Exploring the Relationship between Oregon's Prenatal-Grade 3 Initiatives and Children's Kindergarten Readiness

Findings from the 2015-2017 Kindergarten Readiness Partnership & Innovation Evaluation

Prepared By:

Beth L. Green, Ph.D.
Lindsey Patterson, Ph.D.
Mackenzie Burton, MSW
Diane Reid, MSW, MPH.
Callie Lambarth, MSW
Center for Improvement of Child and Family Services
Portland State University

Table of Contents

Introduction & Background 3

Methodology 5

Data Sources 5

Sample 9

Results 10

RQ 1: What is the level of implementation of P3 activities at the school-level? 10

RQ 2: Are P3 funds being invested in schools that are characterized by larger populations of children at risk for more negative school outcomes? 18

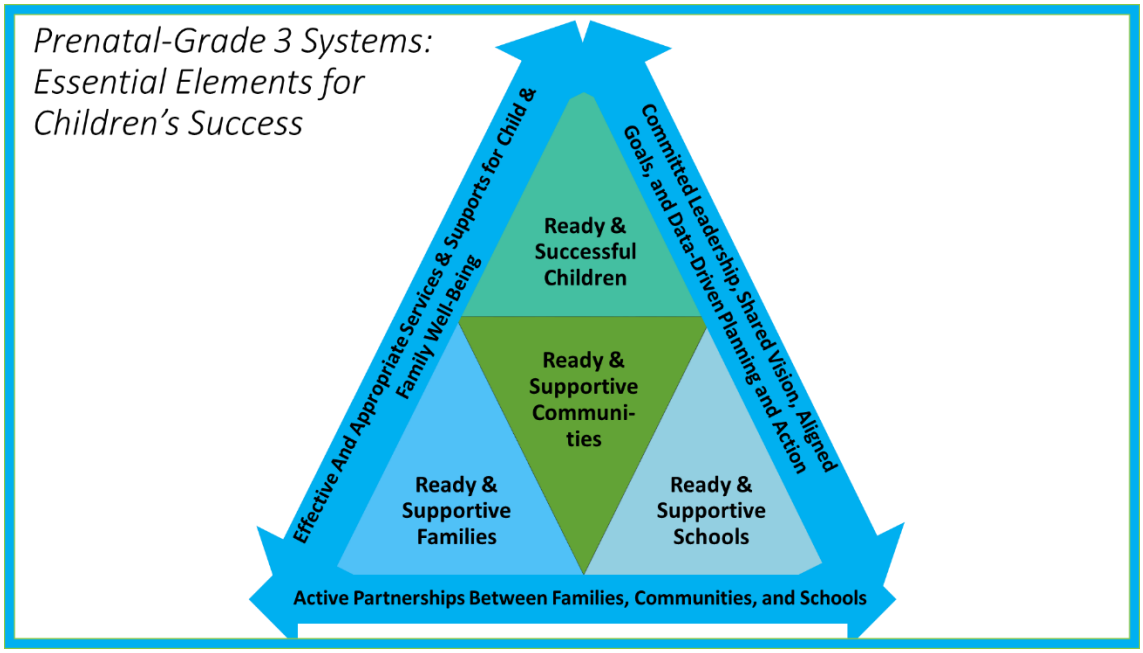
RQ 3: Do OKA scores differ between P3 funded elementary schools and matched comparison elementary schools in Oregon? 21

RQ 4: To what extent does P3 program implementation frequency, content and dosage relate to OKA scores? 26

Conclusions, Limitations, & Next Steps 33

Introduction & Background

Oregon's Kindergarten Readiness and Partnership Innovation Fund (KRPI) was first authorized in 2014 as a means to support innovative, community-driven work to improve children's school readiness and school success and to reduce achievement gaps for the state's most vulnerable children. KRPI uses a framework for improving these outcomes known as the Prenatal-to-Grade 3 (P3) approach (see below). The P3 approach is based on the assumption that individual interventions or programs, no matter how effective, are necessary but not sufficient to create sustained improvements in children's school success. Instead, the P3 approach seeks to build a system of aligned, coordinated supports, that include the family as a key partner, from birth through third grade (and ultimately, beyond). Third grade is seen as a key benchmark based on the considerable research that children who are meeting academic standards for reading and mathematics in third grade are much more likely to be successful in school and to graduate from high school[1].



To achieve these goals, the Oregon Early Learning Division (ELD) provides funds to the state's 16 Early Learning Hubs ("Hubs"), which are given considerable local flexibility to implement innovative approaches (often blending and braiding other funding sources) in one or more of the following areas:

[1] Ensminger, M. E., & Slusarcick, A. L. (1992). Paths to high school graduation or dropout: A longitudinal study of a first-grade cohort. *Sociology of education*, 95-113.

- **Supporting kindergarten readiness** skills and smooth transitions to kindergarten;
- **Increasing family engagement** in children's learning and connecting families and schools as well as families with each other;
- **Providing professional development** to early learning and/or elementary school professionals to improve knowledge and skills; and/or
- **Increasing alignment, connection, and collaboration** in the prenatal to Grade 3 (P3) system.

Portland State University's Center for Improvement of Child and Family Services (PSU) has been partnering with the ELD since the start of the KRPI initiative to provide evaluation and data support, with a focus on documenting and describing the types of innovations delivered, early (short-term) program outcomes, and lessons learned. In 2017, a new component of the evaluation was added to begin to explore and document long-term effects of KRPI and other investments in local P3 systems. The current evaluation includes several components:

- **Implementation & Short Term Outcomes**: Tracking participation and outcomes of multi-session or ongoing (i.e., 3 or more sessions) Family Engagement, Kindergarten Transition, and Professional Development activities with both early learning and K-3 staff implemented with KRPI funds;
- **Case Studies:** Focused, mixed-method evaluations of identified "promising innovations" designed to describe implementation strengths and challenges as well as lessons learned for a small number of local "promising practices."
- **The P3 Implementation & Outcomes Data System**: An emergent system designed to explore longer-term, population-level influences of KRPI and related P3 work on children's school readiness indicators as measured through the Oregon Kindergarten Assessment (OKA).

Reports summarizing outcomes from Components 1 and 2 are provided elsewhere[2]. This report presents the methods used to develop the latter evaluation component, the Long Term Outcomes Tracking Data System, and initial exploratory findings related to four key research questions:

- **Research Question 1:** What is the level of implementation of P3 activities at the school level?
    - What are the number, type, and frequency of P3 related activities being implemented?

[2] See website for Center for Improvement of Child & Family Services: https://www.pdx.edu/ccf/current-research-projects-0#currentearlychildhood

- **Research Question 2:** Are P3 funds being invested in schools that are characterized by larger populations of children at risk for more negative school outcomes?
- **Research Question 3:** Do children's kindergarten assessment scores (as measured by the Oregon Kindergarten Assessment, "OKA") differ between P3 funded elementary schools and a matched group of comparison elementary schools not receiving P3 funds?
- **Research Question 4:** To what extent does P3 program implementation frequency, content and dosage relate to OKA scores? That is, do children in schools implementing more P3-related activities enter school with higher OKA scores?

It is important to note that evaluation work done this year to develop and analyze the P3 Implementation & Outcomes Data System is meant to provide a foundation or building block for ongoing examination of the effectiveness of the KRPI and other P3 initiatives. Strengthening and building effective community-based P3 systems takes time, and efforts in Oregon are in their very early phases. Thus, this report focuses on how existing data were able to be used, where there are trends and patterns that suggest that P3 work is starting to change outcomes for children, and what programmatic and data-related changes may be important to understanding outcomes moving forward.

Methodology

To develop the P3 Implementation & Outcomes Data System the PSU research team identified and linked a variety of existing data sources, including de-identified, child-level Oregon Kindergarten Assessment scores and demographic data, school-level demographic characteristics and average OKA scores from previous years (2013 through 2015), and indicators of P3 program implementation within identified, P3-funded elementary schools across the state. An elementary school was identified as a "P3 school" if the school was implementing activities funded not only by the KRPI, but also if funded by other ongoing P3 efforts, specifically: (1) the Oregon Community Foundation's P3 Initiative, which funded P3 work in 10 school districts across the state; and (2) the Early Works Initiative, led by the Children's Institute in partnership with the Ford Family Foundation.

Data Sources

Oregon Kindergarten Assessment Data & Demographics

The Oregon Department of Education provided the P3 evaluation team at Portland State University with de-identified, child-level Oregon Kindergarten Assessment data as well as child-level demographic data from the 2013 through 2016 school years. Table 1 highlights child-level data available for each school year.

Table 1. Child-level data by school year received from ODE.

	2013-14	2014-15	2015-16	2016-17
School	X	X	X	X
School District	X	X	X	X
Demographic Information				
Child race/ethnicity	X	X	X	X
Child gender	X	X	X	X
Enrolled in Special Education (yes/no)	X	X	X	
Qualify for free or reduced meals (yes/no)	X	X	X	
Dual Language Learner (yes/no)	X	X	X	
Early Literacy[3]				
EasyCBM Uppercase Letter Names	X	X	X	X
EasyCBM Lowercase Letter Names	X	X	X	X
EasyCBM Letter Sounds	X	X	X	X
Early Numeracy				
EasyCBM Numbers & Operations	X	X	X	X
Approaches to Learning[4]				
Self-regulation	X	X	X	X
Interpersonal skills	X	X	X	X

P3 Implementation Data

Three primary sources of information were used to identify and quantify P3 activities occurring at specific elementary schools. First, we conducted in-depth interviews with P3 Coordinators, KRPI Project Coordinators/Managers, and other Early Learning Hub representatives in each Hub or funded school district. Second, we used data collected and reported by Hubs to monitor and report on P3 activities funded through the KRPI, and through progress reports provided to the Oregon Community Foundation. Third, we created indicators of family participation (numbers of families) in ongoing, multi-session activities designed to improve kindergarten readiness or family engagement was compiled from outcome surveys developed as part of the KRPI evaluation. Participation (number of staff) in ongoing, multi-session, cross-system (Early Learning-K12) professional development activities (PD) was also compiled from interviews and

[3] EasyCBM Letter Names scores for 2013-2015 school years were a single score, as opposed to both upper and lower case scores as in 2016. Using ODE's conversion guide, upper and lowercase letter names scores for these school years were calculated to match test administration in 2016.

[4] For the purposes of these analyses, only the total Approaches to Learning score was utilized. It may be of interest to explore in more detail sub-scale scores (i.e., Self-Regulation, Interpersonal Skills); however, in an initial review of the results, there were no differences between results using the total scale score (i.e., Approaches to Learning) and the two sub-scale scores.

other information from P3 coordinators, KRPI Project Coordinators, and/or other Hub staff[5]. From these various sources, the PSU evaluation team created a database that detailed FE/KT, PD, and other P3 related activities by school. Program implementation database was included for each ongoing (i.e., 3 or more sessions) FE/KT program offered at the school. In order to describe P3 efforts more generally across each school, program information related to FE/KT activities was collapsed. This information included school-level descriptors for FE/KT programming related to both the dosage (e.g., number of sessions/hours offered) as well as the content of the activities (e.g., type of programming, who was involved in programming). Specific information related to dosage of P3 FE/KT programming in each school included:

- The number of ongoing, multi-session workshops or programs being offered to improve kindergarten transition/readiness or family engagement (KT/FE);
- Whether or not workshops or programs were offered to support professional development (PD) related to P3;
- The estimated number of participants in these activities;
- The number of other P3-related activities (e.g., one-time events, conferences, or activities, e.g., Dr. Seuss Night; book giveaways, etc.).

Because the focus of the P3 Implementation & Outcomes Data System was to understand the association of P3 activities with children's kindergarten readiness skills (OKA scores), we also collected additional information through the in-depth interviews about the nature or content of programs being implemented with the direct intention of improving these outcomes, which we termed "family engagement or kindergarten transition" (FE/KT) programs. For each ongoing, multi-session family engagement or kindergarten transition program being offered, we examined information related to content of programming, including:

- Whether or not the P3 program was structured (i.e., used a curriculum);
- Whether or not the program was specific to kindergarten transitions;
- Whether or not the program included a parents/caregivers;
- Whether or not the program included children;
- Whether or not programming was facilitated by or involved school staff;
- Whether or not the program was implemented across the school-district as a whole;
- The number of program sessions offered;
- Number of hours per session;
- Number of years the program had been implemented.

[5] However, because these participation variables were not directly linked to activities that happened at the focus elementary schools, we did not use these in this year's analysis. Future data collection that can provide more accurate data related to the number and/or percentage of incoming kindergarten students or related staff that participate in P3 activities will be a goal for the 2017-19 biennium.

Finally, programs were rated in terms of the level of evidence for effectiveness using a review of the evidence base for Family Engagement and Kindergarten Transition programs (the High Impact Strategies[6] guides). Each ongoing, multi-session FE/KT activity was given a rating of 0 (not based on any research); 1 (some preliminary or less rigorous evidence); or 2 (strong, more rigorous research evidence).

Identification of Comparison Schools

One question for the current project was whether OKA scores for P3-implementing schools might differ compared to similar schools not receiving these sources of P3 funding[7]. To do this, a set of matched comparison schools was identified using a list generated by Oregon Department of Education (ODE)[8] that provides possible matched comparison schools for each elementary school in Oregon. ODE utilized four demographic variables to calculate school matches: (1) the percentage of students economically disadvantaged; (2) the percentage of students identified as (ever) English Language Learners (ELL); (3) the percentage of students identified as a member of an underserved racial/ethnic group (i.e., all students of color with the exception of students from Asian backgrounds); and (4) the percentage of students identified as mobile during the school year. Within ODE's comparison school list, each P3 elementary school had approximately 5 to 10 matches of varying quality (measured by reported Euclidean Distance estimates; for more detail see the website for Oregon Department of Education). To identify the best possible match for each P3 school, the PSU team used the following steps:

1. Elementary schools conducting P3 work were identified within ODE's list (P3 schools);
2. The first school match (i.e., school with the smallest Euclidean distance, and therefore the closest possible match) was identified as a match school;
3. In cases where the first school match was the same for more than one P3 school, the non-P3 comparison school served as the match for both P3 schools (e.g., two P3 schools were matched with the same comparison school).
4. All charter schools were excluded as matched schools; in cases where a charter school was the best match, the second best matched school was selected. However, for three P3 schools, the second best match was considerably worse (i.e., the Euclidean distance was further than the best match), and for these three schools, the charter school was selected as the best match.

[6] The High Impact Strategies guides can be found the Portland State University Center for Improvement of Child & Family Services website, here: https://www.pdx.edu/ccf/current-research-projects-0#currentearlychildhood

[7] It is important to note that these comparison schools may be implementing P3-related activities funded through other sources. At this time, it is only possible to identify and measure P3 activities related to the funding sources included in this report.

[8] http://www.oregon.gov/ode/schools-and-districts/reportcards/reportcards/Pages/Report-Card-Tools.aspx

Additionally, there were 32 P3 sites that did not have any comparison schools within ODE's list. Most of these schools (e.g., Pendleton Early Learning Center, Head Start programs) were not elementary schools; these programs were excluded from the final analyses of P3 funded schools.

In total, there were 148 comparison elementary schools identified for 233 P3 elementary schools.

Data Structure

Demographic characteristics at the school-level were represented by taking a three-year average of data from 2013 through 2015. School-level demographics were used for those characteristics not available at the child-level (namely, percent enrolled in special education services, percent who qualified for free and reduced meals (i.e., economically disadvantaged), and percent dual language learners during the 2013 through 2015 school years). Mean school-level OKA scores were calculated across the 2013-2015 school years as well. These variables served as school-level control variables in the final analyses.

Child-level variables included the outcomes of interest (i.e., 2016 OKA scores) as well as the two child-level demographic variables available to the research team at the time of analysis, specifically gender and race/ethnicity.

Sample

Data were obtained for a total of 860 elementary schools or early learning programs across the state. Child-level OKA and demographic data were obtained from Oregon Department of Education for 781 elementary schools. P3 program implementation data was collected for 244 Early Works, Kindergarten Readiness Partnership and Innovation, and Oregon Community Foundation funded schools and programs across the state, including programs offered at early learning centers (e.g., Head Starts) or other community-based settings. However, only elementary schools were included in the final analyses because this project specifically sought to connect incoming kindergarten OKA scores with programming most likely to impact children and families at each school. Additionally, only elementary schools where **known** ongoing FE/KT, ongoing P3 PD, or other P3 activities were implemented were identified as P3 schools; schools where P3 programming may have been implemented but where PSU did not have any information on program implementation were excluded from the list of P3 schools. With this exclusion criteria in place, 233 Early Works, Kindergarten Readiness Partnership and Innovation, and Oregon Community Foundation P3 funded elementary schools were included in the final sample.

Additionally, using the matching procedure described above, 148 of the 781 elementary schools were used as comparison schools. To examine the quality of the matching process, we compared baseline demographic characteristics between the P3 schools and the identified matched comparisons. Chi-square tests and t-tests were used to compare demographic characteristics of P3 funded elementary schools and comparison elementary schools; results are detailed in Appendix C. Overall, there were few significant differences, indicating schools were relatively well matched. First, compared to the matched comparison schools, P3 funded elementary schools had significantly **more** kindergartners from African American/Black heritage and were somewhat (marginally significant) more likely to have more Latino kindergartners. Second, P3 elementary schools more likely to be located in a town versus an urban setting compared to the matched comparison schools. Because of these few, albeit small, differences in baseline school demographics, these characteristics were included in final models as statistical controls.

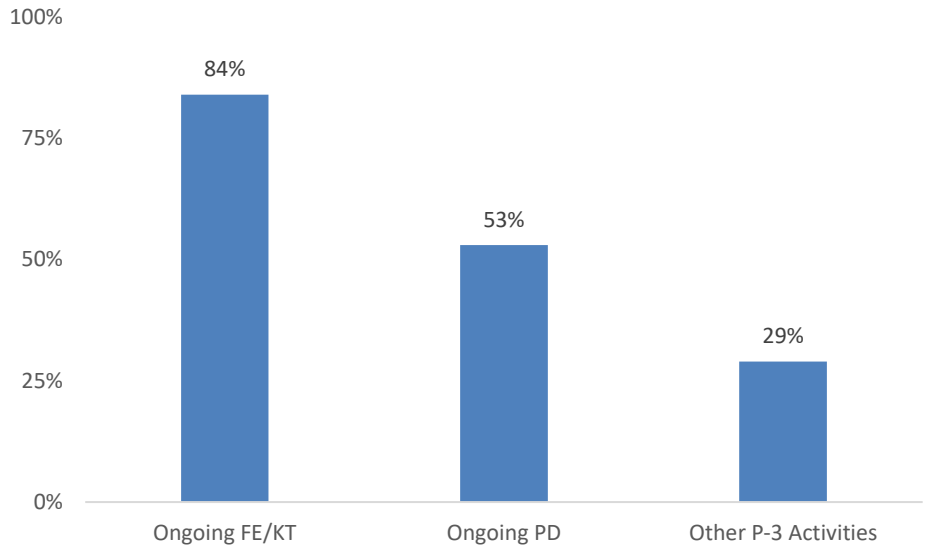
Results

RQ 1: What is the level of implementation of P3 activities at the school-level?

RQ 1a: How many P3 activities have been implemented within elementary schools across the state?

233 elementary schools implemented at least one P3 activity last year. These activities were categorized into three primary topic areas: (1) ongoing family engagement/kindergarten transition (FE/KT) activities; (2) P3 related professional development (PD); and (3) other P3 activities (e.g., P3 work groups, one-time family engagement or kindergarten readiness events). As seen in Figure 1 below, the most common type of P3 activity implemented across the state was ongoing FE/KT programs, with 84% of P3 elementary schools implementing at least one ongoing FE/KT program. While about half (53%) of P3 funded schools implemented some form of P3 related PD, less than one-third (29%) of schools reported implementing other P3 activities.

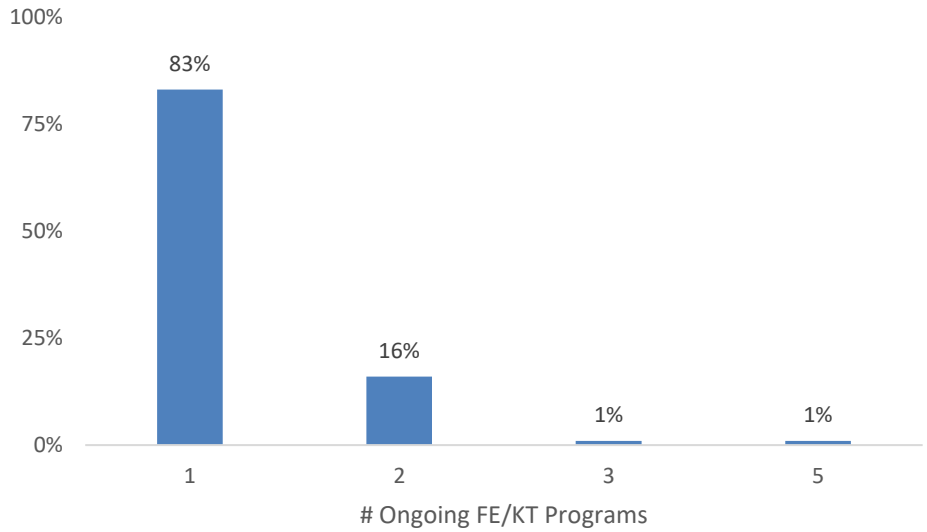
Figure 1. Percent of 233 P3 funded elementary schools with different types of P3 activities.



Looking across the three categories of P3 activities (ongoing FE/KT, professional development, and "other" P3 activities) schools varied in the number of P3-related activities they implemented, although the majority of schools implemented only 1 program or activity (134 schools, 55%). 40 schools were implementing two P3-activities (17%), 20 (8%) were implementing three activities, 29 were implementing four (12%), and 19 schools (8%) were implementing more than four activities.

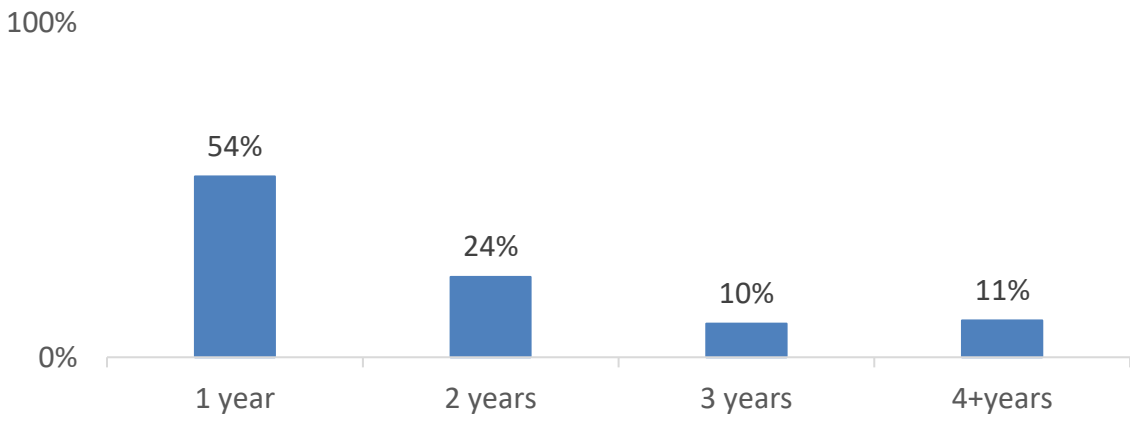
As shown in Figure 2 below, of the 194 P3 funded elementary schools implementing ongoing FE/KT, the large majority of schools (83%) implemented one ongoing FE/KT program for young children and/or their parents/caregivers. Only three total (2%) P3 elementary schools offered three or more ongoing FE/KT program.

Figure 2. Number of ongoing FE/KT programs: Percent of 194 P3 funded elementary schools with one or more ongoing FE/KE program.



As seen in Figure 3, most schools have only recently begun to implement ongoing FE/KT programs. Of the 194 ongoing FE/KT programs, 54% were implemented for only one year; another 24% were in place for two years, and one in five (21%) were implemented for 3 years or more.

Figure 3. Number of years of implementation of ongoing FE/KT programs.



RQ1b. What types of P3 activities have been implemented across the state?

Family Engagement/Kindergarten Transition Activities

One-hundred and ninety-four (194) P3 funded elementary schools implemented a wide variety of ongoing FE/KT programs last year. Table 2 highlights the reported types of FE/KT series implemented across P3 funded schools.

Table 2. Frequency of ongoing FE/KT program implementation in P3 elementary schools across Oregon.

FE/KT Series	# implemented in elementaries across Oregon	Evidence rating (0-2)*
Ready for Kindergarten Workshops	48	2
KITS	30	2
Kinder Camps	24	0
Play and Learn/ Play to Learn/ Other Play Groups	20	0
4 Parent Engagement Sessions	12	0
Early Kinder Transition	11	0
Kinder Readiness Workshops	11	0
Summer School	10	0
Jump Start	8	0
Kinder Home Visits	8	0
Abriendo Puertas	6	0
General Family Engagement Series	4	0
Splash	4	1
Triple P Parenting Class	4	2
LIFT	3	2
Make Parenting a Pleasure	3	2
Nurturing Parenting	3	2
After school literacy	2	0
Preschool as an Explicit P-3 Program	2	1-2
Every Child Ready to Read Workshop	2	1
Juntos Aprendemos	2	1
Preschool Pilot Series	2	0
Ready for K Play Days	2	0
August Academy	1	0
Brain Builders Workshop	1	0
Community Ambassadors	1	0
Incredible Years	1	0
Kinder Academy	1	0
Kinder Smart Start	1	0
Kindergarten Family Engagement	1	0
Monthly Parent Engagement Sessions	1	1

FE/KT Series	# implemented in elementaries across Oregon	Evidence rating (0-2)*
Parents United Group	1	0
PreK Home Visits	1	0
Ready Set Learn	1	0
Sharing the Love in the Family	1	2
Kindergarten Spaghetti Feed	1	0

**Ratings based on a review of on-line and published literature. Programs rated 0 had no available data related to program outcomes/effectiveness; programs rated 1 had at least one study including quasi-experimental data (e.g., pre-post, non-randomized comparison groups) suggesting positive outcomes; programs rated 2 had at least one randomized study suggesting positive outcomes for parents or children.*

While a variety of different kinds of programming was offered, the large majority (80%) of ongoing FE/KT programs were specific to the transition to kindergarten. At some schools, up to two ongoing kindergarten transition specific activities were offered. Within these ongoing programs for children and their families, 79% included a program component aimed at providing information or programming to the parent/caregiver (e.g., Ready for Kindergarten Workshops) while 59% of FE/KT programs offered a component specifically for the child or student (e.g., "summer school"). Some programs included both parent/caregiver and child components, including KITS, Play and Learn groups, and Early Kinder Transitions among other programs. Forty-one percent (41%) offered ongoing FE/KT programming that included components of programming for both the parent/caregiver and the child. In about half of the P3 funded elementary schools (53%), staff at the school were involved in facilitating or implementing programming for children and/or their families. Only 39 schools (17%) offered ongoing FE/KT programming that included all 3 of these stakeholders (i.e., parents/caregivers, children, and school/early learning staff). About half (51%) of the programs offered across the state were implemented across their school district, broadening the reach of the FE/KT programs. Table 3 below describes characteristics of ongoing KT/FE activities for all P3 funded elementary schools.

Table 3. Descriptive statistics for ongoing FE/KT P3 programming per school.

Ongoing Kinder Transition/ Family Engagement	N	%	Min # Programs	Max # Programs	Mean # Programs per School
w/ Parent component	194	79%	0	4	0.88
w/ Student component	194	59%	0	3	0.63
w/ Staff component	194	53%	0	4	0.59
Kindergarten transition Focus	194	80%	0	2	0.90
School-District Wide	194	51%	0	2	0.55

P3 Professional Development

While Early Learning Hubs across the state administer outcomes surveys to early learning and K-3 professionals participating in professional development opportunities, the information available to PSU does not include specific information about the types or intensity of professional development opportunities for staff at each school. More information around P3 specific professional development opportunities is needed in order to more accurately describe the types and intensity of PD programming in Oregon as well as the extent to which these opportunities include both early learning and K-3 professionals. Data currently available for analysis in this work is information related to whether or not P3 schools implemented some type of ongoing (i.e., 3 or more sessions) professional development opportunities related to P3.

Other P3 Activities

Other than the total number of other P3 activities per school, Early Works sites, Early Learning Hubs, and Oregon Community foundation grantees were not asked to report detailed information related to other P3 activities implemented at elementary schools in their region of the state. While many of these events, such as one-time family fun nights at the school, may play a role in creating more welcoming school environments and as "first steps" towards providing information and support to families, research suggests that low-intensity, low-dosage events are not likely to substantially influence behaviors that might lead to improved school readiness. Therefore, decisions were made by the P3 initiative funders to not collect detailed information about these one-time events. Thus, for this study, there is little available information about these other P3 activities. That said, descriptive data collected by the KRPI project suggests that over time the frequency of ongoing, multi-session activities has increased while the relative emphasis on these less intensive one-time events has decreased. Some Early

Learning Hubs did provided some information about these activities during in-depth interviews with the PSU staff, with the majority reporting some type of one-time FE/KT program (such as "Dr. Seuss" or "Math & Game" night).

RQ1c. How many FE/KT programs are structured and/or evidence-informed?

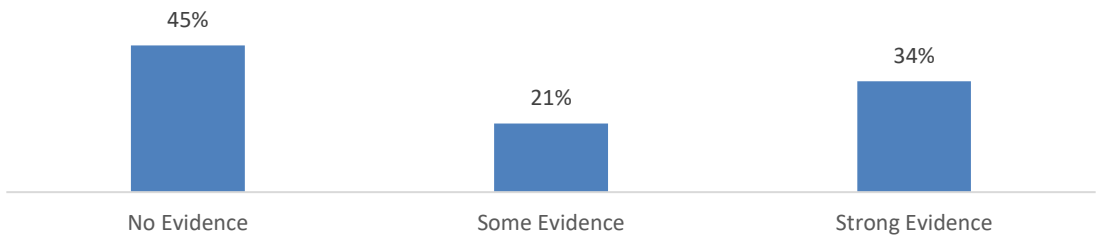
Within the 194 Oregon elementary schools implementing a FE/KT series, 62% of FE/KT programs utilized some structured curriculum. Some curricula were developed by researchers and/or early childhood experts (e.g., Kids in Transition to Schools Program, Ready for Kindergarten Workshops, Early Kindergarten Transition Program, Ready Set Learn, Abriendo Puertas). Other curricula were developed by early learning experts and partners in local communities and tailored to meet the needs of children and families in their region (e.g., Kinder Camps, Play to Learn groups, August Academy, Brain Builders Workshop, Kinder Academy). Up to three curriculum-based programs were offered in any one elementary school, and the average number of structured programs per school was less than one (mean = 0.66). Refer to Table 2 for details on structured curriculum used in FE/KT programs in P3 funded elementary schools.

Each program within P3 funded schools was given a rating based on the extent to which it was informed by research evidence. Ratings ranged from 0 (no to very little evidence) to 2 (fully evidence-based). Ratings across programs within elementary schools were averaged, giving the school a single evidence-informed score for all FE/KT programs. Of the 194 elementary schools implementing an FE/KT series, 45% of schools received a rating of 0, suggesting that their FE/KT program was based on very little research evidence. As seen in Table 4, the average evidence rating across elementary schools was 0.84, but there was much variability in evidence ratings across schools (standard deviation = 0.89). As shown in Figure 4, only 55% of ongoing FE/KT programs were evidence-informed or evidence based.

Table 4. Descriptive information: structure and research evidence of ongoing FE/KT P3 programming per school.

Ongoing Kinder Transition/ Family Engagement	N	%	Min # Programs	Max # Programs	Mean # Programs/ Mean Rating	Std. Deviation of Programs/ Ratings
w/ structured curriculum	194	62%	0	3	0.66	0.57
mean evidence rating across program (rating 0-2)	194	NA	NA	NA	0.84	0.89

Figure 4. Percent of Ongoing FE/KT activities that are evidence based or evidence informed.



RQ1d. What is the estimated level of intensity or dosage of P3 activities?

In addition to the total number of ongoing FE/KT within schools, dosage or intensity of ongoing FE/KT programming in P3 funded schools was assessed through the following:

- Total number of FE/KT program sessions offered;
- Total number of FE/KT program hours offered;
- Maximum number of years FE/KT programs have been offered;
- Total number FE/KT programs implemented school district-wide.

The number of program sessions, hours, years of implementation, and programs implemented across the school district were averaged across all ongoing FE/KT programs (up to 5) within each P3 funded elementary school. Table 5 below details intensity or dosage across programs in the P3 elementary schools offering FE/KT series with data on these variables. Data on intensity/dosage was obtained for a total of 146 to 154 P3 elementary schools, depending on the indicator of dosage. The total number of sessions and total number of hours of FE/KT programming across all programs offered at the school (up to 5 programs) varied greatly. The

number of sessions ranged from 3 to 276, while the number of hours ranged from 5 to 843. One school offered up to 276 FE/KT sessions across a number of programs, but the average number of sessions offered across programs within elementary schools was about 17. Similarly, up to 843 hours of programming were provided in one P3 elementary school; however, the average was about 39 total hours. The average length of time for program implementation across P3 funded elementary schools was a little less than 2 years and ranged from 1 to 6 years of implementation.

Table 5. Descriptives on intensity/dosage of ongoing FE/KT P3 programming per school.

	N	Min	Max	Mean	Std. Deviation
Total # sessions	154	3	276	16.79	25.73
Total # hours	146	5	843	38.66	75.82
Maximum # years of implementation	153	1	6	1.95	1.27
Total programs implemented district-wide	194	0	2	0.55	0.56

RQ 2: Do P3 and other Oregon elementary schools have different school outcomes based on child risk factors or program dosage/content?

RQ 2a. Are P3 funds invested in schools with larger populations of children at risk for more negative school readiness outcomes?

To address this question, we first compared the demographic characteristics for the implementing P3 schools to the remaining non-P3 schools in Oregon (n = 557). T-tests were used to compare the following school level demographics characteristics for these two groups of schools.

- Percentage of kindergartners who are economically disadvantaged (i.e., eligible for free or reduced school meals);
- Percentage of kindergartners who are identified as eligible to receive special education services;
- Percentage of kindergartners who are dual language learners;
- Percentage of kindergartners from different racial/ethnic backgrounds.

Results of these comparisons are summarized in Table 6 below. As can be seen, compared to schools not implementing P3-funded activities, P3 funded schools were significantly more likely to have a larger percentage economically disadvantaged students, English Language Learners, and Hispanic/Latino children. The largest difference highlighted the focus of P3 funding to schools with a greater percentage of children who are eligible for Free and Reduce Meals, with

P3 schools on average having 10% more economically disadvantaged students compared to non-P3 schools. There were between 7-8% more students at P3 funded schools who were English Language Learners and/or of Latino descent. Small but statistically significant differences also indicated the P3 schools had somewhat smaller proportions of students with special needs, and who have Asian, African American, and White racial/ethnic backgrounds.

Table 6. Comparison of demographic composition of P3 vs. all Oregon non-P3 schools.

School Demographics	P3 Implementing School (n=229)	Non P3 School (n=557)	Statistically Significant Difference?
Average % Economically Disadvantaged	55.7%*	45.7%	P3 > non P3
% Special Education	10.1%	12.7%*	P3 < non P3
% English Language Learners	17.5%*	10.8%	P3 > non P3
% Hispanic/Latino students	25.8%*	17.2%	P3 > non P3
% White/Caucasian	63.1%	70.1%*	P3 > non P3
% Asian	2.2%	3.1%*	P3 < non P3
% African American	1.6%	2.3%*	P3 < non P3
% Native American/Alaska Native	1.6%	1.5%	No difference
% Hawaiian/Pacific Islander0	0.7%	0.6%	No difference

**indicates a statistically significant difference, (p<.05) between P3 and non-P3 schools.*

RQ 2b. Are the types and dosage of P3 activities related to school characteristics?

Using the more detailed information about types and frequency of P3 activities, we then explored whether there were ***more*** P3 activities in schools characterized by higher economic and social risk. Specifically, we conducted correlations (Appendix A) and ANOVAs (Appendix B) to examine the relationship between school-level demographics and the level/intensity of P3 programming within the 233 P3-funded schools.

Results indicated small-to-medium associations between some P3 implementation data and school characteristics. The most consistent pattern, and consistent with the comparisons reported above, found that schools that offered more P3 funded activities also had a higher

percentage of economically disadvantaged kindergartners. These programs also tended to be more likely to use a structured curriculum. These two findings were the clearest and most consistent patterns of association between P3 implementation variables and school characteristics.

In terms of P3 programming in schools with higher percentages of culturally and diverse children, results were mixed, and likely reflect the fact that most schools are focused on a single type of P3 activity. First, schools with higher percentages of Latino and ELL students tended to have fewer programs specifically focused on Kindergarten Transition and more likely to have programs focused on professional development. Second, schools with more African American students (largely concentrated in the Portland Metro region) tended to offer more hours and more sessions of P3 activities, and had more programs with a student component This may reflect the use of funds by Early Learning Multnomah to implement EKT and school-based Play and Learn groups at a small number of schools identified as having high proportions of culturally diverse students, including several that are predominantly African American. These schools also had lower average ratings of evidence (with EKT having a "moderate" level of evidence, and Play and Learn having no existing evidence base).

Schools with higher percentages of White students also tended to offer more kindergarten transition focused programs and were less likely to implement PD activities related to P3. Finally, schools with a larger proportion of Asian students (again, however a very small proportion overall statewide, and likely localized in the Portland Metro region) had fewer overall FE/KT programs, were less likely to have a structured curriculum, but had programs with more hours and more sessions.

Finally, an ANOVA was conducted to examine differences in P3 implementation variables between three school geographic settings (rural, town, urban). Results indicated that rural elementary schools offered significantly more FE/KT programs to children and their families compared to urban schools, and in particular, programs focused specifically on kindergarten transition as opposed to school-wide or other more general FE activities. However, those programs tended to have lower intensity (fewer hours and sessions). Schools in rural settings also tended to have more elementary school staff involved in program delivery. Detailed information on these differences can be found in Appendix B.

RQ 3: Do OKA scores differ between P3 funded elementary schools and matched comparison elementary schools in Oregon?

Descriptive Information: Mean Differences in OKA Scores

In order to explore differences in school readiness between elementary schools conducting P3 work and elementary schools not engaged in P3, mean OKA scores were first examined descriptively. As seen in Figures 5-7, incoming kindergartners in P3 schools scored slightly higher on two indicators of early literacy and had more early numeracy skills compared to comparison schools. Incoming kindergartners in P3 schools were rated by their teachers as having about the same level of social-emotional skills as their peers in comparison schools (see Figure 6).

Figure 5. Mean early literacy scores of P3 funded and comparison elementary schools.

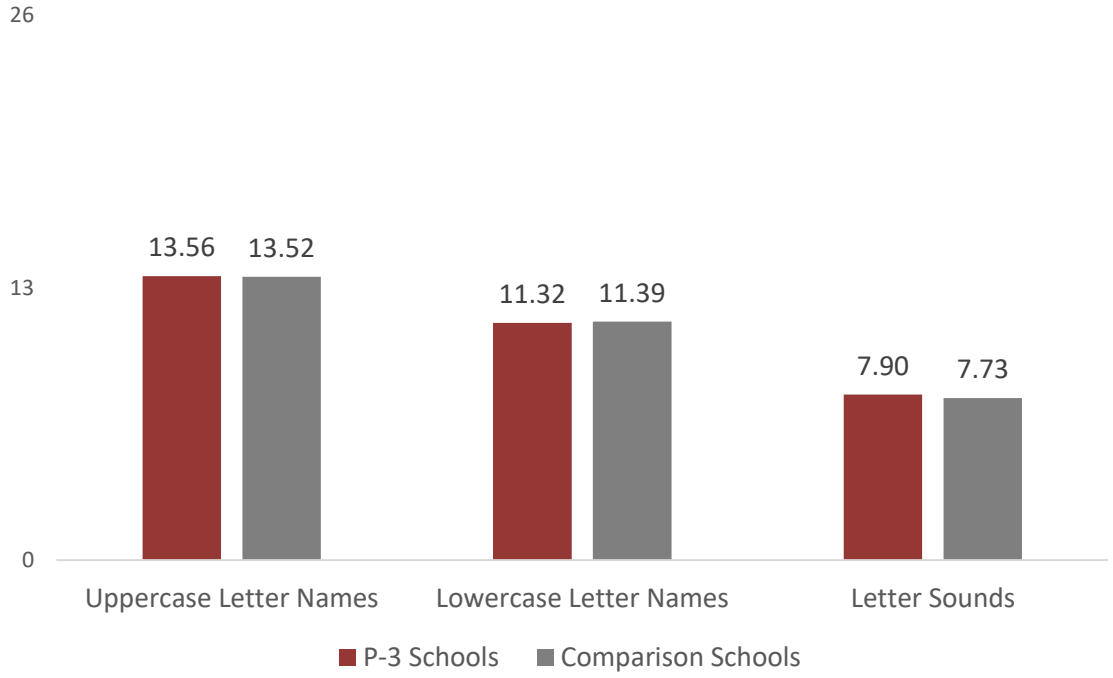


Figure 6. Mean early numeracy scores of P3 funded and comparison elementary schools.

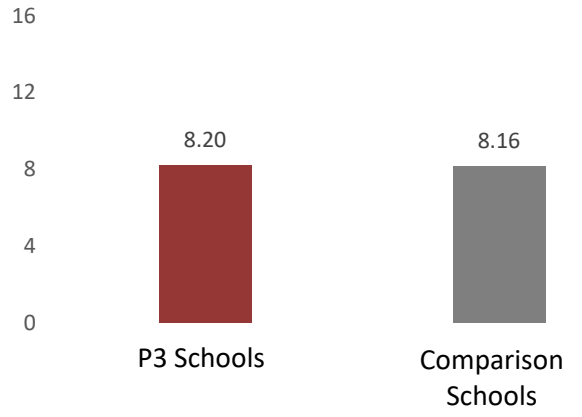
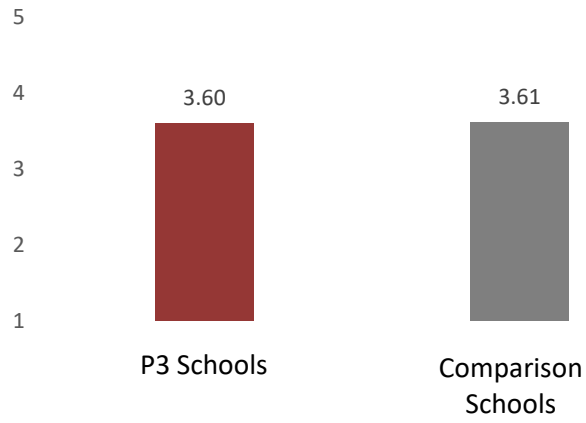


Figure 7. Mean social-emotional (i.e., approaches to learning) scores of P3 funded and comparison elementary schools.



Multi-Level Models: Assessing Statistical Significance for Child OKA Scores Across Schools Information

The second analytic step was to conduct statistical tests comparing OKA scores for children attending P3 schools with those attending matched comparison schools. Multi-level modeling, an analytic approach that accounts for differences in OKA scores by school (i.e., accounts for the fact that school-level factors may influence students' scores), was utilized. Additionally, these models controlled for demographic differences[9] in child and school-level demographic characteristics[10] and for the school average OKA scores from prior years (2013-15). Results of the multi-level analyses suggested some evidence that incoming kindergartners in P3 schools were more prepared for school in terms of early literacy compared to their peers who did not attend a school engaged in P3. Specifically, after accounting for demographic differences and

[9] Multi-level models controlled for gender and race/ethnicity at the child-level. Race/ethnicity was categorized into 3 groups: White/Caucasian, Latino, and children from other racial/ethnic backgrounds. Although not ideal for interpretation, children from non-White, non-Latino backgrounds were grouped together because the sample size for each racial/ethnic group was small, and in many cases, non-existent in small town and rural schools. At the time of analysis, other child-level demographic characteristics (e.g., special education eligibility, dual language learner status, economic disadvantage status) were not available.

[10] School-level controls included: the mean percentage of incoming kindergartners that received special education services from 2013 through 2015, the mean percentage of incoming kindergartners that were identified as dual language learners from 2013 through 2015, the mean percentage of incoming kindergartners who were economically disadvantaged from 2013 through 2015, school geographic setting (i.e., rural, small town, urban), whether or not the school had a co-located preschool, and mean OKA scores from 2013 through 2015.

prior OKA scores, students in P3 funded schools identified more upper case letter names, somewhat more (trend) lower case letter names and knew somewhat more (trend) letter sounds, compared to students in non-P3 matched schools. There were no significant differences found in early numeracy skills or teacher-rated social-emotional skills between P3 implementing and non-implementing schools.

Other child- and school-level demographic characteristics also predicted OKA scores in expected ways. A summary of significant findings comparing OKA scores between P3 funded and comparison elementary schools can be found in Tables 7 and 8; non-significant ("*n.s.*") results are indicated as such. Refer to Appendix D for detailed information on the multi-level models of OKA scores on P3 funded versus comparison schools.

Table 7. Summary of results comparing OKA early literacy scores between P3 funded and matched comparison schools.

	Which Schools Had Higher Uppercase Letter Names (LN) Scores (2016)?	Which Schools Had Higher Lowercase Letter Names (LN) Scores (2016)?	Which Schools Had Higher Letter Sounds (LS) Scores (2016)?
School-level Predictors of Early Literacy Scores			
P3 School (vs Comparison)	P3 schools	P3 schools	P3 schools (trend)
Town setting (vs Rural)	Town	Town	Town
Urban setting (vs Rural)	Urban	Urban (trend)	Urban (trend)
2013-2015 mean OKA score	Schools with higher '13-'15 OKA scores	Schools with higher '13-'15 OKA scores	Schools with higher '13-'15 OKA scores
% SPED	*Not related to LN scores*	*Not related to LN scores*	Schools with higher % SPED
% ELL[a]	Schools with higher % ELL	Schools with higher % ELL	Schools with higher % ELL
% Economically disadvantaged	Schools with lower % econ. disadv.	Schools with lower % econ. disadv. (trend)	*Not related to LS scores*
Co-located PreK	*Not related to LN scores*	*Not related to LN scores*	PreK (trend)
Child-level Predictors			
Female (vs male)	Female	Female	Female
Latino (vs White)	White	White	White
Other Race (vs White)	White	*Not related to LN scores*	White

[a] This finding is different from expectations; however, it is likely due to confounding between the percent of ELL students at each school and child race/ethnicity. When we examine the percent of ELL students without other control variables, schools with a higher percentage of ELL students have lower OKA scores, on average.

Table 8. Summary of results comparing OKA scores for early numeracy and approaches to learning between P3 funded and matched comparison schools.

	Which Schools Had Higher Early Numeracy (EN) Scores (2016)?	Which Schools Had Higher Approaches to Learning (AL) Scores (2016)?
School-level Predictors		
P3 School (vs Comparison)	*Not related to EN scores*	*Not related to AL scores*
Town setting (vs Rural)	Town (trend)	Rural (trend)
Urban setting (vs Rural)	*Not related to EN scores*	Rural
2013-2015 mean OKA score 1	Schools with higher '13-'15 scores	Schools with higher '13-'15 scores
2013-2015 mean OKA score 2[a]	NA	Schools with higher '13-'15 scores
% SPED	*Not related to EN scores.*	Schools with lower % SPED (trend)
% ELL[b]	Schools with higher % ELL	*Not related to AL scores*
% Economically disadvantaged	Schools with lower % econ. disadv.	Schools with lower % econ. disadv. (trend)
Co-located PreK	*Not related to EN scores*	*Not related to AL scores*
Child-level Predictors		
Female (vs male)	Male (trend)	Female
Latino (vs White)	White	White
Other Race (vs White)	White	White

NOTE: results trending based on p<0.15

[a]Approaches to Learning included 2 sub-scales; mean scores from 2013-2015 were included separately from both sub-scales in analyses related to this school readiness indicator. Here mean OKA score 1 refers to self-regulation, and mean OKA score 2 refers to interpersonal skills.

[b] This finding is different from expectations; however, it is likely due to confounding between the percent of ELL students at each school and child race/ethnicity. When we examine the percent of ELL students without other control variables, schools with a higher percentage of ELL students have lower OKA scores, on average.

RQ 4: To what extent does P3 program implementation frequency, content and dosage relate to OKA scores?

RQ 4a: What is the relationship between indicators of P3 implementation and OKA scores?

Prior to in-depth analyses, bivariate relationships between child-level school readiness outcomes (i.e., OKA scores) and school-level indicators of P3 implementation were examined (see Appendix E). These analyses do not account for the influence of school factors (e.g., past OKA scores) or demographic factors. While some indicators of P3 implementation were generally positively associated with OKA scores, suggesting that higher levels of implementation related to higher OKA scores, other P3 implementation indicators were negatively related to OKA scores.

Contrary to expectations, student OKA scores tended to be somewhat lower in schools offering: (1) more ongoing FE/KT programs; (2) programs with a structured FE/KT curriculum; (3) more FE/KT programs that included a parent component and a student component; and (4) more programs in which elementary school staff were involved in programming. Each of these indicators of P3 implementation were significantly related to up to four OKA school readiness outcomes. It may be that schools that have children who have struggled more to achieve OKA benchmarks are implementing more activities to try and improve school readiness, but that the impacts have not yet reached a threshold where frequency and intensity is associated with better outcomes. This pattern is not uncommon in studies in other areas that seek to link dosage to outcomes. Oftentimes, families at risk of poorer outcomes often receive higher "dosage" of the intervention in order to attempt to ameliorate their risk. Further, it is important to note that these bivariate relationships do not account for change over time or for demographic factors that might influence OKA scores.

To further explore these relationships, indicators of P3 implementation were divided into two categories: (1) program content and (2) program dosage. The effects of the two types of implementation data on OKA scores were examined separately (see RQ 4b and 4c below) using multi-level modeling accounting for grouping of students within schools.

RQ 4b: Does P3 program content predict OKA scores?

To reduce the number of models analyzed, we chose two key indicators of P3 program content: (1) mean level of evidence informed programming across all FE/KT programs and (2) total number of FE/KT programs that were specifically focused on the transition to kindergarten. These were chosen for the following reasons. The mean level of evidence associated with specific FE/KT programs (rated from 0-2) was selected because it was expected that FE/KT programs with research evidence demonstrating impacts on school readiness outcomes would

have the greatest impact on OKA outcomes. It should be noted that the mean level of evidence and the total use of structured FE/KT curricula were moderately related (r = 0.41). The total number of kindergarten transition specific FE/KT programming in each school was selected because kindergarten transition activities (as opposed to other types of family engagement programs and strategies) were thought to be more proximally associated with OKA scores. . Further, the bivariate relationship between the total number of ongoing FE/KT programs specific to kindergarten transition and OKA outcomes was positive, suggesting that more kindergarten transition activities were associated with higher OKA scores (see RQ 4a).

The extent to which P3 program content was associated with OKA scores was assessed through multi-level models, which accounted for the same child- and school-level factors as in RQ3. A summary of variables found to be significantly associated with student OKA scores is shown in Tables 9 and 10; detailed results are found in Appendix F. Final model results indicated that, when controlling for historical OKA performance and demographic characteristics, neither of the P3 content-related variables were associated with higher OKA scores. While the bivariate analysis appeared to suggest that children in schools implementing more kindergarten transition specific activities had significantly higher knowledge of letter names (upper and lower case), higher early numeracy and somewhat higher knowledge of letter sounds, this relationship was not significant once demographic and school characteristics were accounted for in the model.

Table 9. Summary of results examining P3 FE/KT program content predictors of OKA Early Literacy scores.

	Early Literacy		
	Higher Uppercase Letter Names Scores (2016)	**Higher Lowercase Letter Names Scores (2016)**	**Higher Letter Sounds Scores**
School-level Predictors			
# kinder transition programs	*n.s.*	*n.s.*	*n.s.*
mean evidence rating	*n.s.*	*n.s.*	*n.s.*
Town setting (vs Rural)	Town	Town	*n.s.*
Urban setting (vs Rural)	*n.s.*	*n.s.*	*n.s.*
2013-2015 mean OKA score	Schools with higher '13-'15 scores	Schools with higher '13-'15 scores	Schools with higher '13-'15 scores
% SPED	*n.s.*	*n.s.*	*n.s.*
% ELL[a]	Schools with higher % ELL	Schools with higher % ELL	Schools with higher % ELL (trend)
% Economically disadvantaged	*n.s.*	*n.s.*	*n.s.*
Co-located PreK	*n.s.*	*n.s.*	*n.s.*
Child-level Predictors			
Female (vs male)	Female	Female	Female
Latino (vs White)	White	White	White
Other Race (vs White)	White	White (trend)	White

[a] This finding is different from expectations; however, it is likely due to confounding between the percent of ELL students at each school and child race/ethnicity. When we examine the percent of ELL students without other control variables, schools with a higher percentage of ELL students have lower OKA scores, on average.

Table 10. Summary of results examining P3 FE/KT program content predictors of OKA Early Numeracy and Approaches to Learning scores.

	Higher Early Numeracy Scores (2016)	Higher Approaches to Learning Scores (2016)
School-level Predictors		
# kinder transition programs	*n.s.*	*n.s.*
mean evidence rating	*n.s.*	*n.s.*
Town setting (vs Rural)	Town (trend)	Rural (trend)
Urban setting (vs Rural)	*n.s.*	Rural
2013-2015 mean OKA score 1[a]	Schools with higher '13-'15 scores	Schools with higher '13-'15 scores (trend)
2013-2015 mean OKA score 2	NA	Schools with higher '13-'15 scores
% SPED	*n.s.*	Schools with lower % SPED (trend)
% ELL[b]	Schools with higher % ELL	*n.s.*
% Economically disadvantaged	Schools with lower % econ. disadv. (trend)	*n.s.*
Co-located PreK	*n.s.*	*n.s.*
Child-level Predictors		
Female (vs male)	Male (trend)	Female
Latino (vs White)	White	*n.s.*
Other Race (vs White)	White	*n.s.*

NOTE: results trending based on p<0.15

[a]Approaches to Learning included 2 sub-scales; mean scores from 2013-2015 were included separately from both sub-scales in analyses related to this school readiness indicator. Here mean OKA score 1 refers to self-regulation, and mean OKA score 2 refers to interpersonal skills.

[b] This finding is different from expectations; however, it is likely due to confounding between the percent of ELL students at each school and child race/ethnicity. When we examine the percent of ELL students without other control variables, schools with a higher percentage of ELL students have lower OKA scores, on average.

RQ 4c: Does P3 program dosage predict OKA scores?

FE/KT program dosage was defined as P3 implementation data that addressed the amount of or intensity of programming children and/or their parents/caregivers received. In order to assess the impacts of FE/KT program dosage on OKA scores, two P3 program implementation variables were selected as school-level predictors: (1) total number of ongoing FE/KT programs in each school and (2) total number of FE/KT program hours offered within each school. Total number of ongoing FE/KT programs was selected because it was the only P3 implementation variable that addressed the breadth of P3 FE/KT implementation within each school. In bivariate analyses, this indicator of dosage was significantly but negatively related to some of the early literacy OKA outcomes, where a greater number of FE/KT programs offered at each school was associated with lower early literacy scores (see RQ 4a). The total number of FE/KT program hours was included in the model because it best addressed the amount of programming offered to children and families and because there was more variability in the total number of hours than in total number of FE/KT sessions offered. The bivariate relationship between OKA scores and the total number of FE/KT program hours was positive and was marginally significant for the school readiness outcome related to letter sounds identification.

The extent to which P3 program dosage was associated with OKA outcomes was assessed through multi-level models, which accounted for the same child- and school-level demographic characteristics in previous research questions. As shown in Tables 11 and 12 below, after controlling for these factors, results indicated that students in schools offering more hours of FE programming tended to have higher scores on the letter sounds measure (i.e., knowledge of letter sounds) than students in schools with fewer hours of activities. This was consistent with the bivariate results, but in these models, the hours of FE offered continued to significantly predict knowledge of letter sounds over and above the demographic and school characteristics. Detailed results from multi-level models can be found in Appendix G.

Table 11. Summary of results examining P3 FE/KT program dosage predictors of OKA Early Literacy scores.

	Early Literacy		
	Higher Uppercase Letter Names Scores (2016)	**Higher Lowercase Letter Names Scores (2016)**	**Higher Letter Sounds Scores (2016)**
School-level Predictors			
total # FE/KT programs	*n.s.*	*n.s.*	*n.s.*
total # FE/KT hours	*n.s.*	*n.s.*	Higher # hours
Town setting (vs Rural)	Town (trend)	*n.s.*	*n.s.*
Urban setting (vs Rural)	*n.s.*	*n.s.*	*n.s.*
2013-2015 mean OKA score 1	Schools with higher '13-'15 scores	Schools with higher '13-'15 scores	Schools with higher '13-'15 scores
% SPED	*n.s.*	*n.s.*	*n.s.*
% ELL	*n.s.*	*n.s.*	*n.s.*
% Economically disadvantaged	*n.s.*	*n.s.*	*n.s.*
Co-located PreK	*n.s.*	*n.s.*	*n.s.*
Child-level Predictors			
Female (vs male)	Female	Female > Male	Female
Latino (vs White)	White	White > Latino	White
Other Race (vs White)	White (trend)	*n.s.*	White (trend)

Table 12. Summary of results examining P3 FE/KT program dosage predictors of OKA Early Literacy scores.

	Higher Early Numeracy Scores (2016)	**Higher Approaches to Learning Scores (2016)**
School-level Predictors		
total # FE/KT programs	*n.s.*	*n.s.*
total # FE/KT hours	*n.s.*	*n.s.*
Town setting (vs Rural)	Town (trend)	*n.s.*
Urban setting (vs Rural)	*n.s.*	*n.s.*
2013-2015 mean OKA score 1[a]	Schools with higher '13-'15 scores	Schools with higher '13-'15 scores (trend)
2013-2015 mean OKA score 2	NA	Schools with higher '13-'15 scores
% SPED	*n.s.*	Schools with lower % SPED

	Higher Early Numeracy Scores (2016)	Higher Approaches to Learning Scores (2016)
% ELL[b]	Schools with higher % ELL	*n.s.*
% Economically disadvantaged	Schools with lower % econ. disadv. (trend)	Schools with lower % econ. disadv. (trend)
Co-located PreK	*n.s.*	*n.s.*
Child-level Predictors		
Female (vs male)	Male (trend)	Female
Latino (vs White)	White	*n.s.*
Other Race (vs White)	White	*n.s.*

NOTE: results trending based on p<0.15

[a]Approaches to Learning included 2 sub-scales; mean scores from 2013-2015 were included separately from both sub-scales in analyses related to this school readiness indicator. Here mean OKA score 1 refers to self-regulation, and mean OKA score 2 refers to interpersonal skills.

[b] This finding is different from expectations; however, it is likely due to confounding between the percent of ELL students at each school and child race/ethnicity. When we examine the percent of ELL students without other control variables, schools with a higher percentage of ELL students have lower OKA scores, on average.

Conclusions, Limitations, & Next Steps

Results from this first year of data compilation highlight several important aspects of the P3 work to date. First, data supports the notion that the funds are being focused in a way that supports the stated equity goal of these initiatives to advance work addressing disparities in school readiness among low income and Latino children. Compared to other elementary schools in the state, schools in which P3 activities are being implemented have a larger proportion of economically disadvantaged students, Latino children, and children who are English Language Learners. However, P3 schools were also characterized by somewhat lower proportions of African American students as well as fewer children receiving special education services compared to other elementary schools. These findings suggests that P3 work in schools serving these communities may need to be more intentionally focused and supported.

Results also found preliminary evidence that school-based P3 work may be starting to "move the dial" towards improved school readiness. In particular, small, but statistically significant or near-significant trends were found when comparing OKA scores for schools that are involved in implementing P3 work funded by the KRPI, OCF P3, and/or Early Works initiatives. Kindergartners in P3-implementing schools could recognize more upper and lower case letter names and had higher knowledge of letter sounds compared to kindergarteners in matched, non-P3 elementary schools. These differences persisted even when accounting for the association of demographic characteristics and the school's prior performance on the OKA. These findings, although relatively small in magnitude, are encouraging. First, given the many influences on population-level outcomes (in this case, all students within a school) such outcomes are typically very slow to change. Second, the measures used to assess P3 implementation are, at this point, quite imprecise and no doubt underestimate the level of activity going on within both P3 schools and those identified as comparisons (see below for further discussion).

Results generally did not find consistent evidence that the ***dosage*** *(i.e., number of ongoing FE/KT programs and total number of ongoing FE/KT program hours per school)* ***or content*** *(i.e., number of ongoing FE/KT programs specific to the transition to kindergarten and mean evidence rating across all P3 school programs)* of ongoing FE/KT programs were associated with differences in school readiness scores. Only the **number of hours** of FE/KT programming was significantly associated with OKA scores; specifically, children in schools offering FE/KT programs with more hours of programming had higher knowledge of letter sounds. However, several things should be noted as important context for interpreting these findings, and which we believe suggest that that continued monitoring and analysis may be useful. First, at this stage of the P3 initiatives, there was limited variation in the dosage and content of the FE/KT programs being offered, at least to the extent that we could document in the last year. The large majority of schools offered only a single multi-session FE/KT program (83%), and 80% of these FE/KT programs were focused on the transition to kindergarten. This limited variability is likely to reduce the ability of our analyses to detect differences in OKA outcomes associated with

different "amounts" of these programs. The one variable that did seem to be associated with OKA scores was the hours of FE/KT programming offered, which also varied much more across schools (from a minimum of 5 hours to a maximum of 843[11] hours, with an average of 38.6 hours) .

Another consideration that suggests that these variables may be important to continue to monitor is that, in several cases, these P3 variables showed a significant relationship to OKA scores when analytic models did not include the large number of statistical controls. It may be that, as schools continue to implement more and more intensive P3 approaches, the collective impact of P3 activities at the school-level will become stronger. The overall level of implementation of activities that might be expected to influence OKA scores remains somewhat low (relatively few programs and sessions, and a predominance of programs that are not evidence-informed/based). More investments that increase opportunities for families and children to engage in programs shown to have documented effects on school readiness are likely to be important to strengthening school-level impacts.

Finally, it will be important for schools, Early Learning Hubs, and the evaluation team to attempt to collect more detailed and comprehensive data about P3 work happening at the schools. A substantial proportion of information collected this year about P3 implementation was gathered retrospectively through interviews and document reviews, rather than through systematic tracking of program delivery and participation. Ideally, individual level (family and/or child) participation in P3 programs could be tracked and directly linked to student OKA scores; this would require a comprehensive individual-level data system that is unlikely to be realized in the near future. However, even more detailed tracking of attendance in programs for incoming kindergarteners and a shared system for documenting P3-related activities implemented in schools and school catchment areas would significantly improve the quality of implementation data available for analysis. This will require cross-system partnerships to create a program-level reporting system that could begin to reliably capture this information. As stated previously, we believe it is likely that other P3-related work is being implemented in many of these schools that we were not able to capture in the current data system.

During the 2017-2019 biennium, the PSU evaluation team will continue to partner with the Early Learning Division and other P3 funders to improve the existing evaluation of the KRPI investments. Specific evaluation goals are to:

1. Strengthen the quality of data and level of detail available about P3 implementation;
2. Improve the usefulness of short-term outcome measures for ongoing FE/KT and PD programs, including revising survey items and piloting a process for collecting these measures in a way that would allow individual child/family-level tracking;

[11] Note that one site had multiple ongoing programs that met weekly, resulting in a high school level number of hours of programming.

3. Pilot data linking projects in two to three communities providing evidence-based or evidence-informed FE/KT programs to conduct more rigorous outcome evaluations of promising programs; and
4. Continue to compile data for and conduct analyses related to the P3 Implementation and Outcomes Data System, including examining associations of P3 with reductions in disparities in OKA scores for Latino students and with changes in OKA scores at the school level over time.