Strengthening School Readiness through Universal Pre-K: A University-District Partnership

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Background

Public interest and investment in prekindergarten continue to grow in conjunction with the evidence in support of its benefits, resulting in the rapid expansion of publicly-funded pre-K over the last decade. While pre-K, on average, has been linked to positive academic and behavioral child outcomes (Camilli,Vargas, Ryan, & Barnett, 2010; Yoshikawa et al., 2013), there is clear evidence that higher-quality experiences within the pre-K classroom are associated with gains in children's school readiness skills (Barnett, 2011; Burchinal et al., 2008; Keys et al., 2013; Yoshikawa et al., 2013). Teacher professional development and the use of developmentally-appropriate classroom curricula stand as hallmarks of preschool programs that produce the largest improvements in classroom quality and children's school readiness (Hanushek, 2011; Mashburn et al. 2008; Sarama, Lange, Clements, & Wolfe, 2012; Weiland & Yoshikawa, 2013). In order to fulfill the promise of pre-K's long-term impacts, we have to identify implementable ways to ensure high quality at scale through ongoing professional development.

This project leverages the successful partnership that has developed over the past several years between researchers and district leaders in a large, urban district that recently expanded access to pre-K to all four-year-olds and currently serves about 70,000 children per year. Our partnership was initially designed to address relatively straightforward descriptive questions and present information to help city leaders as they rolled out the historic program. It has since evolved to comprise co-development of an increasingly robust research infrastructure for ongoing quality monitoring and rigorous evaluation.

Purpose

This poster reports on an in-progress evaluation of a key component of the district's strategy for supporting program quality in this fully scaled system: differentiated teacher professional development. Specifically, our study uses a rigorous research design (cluster randomized trial) to evaluate the impact of three distinct professional development approaches, each with a clear focus and theory of change, on outcomes for children and programs through direct data collection with children in pre-K and kindergarten, surveys with teachers and other staff, and existing data from the district.

Specifically, we ask:

1) What is the magnitude of the impact of three distinct professional learning approaches ("tracks") on theoretically-aligned domains of school readiness in pre-K and kindergarten?
2) Do these impacts align with impacts on programs and classrooms?
3) To what extent do impacts vary across subgroups of children?

Setting

The current study takes place within a large urban district which currently serves about 70,000 pre-K children in about 1,850 pre-K programs (implemented in both public school and community-based settings). The district serves 1.1 million students from pre-K through 12th grade. The city serves a diverse student population, and over half of its students are from low-income families. This context provides a unique opportunity to examine a pre-K program at scale for a diverse population.

Participants

The sample includes a 180 pre-K sites and 3600 children split across two cohorts participating in 2019-2020 and 2020-2021.

Intervention/Program/Practice

In this district, pre-K sites are assigned to one of four professional learning tracks that differ in area of focus and targeted teacher practice, while also supporting program quality and children's learning more broadly. Our goal is to examine the impacts of three models:

- *Explore* combines an evidence-based math curriculum known as Building Blocks (Clements & Sarama, 2008; Sarama, Clements, Starkey, Klein, & Wakeley, 2008) with interdisciplinary educational units developed by the district to build children's critical thinking, problem solving, and math skills.
- *Thrive* provides resources and training for teachers in instructional and family-level tools with evidence-based strategies for supporting children's social-emotional development, behavioral regulation, and family engagement.
- *Create* is an arts-based approach with the goal of incorporating four art forms (i.e., visual arts, dance, theater, and music) into regular instruction to promote engagement and language through the arts.

These models are tested against a fourth track, called *Teaching Team Learning Communities (TTLC)*, which covers a wide range of topics and has less precise teacher practice targets. This track serves as a "business as usual" control group to which each of the other three models are compared (see Table 1 for a more detailed description of each track).

Research Design

The current study is a cluster randomized controlled trial (cluster RCT) that tests each track relative to a (separate) counterfactual; in effect, this creates three separate sub-samples and

contrasts (i.e., Explore vs. TTLC, Thrive vs. TTLC, Create vs. TTLC). This design is possible because of the way in which the district assigns pre-K sites to professional learning and the fact that three of the tracks (Explore, Thrive, and Create) have a finite number of slots available for pre-K staff because of funding constraints. Briefly, each spring, the district administers a professional learning preference survey in which pre-K site leaders rank order their professional learning choices and respond to additional questions intended to gauge the site's commitment to participate in professional learning as designed. Then, using survey responses and other data, the district determines each site's eligibility and priority for each track (with sites listing the track as choice 1 having the highest priority). A complex algorithm assigns sites to professional learning in order of priority. If demand (within a priority group) exceeds capacity, sites are randomly assigned to the track in question (or not) based on a random number.

Data Collection and Analysis

Our study uses a multi-method measurement approach to evaluate impacts of professional learning on children and programs across a range of domains. We are collecting data through direct child assessments and teacher report, and merging in existing DOE data (see Figure 1).

Findings/Results

The information this study will provide is critical to the city's efforts to embed ongoing evaluation and quality improvement within their system, providing the kind of information needed to determine if the system is working most effectively to meet the needs of young children. Our goal is to produce new knowledge that informs future implementation of pre-K programming at scale, in the "real world."

Table 1. Track Information 2019-2020

	Explore	Thrive	Create	Teaching Team Learning Communities (TTLC; previously Inspire)
Description	Combines an evidence-based math curriculum with the DOE's Interdisciplinary Units of Study to support children's critical thinking, problem solving, and math skills	Supports staff in using evidence-based practices to strengthen family engagement, classroom management, and children's social-emotional development	Provides staff with materials and strategies for incorporating visual arts, dance, theater, and music into ongoing instruction to promote children's engagement	Provides staff with best practices grounded in the Early Childhood Framework for Quality (EFQ; previously the Program Quality Standards)
# Years in Series	2 Years (Year 2 builds on foundation of Year 1)	1 Year	2 Years (each year focuses on 2 art forms, sites rotate in different sequences)	1 Year
Series-Specific PL (for 2019-2020)	- 4 in-person off-site PL sessions - 2-day summer institute before the 1st year	- 4 in-person off-site PL sessions	- 4 in-person off-site PL sessions	- 3 in-person off-site PL sessions (one of which is a site intervisitation) - 1 on-site PL session
Series-Specific On-Site Support	- Explore-trained Instructional Coordinators provide weekly on-site coaching on Building Blocks curriculum and integration with DOE Interdisciplinary Units of Study	- Social Workers are trained in Thrive content and some facilitate Thrive PL sessions - Most Pre-K for All sites have a Social Worker, but they are not required to align support to Thrive PL content	- Teaching artists support arts integration in classrooms through residencies that involve 4 visits per semester (i.e., approx. monthly visits)	- Instructional Coordinators are trained in the EFQ and facilitate TTLC PL sessions - All Pre-K for All sites have an Instructional Coordinator, but they are not required to align support to TTLC PL content
General On-Site Support	- Explore Instructional Coordinators serve as the site's Instructional Coordinator and provide general support - Most sites also have a Social Worker (frequency of visit differentiated by need)	- All sites have an Instructional Coordinator (frequency of visit differentiated by need) - Most sites also have a Social Worker (also differentiated by need)	- All sites have an Instructional Coordinator (frequency of visit differentiated by need) - Most sites also have a Social Worker (also differentiated by need)	- All sites have an Instructional Coordinator (frequency of visit differentiated by need) - Most sites also have a Social Worker (also differentiated by need)
Series-Specific Classroom Expectations	- Implement Building Blocks math curriculum - Implement DOE Units of Study	- Use evidence-based family engagement and behavior management practices - Teachers have access to (optional) DOE Units of Study	- Incorporate arts practices into everyday instruction - Teachers have access to (optional) DOE Units of Study and PL highlights ways to embed arts in Units	- Use best practices aligned to EFQ - Teachers have access to (optional) DOE Units of Study

Figure 1. Measures at Different Stages of the Logic Model

Professional Learning + Coaching

Changes in Teacher Practice and Quality

Improvements in Children's Learning

Existing DOE data
Track & support assignment
PL attendance
On-site support visits completed

Teacher surveys
Perceptions of PL
Perceptions of on-site support

Support staff surveys
Training they receive
Support they provide teachers

Existing DOE data
CLASS (+ A-TSRS)
ECERS-R

Teacher surveys
Classroom practices
Outreach to families

Child direct assessments
Language
Literacy
Math
Executive functioning
Emotion understanding
Behavior regulation