-paced in a specialized setting.

Ease of Use. Perhaps because it was their first year implementing *Blueprint*, most teachers did not find the curriculum particularly easy to use. (However, one *Blueprint*-only teacher reported finding the manual easy to read and implement). Teachers using *Blueprint* tended to report that implementing a new curriculum is an overwhelming experience and that more time to digest the material upfront would have been helpful. All but one teacher cited the large volume of content included in the curriculum as making the curriculum more challenging to internalize. Many teachers using *Blueprint* emphasized that the large amount of content provided each day meant that they had to pick and choose a small selection of the daily lesson to accommodate their schedules because they could not fit all the instruction into each day. In addition, two teachers found *Blueprint* difficult to adapt to a specialized setting due to its academic rigor; teachers cited the duration of the instructional activities and the focus on higher level thinking to be challenging for many students, and particularly the three-year-old students.

Teachers and administrators emphasized that *Blueprint* coaches added value to classroom instruction and facilitated curriculum implementation

Coaching. While very few differences in instructional practices were observed, administrators from *Blueprint* + PD settings shared that they felt the PD was valuable in Year 1 and would like for PD opportunities and in-person coaching supports to continue in future years. Teachers appreciated that one-to-one coaching provided them with individualized supports, including that coaches created print-outs, visuals, and other materials to accompany *Blueprint* lessons; helped teachers to feel less overwhelmed by the curriculum and understand what to focus on; and supported improving teachers' overall instruction. One administrator described their school's *Blueprint* coach as "extremely helpful," and one teacher described their coach as "absolutely amazing."

Training. Teachers offered mixed impressions of the *Blueprint* trainings. One teacher expressed that the virtual trainings were a valuable space to receive feedback and listen to the perspective of other teachers. Another teacher felt that the trainings were geared towards day care providers and were not appropriately rigorous for experienced pre-K teachers with advanced degrees. Teachers suggested two main shifts to future PD that they believed would improve their experience:

- *Timing:* Teachers felt that the PD would have been more valuable if it could be front-loaded in the summer and beginning of the school year. One interviewee explained that for the trainings that took place near the end of the school year, teachers would likely not be able to implement what they had learned until the following year.

- *Additional Implementation Support:* Teachers felt that trainings only provided a general overview of *Blueprint* and did not support teachers in learning how to implement and adapt the curriculum to the context of their specialized classrooms. In order for trainings to be most effective, teachers suggested gearing them toward curriculum implementation rather than general information about early education best practices.

Non-*Blueprint* teachers in the study reported not participating in curriculum-specific PD during the study year, so no direct comparisons will be made between CLI and other developer trainings and supports. However, non-*Blueprint* administrators and teachers expressed interest in ongoing PD supports on curriculum implementation. They were specifically interested in regular trainings on how to best *use and adapt* specific pieces of their curricula.

Recommended Conditions and Supports

Below is a list of conditions and supports that could facilitate consistent demonstration of high-quality teaching practices and increased comfort with curricula in specialized settings. District staff and other providers of professional learning supports, as well as curriculum developers, may be in positions to advocate for or provide some of these conditions and supports.

In classrooms from all study contexts:

- Significant time for teachers using a new curriculum to explore and learn the curriculum before the school year starts

- Acknowledgement that teachers and schools may need to take a phased approach to implementing newly introduced curricula

- Professional learning supports (e.g., trainings) that are sensitive to classroom contexts and differentiated based on students' and teachers'/teaching assistants' needs. Supports that focus on clarifying how to adapt curricula for specific teaching contexts and how to tailor academic content in responsive ways that might meet children's needs

- Professional learning supports and resources (including staffing supports) that help teachers to differentiate materials and lessons for children, provide additional opportunities for children to practice language use, clarify learning objectives in child friendly language for each activity

Conclusions

In partnership with CLI, Research for Action (RFA) conducted a year-long study of the impact and implementation of CLI's Pre-K Intervention. CLI's intervention aimed to target low- and middle-income children enrolled in state-funded universal public Pre-K settings with their intervention, aiming to invest in resources for children and the programs that serve them who live in historically under-resourced communities. CLI recruited programs enrolling 4- and 5-year-old children receiving state funds through the Voluntary PreK program (VPK), a universal state-funded Pre-K funding stream, one of the nation's largest. When CLI recruited the district to the study, leaders were eager to participate because of their observations over time that, while some teachers' instructional practice thrived with Creative Curriculum, not all teachers were able to implement it with fidelity without significant training and support.

The evaluation was guided by three overarching aims: 1) examine the impact of CLI's intervention on key skills that prepare children for success as they enter formal schooling in Kindergarten ("Impact Study"); 2) Describe thresholds for fidelity of the intervention and document the extent to which CLI met the thresholds in the study ("Implementation Study") and 3) Evaluate the implementation of CLI's intervention in classrooms serving students with disabilities or development delays ("Case Study").

The evaluation showed that implementation of CLI's intervention was a challenge, particularly for meeting thresholds for teacher professional development and site leader professional learning community events. Likely as a result of implementation challenges, the impact study did not show evidence of impact on student outcomes related to phonological awareness or numeracy in sites implementing the *Blueprint* curriculum compared to *Creative Curriculum*. Children in each setting ended the year with skills that were mostly within the range of what was expected given their age.

Interpreting CLI's intervention fidelity and impact must include consideration of the context in which the intervention was implemented, which was delayed in 2020-21 school year due to the COVID-19 pandemic. Implementation took place as communities were opening back up in the 2021-22 school year, but the impact of the pandemic was far from over.

While these findings may be interpreted as lack of evidence for CLI's theory of change, which states that Blueprint should outperform existing curricula, and should do so without the need for extensive professional development due to its "scripted with purpose" design, an alternative perspective is that there is evidence that Blueprint works as well as Creative Curriculum even in its first year of implementation and without significant professional development. More research is needed to understand the experiences of teachers implementing curricula in public Pre-K settings, particularly designs that measure compare the quality of curriculum implementation and cost effectiveness of generating positive student outcomes.

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Appendix A. Impact Study Statistical Model and Model Estimates

Statistical Model Parameters

Level-1(student-level): $Y_{ij} = \beta_{0j} + \beta_{1j}PY_{ij} + e_i$

$$\beta_{1j} = \bar{x}$$

Level-2 (school-level): $\beta_{0j} = \gamma_{00} + \gamma_{01}T_j + \gamma_{02m}BLOCK_m + u_{0j}$

$$\beta_{1j} = \gamma_{11}$$

Combined Model: $Y_{ij} = \gamma_{00} + \gamma_{01}T_j + \gamma_{11}PY_{ij} + \gamma_{02m}BLOCK_m + u_{0j} + e_{ij}$

Equation term	Definition
Y_{ij}	outcome score for student i at school j
PY_{ij}	pre-test score for student i at school j
T_j	treatment status for school j (1 for treatment school and 0 for control school)
$BLOCK_m$	Dummy variables for randomization blocks (district and community-based)
β_{0j}	intercept of level-1 model capturing school-level average outcome score adjusted for average difference in pre-test score
β_{1j}	Association between covariates and outcome
γ_{00}	pre-test adjusted average outcome for control group schools
γ_{01}	estimated treatment impact, representing impact on student outcome of intervention
γ_{02m}	a vector of coefficients capturing the effects of randomization blocks
γ_{11}	estimated effect of pre-test score on outcome
e_{ij}	error term for student i at school j
u_{0j}	error term for school j

Statistical Model Estimates

Table A1. Mixed Effects Maximum Likelihood Regression Model Estimates (Standard Errors)

	Beginning Sound Awareness	Print and Word Awareness	Rhyme Awareness	Numeracy
Treatment, γ_{01}	-01.81 (0.37)	-0.299 (0.43)	-0.243 (0.36)	-0.624 (1.57)
Fall VPK: Math	0.171 (0.03)***	.0136 (0.02)***	0.120 (0.03)***	0.631 (0.14)***
Fall VPK: Oral	0.1278 (0.029)***	0.093 (0.02)***	0.144 (0.03)***	0.716 (0.14)***
Fall VPK: Phonological Awareness	-0.051 (0.037)	0.033 (0.03)	0.086 (0.04)*	0.441 (0.17)*
Fall VPK: Print Knowledge	0.066 (0.032)***	-0.032 (0.02)	0.025 (0.031)	0.051 (0.15)
District-operated center	0.023 (0.46)	-0.513 (0.48)	0.579 (0.45)	-1.282 (2.05)
Constant, γ_{00}	3.424 (0.47)***	3.75 (0.45)***	1.85 (0.46)***	75.607 (2.14)***

Note: *** p<0.001, ** p<0.01, * p<0.05. RFA assessments of children's phonologial awarenessusing the PALS Pre-K tasks and WJ-Applied Problems subtest. Analytic sample includes 612 students across 29 district- and community-based Pre-K programs in Broward County, FL. Statistical models adjust for children's fall VPK scores (math, oral language, phonological awareness, and print knowledge) as well as whether centers were district-operated or community based. Prior to administering assessments, Pre-LAS was administered to assess the English proficiency of students whose home language is not English. Students who did not pass the Pre-LAS were not assessed.

Appendix B. Observations of Classroom Instructional Practices in Specialized Classrooms

Instructional areas in which high-quality practice was evident in all/nearly all classrooms across study conditions

Positive classroom climate

Classrooms across all three study conditions featured warm classroom climates. Observers predominantly saw positive teacher-student interactions and evidence of strong relationships. Teachers tended to approach children with friendly gestures and affect, and they frequently praised children's contributions and accomplishments.

Student movement; Use of a variety of modalities and materials

In nearly every classroom, there were opportunities for children to engage in movement-focused activities (e.g., yoga and dancing). Children across settings were offered opportunities to engage in learning though multiple modalities, including through teachers reading and speaking to them and having opportunities to answer questions; using manipulatives and creating artwork; viewing pictures and videos; and moving their bodies and singing. Despite the use of many modalities, observers did note an area for growth across all three study conditions: during the observation periods, children rarely saw teachers modeling writing for them (an activity emphasized in *Blueprint*) and rarely engaged in writing themselves.

Maximizing learning time; Routines; Preparation

Routines were evident in all classrooms. Children seemed to know what to do, where to go, and even what materials were needed when a new activity was announced. Schedules were also posted or referred to verbally by teachers. Teachers maximized learning time, engaging students in well-paced activities and managing mostly smooth transitions among activities. In most but not all classrooms, materials needed for activities were prepared in advance and ready to go at the start of the activities.

Effective facilitation; Student engagement

There was evidence of effective, engaging facilitation in every classroom. For the most part, teachers were energetic and actively monitoring children's engagement levels. Strategies to promote engagement took many forms (oral cloze, asking questions, frequent circulation, active monitoring).

Across study conditions, children tended to appear engaged in the learning opportunities they were offered. Children typically exhibited evidence of watching and listening to teachers, wanting to share their answers to questions, engaging with hands-on materials, and enjoying activities centered around read-alouds, movement, and singing.

Observers did note a potential area for growth across several classrooms, related to effective facilitation. Teachers used strategies including oral cloze to promote engagement, and they frequently asked questions to the whole class rather than individual children. As a result, certain children consistently answered questions or added their responses in instances of oral cloze, while others did not. There may have been missed opportunities to leverage facilitation strategies that would encourage more children to share their thinking in discussions (e.g., by inviting individual children to respond or offering strategies for nonverbal children to lend their ideas to discussions).

Instructional areas in which practice could have been stronger in all/nearly all classrooms across study conditions

Frequent conversations; Feedback loops; Student expression; Repetition and extension/elaboration

Observation data showed majority teacher-dominated conversations and activities, with missed opportunities for student expression across all three study conditions (although teachers did provide some scaffolds for language use, such as sentence starters for students who appeared to need them more than other students). The missed opportunities were in sharp contrast to teacher and administrator interviews that emphasized the extremely high importance of language use in specialized classrooms.

Feedback loops (back-and-forth exchanges where students receive feedback) were not observed in *Blueprint* + PD classrooms, but were observed to a small extent in *Blueprint*-only and non-*Blueprint* settings. In general, feedback loops were brief, not extended. The repetition and elaboration of students' responses was very limited. In interviews, however, some teachers did speak about catering to student interests and following students' lines of thinking as a means of prompting language practice and development, and administrators suggested that *Blueprint* may encourage teachers to engage in discussion with students, especially during read-alouds.

Advanced language

The team observed some teachers focused on advanced vocabulary, but this practice was largely seen in *Blueprint*-only settings and in one non-*Blueprint* setting. (Advanced vocabulary was largely absent in *Blueprint* + PD settings). Many teachers shared that they prioritize everyday language development, such as expressing needs and understanding directions, over more "academic" language development, such as answering questions during a read-aloud.

Analysis and reasoning

There was evidence of teachers offering children high-quality opportunities for analysis and reasoning in at least one classroom per study condition, although the team did not consistently observe this practice in any study condition. An example of this practice was when a teacher asked children to predict alternate endings to a book, explain why they thought characters acted in certain ways, and provide evidence to support an assertion. In interviews, some teachers described higher-order

thinking to be more engaging for students (than, say, repetition), and one noted that depriving students in specialized settings of opportunities to problem solve was an equity issue, so they made sure to offer such opportunities. However, interviews also revealed some disagreement among teachers about whether high order thinking questions are an effective tool to promote student engagement or are on average too difficult for a Pre-K specialized setting.

In terms of leveraging the curriculum to support providing opportunities for analysis and reasoning, teachers across study conditions reported regularly consulting their curricula to help determine what questions to ask of students. This suggests that higher order thinking questions included in curricula may translate to the classroom setting.

Clarity of learning objectives

Across conditions, while teachers stated the learning objectives of some activities in child-friendly language, there were missed opportunities to make learning objectives clearer (e.g., in read-aloud or center activities); restate them; or connect the learning objectives that different activities had to one another.

Instructional areas in which high-quality practice appeared in at least one classroom per study condition but was not consistently present across classrooms within conditions

Responsiveness to students' needs (differentiation); Scaffolding

Examples of high-quality differentiation appeared in at least one classroom per study condition (e.g., adapted materials in one teacher's small group work).[12] While instances of high-quality differentiation were not consistently observed across the sample, observers did note that teachers most frequently used *visuals* as a tool for differentiation and that there was other evidence of scaffolding and modeling for children (e.g., voicing letter sounds, writing letters in small groups).

Across study conditions, observers noticed some missed opportunities for teachers to scaffold instruction in responsive ways that might meet the unique needs of individual students and groups of students. For example, in more than one class, there were missed opportunities when teachers could have engaged in one-on-one conversations with children during centers to assess and scaffold their learning, as well as missed opportunities to check for understanding during read-alouds and offer support to students who needed it. Once, for example, when a student indicated that they were struggling to correctly identify a day of the week during a lesson, a teacher pursued a strategy that did not successfully help the student answer the question (the teacher leveraged the help of another student who took over the activity without helping); clear evidence of differentiation was largely absent from this teacher's class. In terms of scaffolding, although some teachers offered

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[12] Though these areas are not emphasized in the CLASS tool, the researchers also looked for evidence of cultural and linguistic responsiveness in classrooms. In each study condition, at least two teachers incorporated some Spanish into their instruction, and these linguistic shifts were the clearest evidence of cultural and linguistic responsiveness seen during observations. However, in interviews, individuals from settings using *Blueprint* voiced appreciation for *Blueprint* routines, materials, and books that helped them to affirm students' identities, that incorporated ASL, and that showcased characters of color and characters with disabilities

students hints about answers to questions without providing the answers for them, this practice was not consistent within any of the three study conditions.

Analysis and reasoning

There was evidence of teachers offering children high-quality opportunities for analysis and reasoning in at least one classroom per study condition, although the team did not consistently observe this practice in any study condition. An example of this practice was when a teacher asked children to predict alternate endings to a book, explain why they thought characters acted in certain ways, and provide evidence to support an assertion. In interviews, some teachers described higher-order thinking to be more engaging for students (than, say, repetition), and one noted that depriving students in specialized settings of opportunities to problem solve was an equity issue, so they made sure to offer such opportunities. However, interviews also revealed some disagreement among teachers about whether high order thinking questions are an effective tool to promote student engagement or are on average too difficult for a pre-K specialized setting.

In terms of leveraging the curriculum to support providing opportunities for analysis and reasoning, teachers across study conditions reported regularly consulting their curricula to help determine what questions to ask of students. This suggests that higher order thinking questions included in curricula may translate to the classroom setting.

Instructional areas in which high-quality practice was concentrated in *Blueprint* classrooms

Open-ended questions

Across conditions, teachers asked frequent questions of students, but those questions tended to be closed-ended. However, there appeared to be a pattern of more questioning and more question variety (a mix of close-ended and open-ended) in *Blueprint* classrooms. "Why" questions were more common (though with missed opportunities) in *Blueprint* settings, whereas there was very limited evidence of such questions in non-*Blueprint* settings. One *Blueprint*-only teacher consistently asked "why" and "how" questions throughout the observation (although they were the only teacher to do so).

Across all three study conditions, open-ended questions were primarily confined to read-alouds. This suggests there is an opportunity to integrate more open-ended questions during other parts of the day (e.g., centers).