Reflecting on Systems Change

Learning from the Partnership for Pre-K Improvement

START EARLY

Contents

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The Partnership for Pre-K Improvement (PPI)

The Partnership for Pre-K Improvement (PPI) was launched by the Bill & Melinda Gates Foundation in 2016 as a project with a vision to develop and sustain high-quality, equitable pre-K programs that produce improved and more-equitable kindergarten readiness and greater academic success for children through the early elementary grades. The multiyear, multistate effort aimed to learn in partnership with states across government leaders, advocates and researchers about how to systematically improve the quality of pre-K at scale. After five years of learning and implementation, PPI concluded in summer 2021 with key lessons to share with the field and a set of **tools and resources** for use by state leaders to advance quality and equity in pre-K systems.

BUILDING ON RESEARCH

PPI built on decades of research in early childhood and more recent analysis of the essential elements of high-quality preschool. Research points to high-quality preschool education as a critical mechanism for promoting students' academic and social-emotional development,[1] particularly among students of color and those from economically disadvantaged backgrounds.[2] But not all pre-K programs are equally beneficial. Although many states have succeeded in improving structural elements of quality identified in the research such as teacher-child ratios, learning time and teacher qualifications, only 10 states meet all four of the "process-quality focused" quality standards benchmarks (early learning and development standards, curriculum supports, professional development and continuous quality improvement [CQI] system) in the National Institute for Early Education Research's (NIEER) most recent "State Preschool Yearbook."[3] Perhaps unsurprisingly, across preschool program types, we still see persistently low or mediocre quality of teaching that does not adequately support children's academic outcomes.[4]

Thus, a core problem of practice for the field is building pre-K systems with strong quality improvement infrastructure that are well-equipped to promote high-quality teaching. PPI was designed with the understanding that the field has a lot of interventions and evidence about how to support quality improvement at the classroom level. But even so, we had yet to see systemic improvements in most states and communities. Instead, we noticed that the district, school or classroom improvements that do occur are often unsustainable and will not be systematic if the full state-level system has not been improved. We expect that these will be bright spots — and potential models for states — but will be the exception to the rule without work on the state system itself.

STATE PARTNERS

To address this gap, the primary goal of the five-year PPI project was to partner with three states — **Oregon, Tennessee** and **Washington** — to build robust pre-K systems infrastructure to support the high-quality implementation and improvement of pre-K program practices. PPI's approach to this work centered on building sustainable state partnerships across *program, research* and *advocacy* leaders in each state in support of a common vision for high-quality pre-K systems improvement:

- **State pre-K agencies** created strategic plans that established multiyear strategies and goals for implementation and improvement of high-quality pre-K.

- State agencies and **local research partners** in research-practice partnerships created learning agendas with critical research questions that generated data and supported rapid cycle of improvement though data-based decisions of pre-K.

- **Advocacy organizations** created advocacy agendas aligned with agencies' vision and agenda for improvement to ensure the resources, policies and supports were in place to improve and implement high-quality systems.

NATIONAL PARTNERS

To achieve these aims, state partners were supported by our three organizations working collaboratively to strengthen pre-K quality in concert with state leaders, researchers and advocates.

- **Start Early (formerly the Ounce)** supported state pre-K agency leaders with *consultation, peer learning* and *grants* to build system capacity and infrastructure for CQI. Start Early also offered the Essential Fellowship professional learning program to states to build instructional leadership capacity and served as the "backbone" organization for PPI, facilitating partner collaboration.

- **Cultivate Learning at the University of Washington** delivered *consultation, peer learning* and *grants* to local researchers to build research capacity to support state CQI and facilitated the collection of data and key learnings from states to generate lessons learned for the field. Cultivate Learning also offered EarlyEdU Alliance resources — such as tools, information and access to a professional community — to partner states to support professional learning and the effective practice of pre-K teachers.

- **The Alliance for Early Success** delivered *consultation, peer learning* and *grants* to advocacy organizations to build advocacy capacity in order to support the policies and investments that are essential to delivering high-quality pre-K. The Alliance also brokered access to a national network of early learning technical assistance organizations.

PPI was generously supported, from the development of the strategy in 2016 through its conclusion in 2021, by the Bill & Melinda Gates Foundation. The foundation led the development of the PPI strategy and provided resources to each of the national partners to engage in this project and funded its evaluation by Mathematica.

TOOLS, RESOURCES AND PEER LEARNING

A central aim of PPI was to contribute lessons learned and create useful tools to support systems improvement in state pre-K programs beyond the life of the PPI project. Toward this end, PPI convened our community of states and partners twice a year to foster peer-to-peer learning among state leaders advancing a vision for high-quality pre-K systems. We used this venue to learn together about how to center equity and ensure the continuous improvement and effective implementation of pre-K programs and systems. At the end of the project, we published the **PPI Toolkit** — a set of practical tools and resources that is designed to help state leaders, researchers and advocates develop and sustain high-quality, equitable pre-K programs.

EVALUATION

Finally, as part of PPI, state and national partners also participated in a mixed-method, formative evaluation of the strategy conducted by Mathematica that tracked progress on implementation and impact across states.[5] The study included reviewing state-level policy and systems documents; analyzing existing classroom observation data, pre-K leader and teacher surveys and child outcome data; and conducting interviews or surveys with state agency staff, research partners, local advocates and Start Early consultants. In addition, Cultivate Learning conducted qualitative case studies of the PPI research-practice partnerships in each state that studied the role of these partnerships in the project and examined what made them effective, relevant and sustainable.[6]

PPI Theory of Change

The PPI strategy was grounded in a theory of change that articulates the ways we expect changes in state pre-K systems to support improvements in statewide program, classroom and child outcomes. These expectations about how systems improvements "work" are based on a wealth of theoretical and empirical research grounded in dynamic systems theory, the bioecological model and implementation science.[7] In designing PPI, we drew on this research and theory to suggest that states cannot achieve the program-, classroom- and child-level outcomes they seek *at scale* without improvements to the state-level system context and infrastructure itself.

As illustrated on the following page, we expect that the improvements we hope to see in pre-K systems are cascading: that is, as a state system improves, strong systems context is necessary *before* effective infrastructure can be built to support local practice; strong infrastructure must be in place before we see statewide implementation and improvement in program practices; strong program practices are necessary to support improvements in classroom quality; and only once all of those elements have been realized can we expect to see population-level improvement in child outcomes. Our work in PPI focused on the left side of this cascade: on the systems context and infrastructure needed to support improvement of key program practices systemwide.

There is not yet enough research that examines timelines for improvement across this full model, nor is there sufficient evidence to inform specific hypotheses about expected timelines. In other words, we know this process is likely to take a long time, but we don't know exactly *how* long. But children across the country are in pre-K classrooms right now — and this urgency guided our project not to wait for research evidence that could answer these questions for us; instead, we focused on learning *while* we were doing the work of systems change.

PPI Theory of Change:
Systemwide Improvements Over Time

| Systems Context | Infrastructure | Program Practices | Classroom Quality | Child Outcomes |

SYSTEMS CONTEXT: *Systems change theory, case studies of successful pre-K campaigns, and decades of experience of government leaders and advocates across the country suggests that there are critical aspects of a system that need to be in place to set the conditions for improvement.*

Enabling Environment: There are political and public will in support of pre-K and strong leadership in place.

Statewide Vision: There is a compelling and clear vision for pre-K and a statewide plan that includes and prioritizes pre-K.

Funding: There are sufficient and sustained funding levels, per child and overall, to support high-quality pre-K.

INFRASTRUCTURE: *To truly achieve sustainable and equitable quality improvement statewide, we hypothesized that it was critical to focus on building or improving state-level infrastructure that set the conditions for improvement of individual programs, including:*

Policies — the requirements, incentives, regulations or legislation to support quality practices.

Data and Improvement — the data, information and reporting processes or tools state agencies need for accountability and improvement.

Supports for Implementation — the resources, guidance, training, technical assistance or ongoing supports necessary to support implementation of a practice or policy.

System Capacity — the roles, staff and teams that might be needed at multiple levels of the system.

Stakeholder Engagement — the processes to engage relevant stakeholders to inform decisions, create support for advancing and implementing policies, best practices, etc., and to communicate results and CQI efforts.

PROGRAM PRACTICES: *Based on work by NIEER and J. Minervino,[8] we argued that achieving high-quality pre-K practice requires the coherent, effective implementation of a set of* **"essential elements"**:

High-quality teaching, research-based curriculum and formative child assessment are implemented together in the classroom and directly lead to positive outcomes for children.

Professional development and instructional leadership support teachers to effectively implement those classroom practices through opportunities that are routine, collaborative, focused on student learning and linked to their daily practice.

Data-driven decision-making supports teachers and leaders through data collection and use for improvement of practice.

THIS REPORT

In the sections that follow, we first highlight the tremendous work achieved by the state leaders, researchers and advocates in Oregon, Tennessee and Washington as part of their PPI strategic vision for improvement. Next, we describe five foundational assumptions implicit in the PPI strategy that together shaped the design, approach and implementation of our work. Drawing on examples of the progress made by the states during PPI and findings from Mathematica's PPI evaluation, we reflect on what we learned in doing this work and what it taught us about our initial assumptions. We conclude with recommendations for state systems leaders, advocates, research partners and systems consultants or technical assistance providers who endeavor to systematically, equitably and sustainably improve the quality of pre-K, as well as a discussion of the limitations and future directions of this work.

State Snapshots: Oregon, Tennessee and Washington

In this section, we provide a snapshot of the tremendous, intense and collaborative work advanced by Oregon, Tennessee and Washington over the course of the PPI project. Each state section describes state agency strategic plan objectives, research agendas and advocacy agendas that guided the work of PPI in Oregon, Tennessee and Washington. Crafted by the state partners, with support from Start Early, Cultivate Learning and the Alliance for Early Success, respectively, these foundational priorities are unique to each state, informed by an initial self-assessment that state agency staff completed with support from Start Early and aligned to local context, political climate and priorities. Each section concludes with reflections from state partners summarizing their major accomplishments and systems changes over the course of PPI.

Oregon

State Agency Partners: Oregon Department of Education Early Learning Division (ELD)

Research Partners: Portland State University, Oregon State University, and Oregon Social Learning Center Developments Inc.

Advocacy Partners: Children's Institute

Oregon's pre-K system serves nearly 4,000 children through its **Preschool Promise** program, with plans in the 2022-23 school year to add up to 2,500 more children. In addition, the **Oregon Pre-K (OPK)** program services over 13,000 children. Children and families access pre-K in schools, centers and home-based programs. ELD's ultimate goal for its engagement in PPI was to ensure *Oregon's publicly funded early learning programs are aligned, family-centered and high-quality.* Oregon's approach applied the state's equity lens and used a framework of implementation science to guide efforts. Specifically, Oregon* worked toward six **strategic plan** objectives:

1. Families are engaged in early learning programs.

2. Promote ambitious instruction for children's learning and development.

3. Children are in supportive learning environments.

4. Foster a culture of continuous quality improvement.

5. The workforce has job-embedded professional learning opportunities to improve their practice.

6. Increase capacity for instructional leadership.

Oregon's **learning agenda research questions** focused on the current level of instructional quality in pre-K, types and quality of job-embedded professional learning (JEPL), what type of implementation drivers contribute to instructional quality and professional learning and how they contribute, and how we can use information about implementation drivers and JEPL to develop and test strategies for improving the quality of instruction in state-funded pre-K. Oregon research partners also produced timely, critical research on COVID-19-related experiences of pre-K providers.

Oregon advocacy partners' **legislative and advocacy goals** included protecting and enhancing funding for pre-K; enhancing, aligning and streamlining professional development systems; supporting the state agency to address existing implementation challenges and implement new and improved services included in landmark legislation passed in 2019; leveraging investments in pre-K quality to improve early care and education throughout the birth through age 8 continuum; and advancing racial equity with community-driven solutions, including an equity fund to support "culturally specific and responsive kindergarten readiness services to historically underserved families around the state."

PPI IMPACT IN OREGON:
Oregon Partner Perspective
The ELD was a couple of years old and Preschool Promise was only in its second year of implementation when Start Early (then the Ounce) invited Oregon to participate in PPI. At that time, early learning systems to support quality program design, implementation and evaluation were new, in the process of being developed or still in conceptual form. Participation in PPI became a grounding and organizing force, through four changes in leadership and continual expansion, by providing a framework to use data, be reflective and inform improvement strategies. Participation elevated the need to include equitable professional learning opportunities, in a mixed delivery model of program implementation. Key impacts include: a tiered coaching system, increased access to researchers, program standards that are differentiated for home-based and center-based providers, and Classroom Assessment Scoring System (CLASS) and Environment Rating Scale (ERS) observations that are used to inform continuous quality improvement efforts.[9]

* "Oregon" (as well as "Tennessee" and "Washington") refers to the state agency instead of the complete set of PPI partners for that state.

Tennessee

State Agency Partners: Tennessee Department of Education Office of Early Learning

Research Partners: Tennessee Education Research Alliance (TERA), Vanderbilt University

Advocacy Partners: Tennesseans for Quality Early Education (TQEE)

Tennessee's pre-K system serves more than 18,000 children through its **Voluntary Pre-K (VPK)** program. Children and families access pre-K almost exclusively in school-based settings. Tennessee's vision was to ensure that every child in the state, from birth to age 8, will engage in rich, joyful learning experiences that purposefully develop leaders, thinkers and innovators of tomorrow. Tennessee's ultimate goal for its engagement in PPI is to *increase access to high-quality pre-K seats by 10% annually.* To achieve this aim, Tennessee focused its **strategic plan** on the following objectives:

1. Develop and provide high-quality instructional materials, resources, guidance and supports to districts.

2. Improve state and district systems of technical assistance and accountability to support high-quality instructional practices.

3. Increase the quality and accuracy of data and reporting processes for greater accountability and data-driven continuous improvement.

4. Establish and improve collaborative cross-sector relationships to increase access to high-quality pre-K seats by 10% annually.

Tennessee's **learning agenda research questions** focused on using the data system to promote rapid-cycle continuous quality improvement; coaching pilot outcomes of increased understanding of coaching models, curriculum and developmentally appropriate practice; the extent to which teachers are receiving effective training on the new limited number of approved pre-K curricula; and how teachers are differentiating their instruction based on children's entering skill levels.

Tennessee advocacy partners' **legislative and advocacy goals** included increasing the state's early education advocacy capacity; using research-based communications and advocacy strategies to shift policymakers' view of pre-K in Tennessee from a deficit narrative to one about potential and opportunity; aligning pre-K policies to the state's larger elementary education quality improvement strategy; protecting and enhancing funding for pre-K and home visiting quality improvement and expanded access, especially in rural and "at-risk" communities; and improving the quality of education in early grades.

PPI IMPACT IN TENNESSEE:
Tennessee Partner Perspective
PPI has played a huge role in quality improvements for Tennessee's Voluntary Pre-K programs. The coaching and financial support provided has given Tennessee the opportunity to put processes in place to collect data on pre-K quality, narrow 37 pre-K curricula to 3 and move the VPK application to competitive funding. These efforts are what moved Tennessee up four benchmarks on the NIEER FY 20 State of Preschool report, now meeting 9 out of 10 quality standards.[10]

Washington

State Agency Partners: Washington State Department of Children, Youth, and Families (DCYF) Early Childhood Education and Assistance Program (ECEAP)

Research Partners: Cultivate Learning at the University of Washington and Education Northwest

Advocacy Partners: Children's Alliance

Washington's pre-K system serves more than 15,000 children through its **Early Childhood Education and Assistance Program (ECEAP)**. Children and families access pre-K and comprehensive services modeled after Head Start in school and center-based settings. Washington began PPI with an ECEAP strategic plan in place with the ultimate goal of ensuring high-quality, effective, efficient early learning services are available to all eligible children. It therefore focused its PPI **strategic plan** to advance specific pre-K quality improvements *to support more data-driven, equitable and culturally responsive practices:*

1. All policy decisions are informed by data and grounded in equitable practices to meet data needs in the field, the state agency and Legislature.

2. Culturally responsive practices are integrated throughout programming across the state.

3. Children of differing abilities have equal access to individualized, high-quality learning experiences.

4. A stable workforce that is reflective of the communities served.

5. Pre-K professional learning opportunities support program staff to consistently provide high-quality experiences for children and families.

6. The early learning workforce has access to individualized job-embedded professional learning from supported instructional leaders.

Washington's **learning agenda research questions** focused on supporting early learning workforce development, data usage for improvement plans and goals, and support for teacher individuation of child goals, curriculum and guidance. Research partners also supported ECEAP leaders to create and conduct surveys on inclusive practices and to understand the effects of COVID-19 on programs.

Washington advocacy partners' **legislative and advocacy goals** included protecting and increasing funding for pre-K, child care and home visiting; supporting pre-K quality improvement and expanded access; aligning quality standards and strategies across the early learning system; ensuring supports for a competent, culturally and linguistically diverse, and well-compensated workforce; enacting paid family leave; and ensuring that the state's new agency structure sufficiently elevates early learning priorities.

**PPI IMPACT IN WASHINGTON:
Washington Partner Perspective**
For DCYF Washington, the impact of the PPI has forever changed practices at the state office. This includes an embedded process to increase focus on quality enhancement and processes. We plan to continue to follow the quality improvement cycle of plan, do, study, act, to assess and plan for our programming needs based on partnership with communities. Given our experiences in the pilot, no matter where the specific quality element is in its cycle, DCYF Washington now has the multiyear practice of implementing this multiyear, multistep process toward quality improvement that we are already duplicating. With this framework and practice in place, DCYF will continue to evaluate, analyze, try out new things and shift policies, practices and programming based on what we learn together with communities. Additionally, we formed strong partnerships with research partners with whom we are working to continue to find funding to partner with in future activities.

Foundational Assumptions and What We Learned

We began PPI with five foundational assumptions that together shaped the design, approach and implementation of our work:

1. Systems change is complex and occurs over a long period of time.

2. A framework that defines high-quality pre-K practice should guide systems change work.

3. Building state infrastructure for implementation helps to ensure high-quality, sustainable and equitable pre-K.

4. Focusing on states' pre-K programs serving 3- and 4-year-olds is a research-based and strategic approach to systems improvement.

5. Systemic, equitable and sustainable improvement requires partnership among state agencies, advocates and researchers.

By implementing PPI in partnership with state agencies, researchers and advocates in Oregon, Tennessee and Washington, we learned a great deal about how pre-K systems change and improve. We also learned about how — as consultants and technical assistance providers — we could best support them in this work. Importantly, it led us to reexamine our initial assumptions and theory of change with a critical eye. In some cases, our experiences with PPI confirmed our hypotheses; in others, we gained new insights that challenged our assumptions and should guide future work in partnership with states.

Below, we first describe the initial thinking and rationale behind our key original assumptions. We then reflect on this initial thinking and discuss what we learned about each assumption, weaving in examples from PPI work in Oregon, Tennessee and Washington, as well as findings from Mathematica's evaluation of the implementation and impact of the PPI strategy.

1. SYSTEMS CHANGE IS COMPLEX AND OCCURS OVER A LONG PERIOD OF TIME.

This initial assumption seems obvious, and yet many systems-change efforts in the early childhood field have operated on short-term timelines. The PPI approach was heavily informed by research[11] that outlines key conditions for systems change. These interconnected conditions can either promote meaningful change in systems and outcomes for children or hold inequities and problems in place. In designing PPI, we emphasized the complexity of systems-level work. Specifically, we noted that it is process- and practice-oriented — what Kania and colleagues[12] call relational and transformative change — not focused exclusively on altering structural elements. In the context of PPI, this meant we would not only work to create policy but also to collect data, build capacity and engage stakeholders to ensure strong policy implementation. We also resourced all state partners and provided consistent consulting over a multiyear period.

We also noted that just as implementation science suggests that practice and behavior change occur in stages, change in the public policy arena follows predictable stages as well — including policy development, policy proposals, demonstration of support, adoption, funding and implementation. And thus, we cautioned that sustainable improvements can take a long time to achieve. We hypothesized that state-level infrastructure improvements are leading indicators and are precursors for improved systems outcomes, such as school, classroom and child outcomes, which are lagging, by years. We were intentionally vague about how many years these desired outcomes might lag by, noting that understanding state-level improvement is still an emerging area of inquiry and learning in education policy.

What We Learned: Working alongside state partners to improve pre-K systems in Oregon, Tennessee and Washington confirmed the complexity and pace of systems change.
The PPI project lasted five years, and at the conclusion of the project, it was clear to all involved that transformative systems change is a continuous process that occurs in cycles. The systems context was unique in each state, and yet each state navigated political opportunities, leadership changes inside and outside of government, and new funding opportunities and fiscal cliffs. The occurrence of such unforeseen disruptions — including, but not limited to, the COVID-19 pandemic — inevitably shifted priorities and delayed or changed the course of the PPI work that each state had planned. That said, we learned that there were substantial and important improvements that each state was able to accomplish in this time — even when interrupted by a global pandemic midway through.

> The systems context was unique in each state, and yet each state navigated political opportunities, leadership changes inside and outside of government, and new funding opportunities and fiscal cliffs.

Still, in each state, state agency staff needed to adjust their timelines to make space for field engagement and to address key opportunities and barriers that arose along the way. For example, Oregon had planned to revise its pre-K quality standards and create an aligned professional learning system. In doing so, the state agency was intentional about engaging advocates, providers and families to solicit feedback and ensure their voices shaped the new standards. In preparation to support programs to meet the new standards, the state agency also created tools and deployed professional learning to build the capacity of technical assistance providers and instructional leaders to improve quality across the system. Throughout the process, the agency collected and analyzed Classroom Assessment Scoring System (CLASS)[13] data to inform professional learning, identify gaps in services and provide data on implementation

and improvement. Approaching the project in this inclusive and comprehensive manner was advantageous for many reasons, but it also requires time and intentionality. In the meantime, the state also passed groundbreaking legislation that included hundreds of millions of dollars to expand and improve early childhood programs and services, which unsurprisingly shifted the state agency's priorities.

2. A FRAMEWORK THAT DEFINES HIGH-QUALITY PRE-K PRACTICE SHOULD GUIDE SYSTEMS CHANGE WORK.
Based on research on public pre-K programs in Boston, Maryland, New Jersey and North Carolina, Minervino identified 15 "essential elements" that likely impact a state pre-K program's ability to deliver the level of quality needed to ensure children are ready to succeed in kindergarten, third grade and beyond. Early on in our work, we argued that although many states have succeeded in implementing the structural elements of quality such as ratios, learning time and teacher qualifications, teaching quality remains low or moderate in too many preschool settings. Indeed, while there is evidence these structural elements are important conditions for teaching quality, research suggests they do not guarantee it.[14] We therefore chose to narrow the focus of our PPI work in Tennessee, Oregon and Washington from Minervino's original 15 essential elements to the shorter list of eight "program practices" focused on the process of teaching and learning that we expected would together produce high-quality teaching and improved outcomes for children (see "PPI Theory of Change," p. 5).

By focusing on these core elements of teaching and learning, we also sought to ground systems-level work in classroom-level practice. We hypothesized that by narrowing the scope of our work in this way, we could ensure the greatest impact of our program improvement efforts in states.

What We Learned: PPI provided evidence that practice frameworks can both advance and limit systems change work.
We hypothesized that by focusing on these essential program practices, we would be well-positioned to improve pre-K quality. Indeed, states did use the essential elements framework to conduct a self-assessment of the state pre-K system, to engage state partners in developing a common vision for improvement and, in one state, to engage pre-K providers in reimagining state standards. Moreover, we found that research- and theory-based frameworks in general were very grounding and focusing for state partners. For example, Oregon used an established, evidence-based framework to create its strategic plan and, ultimately, to inform the revision of its state pre-K quality standards. By aligning to this framework, Oregon could relatively quickly offer pre-K programs existing professional development and measurement resources that directly targeted the state's improvement aims.

> States seemed to be most successful in making measurable systemic progress when they focused on just one or two elements at a time.

But state agency staff quickly pointed out that even though each element is essential to high-quality classroom practice, it's impractical to advance improvements to all eight elements at the same time. Instead, states seemed to be most successful in making measurable systemic progress when they focused on just one or two elements at a time. For example, based on the framework, Tennessee focused first and foremost on improving curriculum policy and implementation. The agency's first order of business was creating policy that limited the number of approved curricula that could be used in pre-K programs from over 30 to just three high-quality evidence-based choices. Tennessee also embraced the essential element

of data-driven decision-making, choosing a classroom observation tool, completing its first statewide data collection using the tool and launching the development of a robust data system for early learning.

And while the eight essential program practices were helpful to focus systems change on practice outcomes, states also found critical elements of high-quality pre-K missing from the framework. For example, Washington prioritized work on inclusion of children with special learning needs — including using PPI funding to hire an inclusion specialist, which gave the issue dedicated staff capacity, and working with their PPI research partners to plan an inclusion pilot and collect data on inclusion practices. In Oregon, the state identified family engagement as a key missing piece of the framework. In their strategic plan, the state's first priority was to create a system that ensures that "families are engaged in early learning programs." Indeed, particularly in the midst of the COVID-19 pandemic, all three states prioritized work related to improving family engagement practices.

3. BUILDING STATE INFRASTRUCTURE FOR IMPLEMENTATION HELPS TO ENSURE HIGH-QUALITY, SUSTAINABLE AND EQUITABLE PRE-K.
As described in the PPI theory of change (see "PPI Theory of Change," p. 5), we hypothesized that our work in PPI followed a sustainable and comprehensive approach to improvement that will persist over time and through systems transitions. In particular, implementation science reminded us that implementation is a process that progresses through predictable stages, and that it is propelled by key infrastructure drivers that support the people responsible for implementing a program or practice to improve over time.[15] In PPI, we focused on the elements of state pre-K infrastructure that most directly set the conditions for strong program practices: policies, data and improvement; supports for implementation; system capacity; and stakeholder engagement (see "PPI Theory of Change," p. 5). We contrasted this approach with a trend we saw in previous attempts to improve pre-K, which tended to focus on individual elements of quality, such as requiring a particular curriculum, collecting child assessment data or, more recently, coaching. Although the quality of each of these individual elements matters greatly,

our approach was based on the belief that they are necessary but not sufficient for achieving significant or sustained impact.

Importantly, also implicit in this assumption is the premise that by building strong infrastructure for implementation — which includes data to understand needs and feedback loops to attend to equity in implementation and focuses on achieving positive outcomes for *all* students — the system would become increasingly equitable. We reasoned that if we could design, and effectively implement, state systems that support quality improvement in all pre-K programs statewide, we would increase access to high-quality early care and education for those children who stand to benefit most.

What We Learned: Working with partners in Oregon, Tennessee and Washington taught us that implementation science is useful at the systems level but that it does not sufficiently advance equity. Using an implementation science framework to guide states' work was very helpful in planning for sustainable improvements to their systems. Specifically, state partners found introductions to implementation science principles and systems change concepts — such as through presentations by Melissa Van Dyke and John Harper and Ebele Anidi from FSG, a mission-driven consulting firm, at PPI peer learning events and reinforced in consulting — practical to apply to their work.

Specifically, they noted that they helped them pay attention to phases and training, guidance and supports at multiple levels of the system. For example, Oregon state partners applied an implementation science framework as they worked to improve the state's quality standards for preschool programs. The framework helped them attend to the systems changes and supports that local programs would need from the state to ensure that they could effectively implement pre-K and improve over time. State agency partners in Washington leveraged PPI resources to engage with FSG to build agency leadership's capacity to advance equity using the concepts from the "Waters of Systems Change" framework on creating systems change. And state partners in all three states successfully used these frameworks to advance the professional learning supports that teachers in their states received.[16] We saw these successes even while each state faced capacity limitations — and sometimes also barriers to leveraging existing K-12 quality improvement infrastructure — that challenged their ability to scale promising quality improvement initiatives.

> **State partners — particularly in Oregon and Washington — led the way in moving equity to the center of PPI's work.**

Importantly, we also learned that systems do not become more equitable just by working to improve their quality generally. Instead, PPI work in Oregon, Tennessee and Washington reinforced that equity must be intentionally prioritized in systems-level work. PPI did not build in an intentional focus on equity from the beginning. Though equity was a motivator for each individual partner, we only began to explicitly focus on equity collectively as a central priority for PPI two years into the work. As a result, it took us far too long to put in place the partners and supports needed to truly center equity in the PPI strategy. In 2020, we engaged equity consultants from ResourceFull Consulting to train, coach and support the PPI anchor partners, and all three organizations were engaged in their own diversity, equity, inclusion and belonging work internally at this time. And indeed, state partners — particularly in Oregon and Washington — led the way in moving equity to the center of PPI's work.

For example, the Washington state agency partners engaged in racial equity planning work and professional development at multiple levels of their system. This included training with the National Equity Project, creating equity community agreements, launching equity learning and practice groups, as well as disseminating and discussing resources on topics such as implicit bias. In addition, the agency hired a tribal specialist to help lead relationship repair with Washington's 29 federally recognized Native American tribes in order to support the delivery of services that are of high quality and culturally sensitive and ensure that tribes can access services in a timely manner. In Oregon, the state agency was intentional about communicating with all the communities it served. For example, it sent communications in five languages to accommodate the state's diverse workforce and engage a work group for native speakers to review the translation of key documents such as eligibility forms for accuracy and clarity.[17]

By the end of PPI, and perhaps partially motivated by the COVID-19 pandemic, all three states made important strides in including family and provider input in agency decision-making and policy implementation. For example, Tennessee focused on improving family engagement practices and district engagement, such as by creating state agency office hours to support districts and holding focus groups with district representatives to explore what would be most helpful in a state data system.

4. FOCUSING ON STATES' PRE-K PROGRAMS SERVING 3- AND 4-YEAR-OLDS IS A RESEARCH-BASED AND STRATEGIC APPROACH TO SYSTEMS IMPROVEMENT.

The original goal for PPI was to increase access to high-quality pre-K by supporting more states to achieve state-level exemplary pre-K programs. The Gates Foundation focused its investment on pre-K systems independent from other early childhood systems that govern child care, Head Start and birth-to-three programs. This decision was based on Minervino's review that concluded there was a lack of research directly connecting these other early childhood programs to improved outcomes at third grade,[18] and it was influenced by the reality that each of these programs is governed by different policy standards, funding and constraints. Pre-K is one early learning program that is governed almost entirely by individual states. The Gates Foundation further hypothesized that working to improve pre-K as an independent system was also a strategic starting place because it is a system in which the strategy's improvement goals were most readily attainable and therefore in which limited resources could be efficiently invested. Our experience in states challenged this assumption, but we agreed to test and learn from this strategy and to seek state input along the way.

What We Learned: Our PPI experiences confirmed that at the systems level, coordination, alignment and resource-sharing across early learning programs and entities (including Head Start and child care) are necessary and advantageous when striving to improve pre-K statewide. While PPI focused primarily on pre-K, we found that quality and equity for children and families is improved when pre-K is not considered in isolation. This is especially true in states where pre-K is delivered in diverse settings, such as schools, community-based centers and home-based programs. For example, one of Oregon's first learnings during the PPI project was that it could not improve preschool quality in isolation of the whole early childhood system. The state's PPI strategic plan was carefully aligned to Oregon's broader vision for early learning, both in the Raise Up Oregon statewide early learning system plan (mapping a vision across birth to five, and across five agencies) and in the state's Preschool Development Grant (Birth-5) implementation plan. The state agency envisioned a coordinated system across early childhood programs that would promote more equitable distribution of resources and ultimately more equitable access to, and outcomes from, high-quality pre-K. The agency advanced key policy and program improvements toward a more coherent system through aligned quality standards, monitoring and coaching across programs and settings. In addition, one of the several bills in the state legislature to expand and support early learning would establish the Early Learning Division as a new independent agency that would oversee both pre-K and child care, from birth to five years old.

Tennessee advocates pursued a strategy that sought to link pre-K to early elementary improvement and outcomes. Tennessee, which

historically has managed pre-K, Head Start and child care separately in its system, is also beginning to explore collaboration between pre-K and Head Start as a way to begin to seize opportunities to integrate pre-K into broader initiatives that are gaining momentum, such as supporting early literacy, addressing "learning loss" resulting from the pandemic and reforming child care. Similarly, Washington's Fair Start for Kids Act, a key piece of legislation that builds on the 2015 Early Start Act and was passed in May 2021, focuses on providing more accessible and affordable early learning, bolsters the child care workforce and supply, expands ECEAP eligibility and provides parents with more resources across the entire early learning system. This bill reflects Washington's view of pre-K being part of the education ecosystem and would help support and expand Washington's already-robust infrastructure for early learning.

5. SYSTEMIC, EQUITABLE AND SUSTAINABLE IMPROVEMENT REQUIRES PARTNERSHIP AMONG STATE AGENCIES, ADVOCATES AND RESEARCHERS.

We were inspired by Bryk and colleagues, who offered: "If the field of education is truly to embrace quality improvement, all of the major actors — those who make policy; those who teach; and those who train, research, and support educators — must change in fundamental ways. … [C]ontinuous quality improvement means building the human capabilities and institutional capacities to support such efforts."[19] PPI focused on the inside of government (work by state agency leaders) and the outside of government (led by advocates and researchers) to attend to the relationships, power dynamics and mental models that drive systems-change efforts. Specifically, we noted that partnerships with advocates

are critical because they are needed to defend important resources, for lobbying governors and the legislature, and for engaging communities to ensure their voices are represented. Likewise, research-practice partnerships are critical supports because they can generate data and analysis that state agencies often lack. State agencies can leverage these partnerships to answer key questions about the implementation of new policies and practices that they can then use to inform systemwide improvements. We felt so strongly that these interdisciplinary partnerships were crucial that we suggested that *strengthened alliances* among these partners is a leading indicator of systems progress. We noted that alliances among these partners may vary in levels of coordination, collaboration and mission alignment but that they are essential to creating the relationships that result in systemic change.[20]

What We Learned: Our experiences working in Oregon, Tennessee and Washington confirmed that strong, trusting and stable partnerships with advocates and researchers were often key to success.
In fact, the research partnerships that were most successful were built on long-term relationships that existed before PPI began.[21] Nevertheless, by intentionally allocating resources and staff to this type of intensive collaboration, research-practice partnerships in all three states played critical roles in supporting the state agencies to collect and use the data they needed to make critical decisions—especially in the midst of the COVID-19 pandemic. This added capacity was essential in each state because, as in states nationwide, the agencies often lacked the internal infrastructure they needed to use and analyze their data — and indeed much of the data itself — to inform decision-making.

"As a leader, I gained a greater understanding and appreciation for the collective work and impact of 'the trinity' — state agency, advocacy and research. The work is complex, but I am grateful for the way PPI brought the three together to have shared talking points around pre-K quality and progress made with key and diverse stakeholders. Our [program] leaders, teachers, teacher assistants and children greatly benefited." *— State Agency Leader*

Throughout PPI, state agency and research partners worked together to identify key outcomes, collect the data needed to understand progress and use that data to inform continuous improvement over time. For example, in Washington, PPI research partners have helped develop and administer multiple surveys to provide the state agency team and others with data on various aspects of the system; these data are being used to help inform decision-making around improving pre-K services, inclusion policies and practices, and telling the story of pre-K during COVID-19. In surveys conducted four years into the project, all state agency staff reported that the research-practice partnerships were useful or very useful in supporting the learning agenda, conducting data scans, analyzing data and using data.[22] In fact, these research partnerships are so highly valued that the teams in Oregon and Washington have taken concrete steps to maintain their partnerships beyond the PPI project.

In addition, partnerships with robust advocacy organizations were instrumental in engaging the field and building political and public will for the infrastructure-building work of the state agency. For example, PPI advocacy partners (and research partners) in Oregon were instrumental in passing the Student Success Act (SSA) in May 2019 and ensuring that it included early learning. SSA contained sweeping provisions for new and improved services for children and families anchored in $1 billion in new annual funding for education, with an estimated $200 million a year dedicated to expanding and improving early

childhood programs and services, including dedicated funds for coaching. State agencies also leaned on advocates for capacity and support around stakeholder engagement, communications, policy development and educating policymakers. Agency staff who were most successful at partnering with advocates in this way invested time in building strong relationships and developing mutual understanding of roles and boundaries.

> **PPI worked to build a community of people that state agency leaders, advocates and researchers can call on as needed.**

Finally, we learned that partnerships and communities in which state partners can learn from one another are also critical supports. PPI worked to build a community of people that state agency leaders, advocates and researchers can call on as needed. PPI state partners found this community particularly useful as a space in which to share new research, ideas and strategies together and over time. We found that this peer learning approach was also essential in supporting state partners as they explored ideas about how to center equity in their work. For example, during PPI peer learning events, we explored research, policy and program strategies to center equity with speakers, including Na'ilah Suad Nasir and Iheoma Iruka.

> "Each peer learning event has highlights with our partners. Late night scheming, passing each other notes across the table saying, 'WE SHOULD DO THAT,' sharing reading materials on planes, walking down random streets while talking about how we have the data to support the ideas. … I think we will all miss that special time being carved out for ourselves."
> — *State Agency Leader*

> "I really appreciate that there was time and planning put into the social connections. They were a great break in my day, a way to still feel connected to other states, and a way to value us as people, not just system builders."
> — *State Agency Leader*

Implications and Discussion

In reflecting on the initial assumptions of PPI, our own work across states and that of our dedicated and talented partners in each state, important themes and implications emerged. Our experiences and observations throughout the PPI project generally affirmed our theory of change and helped to refine our foundational assumptions regarding the complex, interconnected nature of state early childhood education ecosystems, the specific systemic approaches needed to improve them and the intentionality with which they must address issues of equity. Specifically, through this work we learned that:

1. Systems change is complex and occurs over a long period of time.

2. Research- and theory-based frameworks ground and focus the work of systems change.

3. Applying the principles of implementation science and focusing on building systems infrastructure were critical in planning for sustainable improvements to state pre-K systems.

4. Equity must be intentionally prioritized in systems-level work.

5. An early learning system is necessarily larger than pre-K; coordination, alignment and resource-sharing across early learning programs are necessary and advantageous.

6. Systemic, equitable and sustainable improvement requires partnership among state agencies, advocates and researchers.

RECOMMENDATIONS

These reflections and lessons learned from PPI are already informing our daily work conducting research, providing consultation and developing resources for state systems leaders and advocates. It is our hope that others may benefit as well. Below we offer recommendations for state systems leaders, advocates, research partners and consultants or technical assistance providers who endeavor to systematically, equitably and sustainably improve the quality of pre-K. The **PPI Toolkit** offers a set of practical tools that can be helpful in applying these recommendations.

Five recommendations for state systems leaders, advocates and research partners

1. **Build meaningful partnerships among systems leaders, advocates and researchers.** When partnering — especially across disciplines and organizations — spend time developing trusting relationships, prioritize transparency and be intentional about creating stable routines for communication and dedicated time for collaboration. Regularly strive to diagnose what is working well in the partnership and what needs improvement; be proactive about seeking solutions that will help to improve these important relationships. The work of systems change can be lonely and grueling — and it can be rewarding and joyful when supported by partners and peers.

2. **Think beyond pre-K.** Seek to understand and improve how pre-K fits into the larger early learning and education systems in your state. How will pre-K improvement efforts impact other parts of the system? How could other programs (such as Head Start, child care, birth-to-three services or K-12) benefit from your efforts as well? Are there existing resources or infrastructure in other parts of the system that you could leverage or build on to achieve your aims for pre-K?

3. **Recognize that implementation and infrastructure are the critical missing pieces.**
Attending to systemwide supports is key to the improvement of any program or service. Intentional planning with those most affected by the policy or program regarding the guidance, data, professional development and capacity needed at multiple levels of the system results in higher quality and more-sustainable implementation.

4. **Use intentional strategies for increasing equity and elevating parent and teacher voices.**
Continuous stakeholder and community engagement is critical. Pay attention to building state agency staff, advocate and researcher capacity in this area, and to developing partnerships when additional capacity is needed.

5. **Prioritize data infrastructure and your state's ability to use data for improvement.** Data capacity is an important support for system improvement. Having data that shed light on inequities among children, families, educators and providers, and communities leads to equity-related improvement.

Five recommendations for national and local consultants and technical assistance providers

1. **Center equity from the beginning of the project.** Build in equity in the outcomes you aim to achieve, in the data you collect, in who is on your team and with whom you work, in what consulting and content you deliver, and in how it's delivered. Be explicit about, and shift if needed, power dynamics across consultants, state and local partners, and funders.

2. **Ensure that state and local voices drive systems improvement consultation and technical assistance.** It's a parallel process of systems change. Just as we support systems leaders to engage families and providers, we need to build in formal opportunities for state and local partners to inform the design, implementation and improvement of our supports and projects. Share all data you collect, and empower state and local organizations with decision rights on the content and delivery of these efforts.

3. **See the forest and the trees.** Government leaders and advocates are charged with advancing comprehensive, long-term visions across their systems while at the same time they are also responsible for addressing pressing, day-to-day technical challenges in the weeds of policy and programs. Provide stable, relationship-based supports to help state and local partners navigate this complexity and balance the two.

4. **Provide flexible resources and funding.** Flexible resources and funding are needed to prioritize enduring infrastructure improvements or staff capacity that state systems, advocates and researchers would not otherwise have funding for. PPI resulted in the creation of permanent staff positions in two state agencies after the project ended, which will ideally result in enduring improvements and capacity. Encourage funders to directly grant to states in addition to your technical assistance, and support local partners to explore how ongoing costs could be transitioned to public funding sources.

5. **Share PPI's Tookit with state advocates, researchers and agencies.** PPI's online toolkit builds on what we learned in this project and is designed to help leaders develop and sustain high-quality, equitable pre-K programs and systems.

LIMITATIONS AND FUTURE DIRECTIONS

The PPI work detailed in this report and our reflections about it have a few important limitations. First, it is important to reiterate that the real scale for this kind of systems work is longer than five years — it is continuous and occurs in cycles. Leaders in Oregon, Tennessee and Washington were making improvements well before PPI began, and we know that the story of systems change in these states is still unfolding now that this project is over. This is one of the most important lessons that we have taken away from our PPI experiences, and in our own work, we are continuing to grapple with how to best support long-term systems change via the relatively short-term initiatives that typically characterize the support that consultants and technical assistance providers can offer to systems leaders.

We see opportunities to build and support cross-state networks of peers and strong and stable local partnerships among systems leaders, advocates and researchers as key to addressing this tension, and we seek to prioritize these approaches in our future work. For example, based on our learning in PPI, Start Early has launched a consulting practice focused on supporting states and communities to plan for, lead and implement systems change, with sustainability in mind. And the Alliance for Early Success recently launched a community of practice in which state advocates can learn with each other and national partners to deepen their personal understanding of racial equity issues and develop concrete plans to live out those values in their policy and advocacy work.

In addition, the reflections, conclusions and lessons described in this report are informed by data produced or collected by PPI partners and states, and by case studies of research-practice partnerships conducted by Cultivate Learning,[23] and Mathematica's PPI formative evaluation.[24] However, they are based primarily on our own observations and experiences, not on formal evaluation. This is partly because the data limitations are myriad — including missing data, inadequate measurement and limited availability of classroom and child-level data. There are also fieldwide challenges that have plagued early childhood systems in all states for decades, such as underfunded state early childhood data systems and a dearth of measures that meaningfully assess state policy and infrastructure. The Bill & Melinda Gates Foundation is working to address these gaps in the field in its renewed early learning **strategy**. The authors of this report have also aimed to contribute to building systems' access to meaningful and useful data and measurement in our own ongoing work. For example, Cultivate Learning developed the **Implementation Development Map (IDM)** tool to describe, assess and identify priority areas for improvement of state pre-K infrastructure and program/policy implementation. Cultivate Learning is supporting states' use of the IDM to evaluate their pre-K systems and will continue to refine the tool based on user feedback. Start Early is also beginning to explore a more actionable, equitable, family-centered approach to measuring cross-sector early childhood systems.

CONCLUSION

PPI was a five-year initiative of the Bill & Melinda Gates Foundation in which state partners in Oregon, Tennessee and Washington — supported by Start Early, Cultivate Learning and the Alliance for Early Success — worked collaboratively to strengthen and sustain pre-K in their states by building robust systems infrastructure to support equitable, high-quality implementation of program practices. PPI's approach to this work centered on building sustainable state partnerships across program, research and advocacy in support of a common vision for high-quality pre-K systems improvement. As national policy conversations have turned toward ensuring that all families can access high-quality early care and education, this work takes on a new sense of urgency. The potential of new federal investment and ongoing advocacy at the state and local levels has created new, possibly transformative opportunities for our field. Realizing this dream hinges on our collective ability to design and implement strong systemwide infrastructure. Our experiences in PPI provide critical lessons that we can all learn from to provide our nation's children and families with the early learning experiences they deserve.

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