Early Learning: The New Fact Base and Cost Sustainability

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INTRODUCTION
Early learning holds enormous promise for young children and especially for young children in low-income families (Burchinal, 2000; Duncan, 2003; Magnuson, 2007; Howes, 2008; Dearing, 2009). However, most investments in early learning have not resulted in both significant and sustained academic gains for children. Where gains have been achieved, too often these gains have faded either in large part or completely within a few years (Barnett, 1995; Puma, 2012). And while a number of programs have transcended academic fade-out (e.g., Abecedarian, Perry Preschool), the cost-per-child of these programs is beyond what policymakers at the federal, state, and local levels can spend and sustain.

However, over the past few years, a new fact base has emerged. The result is a number of early learning programs that demonstrate significant and sustained gains for young children at a lower cost-per-child than previously attained.

This paper focuses on this new fact base and the role high-quality early learning plays in driving and sustaining gains for children—early learning that sticks. Following this, from the academic literature, there is discussion of the most important elements of high-quality early learning programs—those program features that, when present, substantially increase the odds of early learning that sticks. Following this is an analysis of the cost-per-child of successful early learning programs and whether sufficient dollars may already be in the system.

TAXONOMY
This analysis focuses on the approximately 5 million U.S. children, ages 3-5, from low-income families (The Annie E. Casey Foundation, 2013).1 Other parts of the taxonomy are footnoted.2

REVIEWING THE LANDSCAPE
While there have been many experimental successes, there have been few real-world, scaled-up early learning successes showing persistent gains for children. There have been even fewer successes when applying any measure of cost-sustainability. Furthermore:

1. It is estimated that half of low-income children are not ready for the first day of kindergarten (Isaacs, 2012).

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1 In this paper, low-income families are defined as those families with total family income from all sources equal to 185 percent-or-less of current federal poverty guidelines. This income level coincides with federal eligibility requirements for low-income children to receive free- or reduced-price lunch. Note: Head Start and most state- and city-run early learning programs typically have eligibility guidelines for total family income ranging from 100 percent to 200 percent of federal poverty guidelines. The term “lowest-income” families or children refers to the 3 million children living in families at 100 percent-or-below federal poverty guidelines.

2 Unless otherwise noted, “children” refers to low-income children as defined above. “Early learning” refers to center-based programs. “Early learning” and “pre-K” may be used interchangeably. Many sources use the terms “programs” and “interventions” to refer to early learning offerings. This paper uses the term “programs.” Unless otherwise noted, “gains” or “outcomes” refer to academic/achievement gains that children have made that increase their chances of being kindergarten-ready and on a trajectory to be ready for future grades. “Sustained gains” or “early learning that sticks” describes achievement gains made at ages 3-5 that, mostly or in significant part, persist at least through 3rd grade.
Head Start academic gains have been very small, have not persisted (Puma, 2012), and cost-per-child is high. There has been an inability to shift the substantial, existing dollars in the system to drive better outcomes for children.

THE NEW FACT BASE
Rather than trotting out the “usual suspects” to show early learning’s persistent impacts (e.g., Abecedarian, Perry Preschool)—none of which are cost-sustainable at scale—it is useful to look to the states, counties, and cities which have served as R&D labs for what works and what is cost-sustainable.

Some programs have operated long enough to measure gains, see these gains resist fade-out, and prove to be either cost-sustainable or cost-sustainable with modifications. The majority of performance data and measurement referenced here is very recent: 2010-2013. There is also a significantly better understanding of the program elements that contribute to early learning that sticks and how to deliver these in a way that is cost-sustainable. A discussion of those program elements, costs, and a cost-sustainability evaluation appears later in this paper.

State/City Programs with Outcomes That Stick
Reviewing high-quality program evaluations of federal, state, and city-run early learning programs, there are at least four that work, stick, and are (or could be made) cost-sustainable:
1. New Jersey (Abbott Pre-K)
2. Boston Pre-K
3. Maryland (Extended Elementary Education Program (EEEP) and “Judy Centers”)
4. North Carolina (More at Four)

Requirements for selection include: 1) Actual programs, not experiments; 2) Program up and running effectively for at least 7 years; 3) Running at scale across a state, county, or large city; 4) Measurability built-in and achieved with high-quality research design; 5) Evidence of marked improvements in achievement for low-income children; 6) Evidence that effects persist through- or beyond 3rd grade; 7) Use observation, quality ratings, and cycle those into coaching and professional development.

Boston Pre-K is open to all children but is overwhelmingly comprised of children from low-income families.
These programs demonstrate the following impacts:

**Impact at a Glance**

<table>
<thead>
<tr>
<th>Achievement Effect Sizes ($d$)</th>
<th>Measurable Persistence Through…</th>
<th>Children in Poverty Larger Gains</th>
<th>Year Started</th>
<th>Primary Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Jersey</td>
<td>0.40*</td>
<td>5th Grade</td>
<td>Yes</td>
<td>1999</td>
</tr>
<tr>
<td>Boston</td>
<td>0.44 - 0.62</td>
<td>3rd Grade</td>
<td>Yes</td>
<td>1998</td>
</tr>
<tr>
<td>Maryland</td>
<td>*</td>
<td>4th Grade</td>
<td>Yes</td>
<td>2001 (Judy Centers)</td>
</tr>
<tr>
<td>North Carolina</td>
<td>Moderate-to-Large</td>
<td>3rd Grade</td>
<td>Yes</td>
<td>2001</td>
</tr>
</tbody>
</table>

**New Jersey (Abbott Pre-K).** Target: Children in high-poverty areas. Large gains have been achieved in classroom quality and quality of instruction. Academic achievement gains at the end of the Abbott year show effect sizes averaging $d=0.40$. Students spending two years in Abbott Pre-K saw 50 percent larger gains at kindergarten entry than did students spending one year in the program. Subsequent program evaluation shows gains stick with Abbott Pre-K participants through 5th grade (latest measured so far) with effect sizes averaging $d=0.24$. Long-term effects are equivalent to a +10 percentile boost in state test scores. Abbott Pre-K is focused on quality improvement with an emphasis on quality of interactions in the classroom (Barnett, 2013).

**Boston Pre-K.** Target: Children in Boston. Two-thirds of enrolled children live in poverty. Boston Pre-K shows increases in children’s end of year vocabulary $d=0.44$, early reading $d=0.62$, and numeracy $d=0.59$. These are among the largest impacts measured to date of any public pre-kindergarten operating at scale. Moderate improvements in working memory $d=0.24$ and impulse control $d=0.28$ may also contribute to academic gains. Larger than average gains have been made by children in poverty and by children whose primary language is Spanish. Boston Pre-K impact measured through 3rd grade (latest measured so far) shows math, literacy, and language skills of participants considerably more advanced than those of same-age children who did not attend Boston Pre-K. On Massachusetts’ 3rd grade MCAS English Language Arts, 43 percent of program participants scored proficient or advanced compared to 34 percent of non-participants. Boston Pre-K is focused on the importance of quality interactions between teachers and children and a developmentally appropriate educationally-focused curriculum (Weiland, 2013).

**Maryland (Extended Elementary Education Program (EEEP) and “Judy Centers.”)** Target: Primary focus on improving kindergarten readiness among children in poverty. EEEP has shown significant improvements in kindergarten readiness. Statewide, kindergarten “full readiness” is up 33 percentage points in ten years (Maryland State Department of Education, 2013).

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7 Average effect size of vocabulary, literacy, and mathematics gains.

8 Long-term program impact currently under study.
Long-term program impacts are currently under study. Maryland has made rapid and large, across-the-board gains on all measures of academic achievement through 4th grade.

North Carolina (More at Four). Target: 4-year-old children in poverty, some lower-middle-income children, and children with other risk factors. More at Four’s program evaluation finds significant academic achievement differences (moderate to large effect sizes) between program participants and non-participants with effects persisting into 3rd grade. Participation in the program is associated with higher sustained math and reading test scores for poor children, but not for non-poor children.

These successful programs all have a number of factors in common. They have all systematically improved outcomes for children by improving the elements of high-quality early learning that matter most: teaching quality, observation, measurement, feedback, coaching, professional development, curriculum based on standards that connect to kindergarten and beyond, and structure that supports these improvements.

HIGH-QUALITY
“High-quality” has become mantra for early learning practitioners and policymakers over the past few years. However, the mantra around high-quality begs the question: What is high-quality? For many, the term has become a substitute for the difficult work of determining which program elements must be high-quality in order to have impact and resist fade-out, while being cost-sustainable.

A review of the literature on the elements of high-quality early learning is presented in the next section of this paper.

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9 It is estimated that 90 percent of More at Four children qualify for free or reduced-price lunch. Other risk factors include low English proficiency, student disability, or chronic health condition.

10 Forthcoming research by Dr. Ellen Peisner-Feinberg.
Important Elements of High-Quality

Teachers
Far and away, teachers account for the majority of students’ achievement gains in early learning. Increasing teaching quality is the highest-impact investment that can be made.

Quality of Teacher-Child Interactions
The quality of teacher-child interactions is the mechanism responsible for learning in early care and education settings (Hamre, 2007; Mashburn, 2008).

There is now strong empirical evidence regarding a variety of teaching practices that can, and should, be the focus of classroom observations intended to measure and enhance teacher performance. The key ingredient of any classroom or school environment, with regard to learning and development, is the nature and quality of interaction between adults and children. Through careful research, significant headway has been made in describing and conceptualizing what teachers do in the classroom that results in learning. These can be organized into three broad domains of teaching practice that are linked to positive student outcomes: 1) Social/Emotional Support; 2) Organization/Management Support; and 3) Instructional Support.

Mounting evidence suggests that attending to each of these domains in classroom observations helps to define the impact of classroom experiences on student performance. Most importantly, empirical evidence suggests that when teachers use these types of practices, students learn more (Burchinal, 2010).

Quality of Instructional Support
More specifically, the quality of instruction is the primary mechanism responsible for cognitive and achievement gains in early learning settings (Howes, 2008; Mashburn, 2008). There is now evidence showing teacher-child interactions are generally positive and emotionally supportive. The same evidence shows that classrooms are reasonably organized. What is most concerning is that the level of instructional quality—the kind of cognitive demands teachers embed in their interactions with children—is very low. The histogram below depicts this clearly.12

What’s notable in this graph is the low level of developmentally appropriate instructional support present in pre-K classrooms at this level of scale and scope (including Head Start and state-funded pre-K).13 This low level of instructional support means that teachers’ interactions with children in pre-K are likely less frequent, and when they do occur, are low on content, with little or no attention to application.

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11 This section distills the elements of high-quality early learning from the academic literature available at publication. A subsequent paper, The Essential Elements of High-Quality Pre-K, describes the essential elements from the point of view of exemplary early learning programs achieving superior results with young children.

12 Findings drawn from observations of over 10,000 pre-K classrooms across the U.S., using the Classroom Assessment Scoring System (CLASS)—the gold standard for observations and for accountability in Head Start and several state programs.

13 There is no difference in observed interactions (in any of the three domains) with regard to teacher experience or educational level. In fact teachers with an A.A./CDA on average look slightly better than those with a B.A./M.A. possibly because of the practical focus of the training.
problem solving, thinking, reasoning), vocabulary, concepts, and understanding. This has huge (negative) downstream implications for children’s performance in vocabulary, comprehension, and math—and reduces the chance children will be grade-ready or meet standards in future years.\textsuperscript{14}

It is important to note, and will be discussed later, that there are professional development models (online coaching, web-based video library, online and in-person courses) that have been tested and replicated in randomized controlled trials (RCTs) that make teachers effective with great consistency. A number of practices and tools are needed to support these improvements. Surprisingly, many of these practices and tools are further along than most people realize.

**Systematizing Quality: Observation, Measurement, and Teacher Feedback via CLASS**

Even with young children, the quality of teacher-child interactions and the quality of instruction can be observed and reliably measured with assessments such as CLASS (Hamre, 2007; Pianta 2008a; Pianta, 2009). CLASS is being systematically integrated into pre-K delivery systems throughout the United States and other countries. It recently became the gold standard for quality measurement in Head Start (programs can be required to reapply for Head Start funding because of low CLASS scores) and in a number of state early learning programs. These policy initiatives have created a market for quality, in which CLASS is the standard. Thus it has potential to be a powerful lever for improvement.\textsuperscript{15}

All these resources (reliability training, professional development, quality assurance) are self-sustaining and fit in the cost-structure of existing funding streams and delivery models.

**Improving Quality through Coaching and Professional Development Using Technology**

Numerous studies have documented that professional development (PD) spending on teachers has little-to-no impact on teacher practice or outcomes for children (Yoon, 2007; Garet, 2001).\textsuperscript{16}

Conversely, results show that professional development for teachers that allows them to see and label effective interactions results in improved quality of instruction and improved academic outcomes for children (Clements, 2008; Hill, 2008; Pianta, 2008b; Powell, 2010). In addition to observing teacher behaviors that matter most for student learning, such observations allow for the design and testing of professional development models that produce those teacher behaviors. This reinforces the notion of focus on defined, observable, and valid examples of effective teaching as a starting point.

As CLASS-specific definitions of interactions provide a target for professional development, three modes of CLASS-based professional development have been created:\textsuperscript{17}

- **Online Coaching** – Ongoing analysis/feedback on teacher-child interactions. Scales well and works.
- **Web-Based Video Library** – Analysis of others’ interactions to see exemplars.
- **In-Person and Online Course** – Improves teachers’ knowledge and analytic skills.\textsuperscript{18}

\textsuperscript{14} Associations between teacher-child interactions and children’s gains in school readiness on standardized tests show both linear effects (e.g., more is better) and nonlinear, or threshold effects. With respect to threshold effects, classrooms in which teachers score a three or above on CLASS [Range 1-7] (classrooms in which the teachers’ interactions show signs of cognitive demand and conceptual focus) there is a stronger and significant association with positive outcomes. Importantly, below a score of three, there is no association between teacher behavior and child learning—it’s as if these classrooms add no value. These are the majority of pre-K classrooms.

\textsuperscript{15} Scale-up of CLASS is occurring through a private company, Teachstone, devoted to delivery, scale, quality control, and self-sustaining programs for training observers to score reliably (assessment) and professional development (improvement) of teacher-child interactions.

\textsuperscript{16} Estimates on the amount of this spending range from $2,500-$9,000 per-teacher, per-year.

\textsuperscript{17} It appears that the use of technology may increase teacher effectiveness while reducing PD costs-per-teacher.
Each of these modes has been tested and found effective and replicated in RCTs. As with many other elements of quality in early learning, the skills derived from teachers experiencing this professional development benefit children in poverty more than other children. Research and practice show that early-in-career teachers benefit even more from this professional development than do other teachers.

**CLASS and Outcomes for Children**

Evidence exists from more than 10,000 classroom observations demonstrating that young children whose teachers rate higher on CLASS are learning at a faster rate. Results consistently show small-to-moderate effect sizes ($d$ between .10 and .20). Instructional and emotional quality predict more positive achievement and improved social outcomes. There are stronger effects for certain groups of children (effect sizes ~ 0.50), including children from low-income families and children born to mothers with low levels of education. Effects of pre-K interactions persist into later grades.

CLASS is an important development in the quest to improve teaching quality and outcomes for children. However, as a single measure of quality, it cannot account for all aspects of high-quality early learning.

**Proven Curriculum**

Improving teaching quality and implementing CLASS is essential, but not enough. This improvement must be combined with proven curricula focused on building the right skills in early learners (e.g., literacy, math, behavioral). Curricula should embed optimal classroom practices within it and teachers must be well-trained on the chosen curriculum to ensure it is implemented as designed. This combination of teaching quality, proven curricula, and teachers well-trained on curriculum may yield the biggest gains in student achievement, and the gains most likely to stick. Great curricula matters.

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18 The CLASS-based course is essentially a standard college course designed for delivery by faculty. There is a standardized manual for instructors and a set of online videos they access. It focuses on building teachers’ skills in describing and observing interactions. In an RCT involving trained instructors (two days) across 10 higher education sites (community colleges and state universities), teachers who took the course improved in Instructional Support by more than 1.5 CLASS scale points, on average, at the end of the course, and this effect was still significant one year later. An online version of this course is being piloted as a MOOC, with 10,000 users signed up.

19 Teachers with online coaches grew more sensitive in interactions with students and increased students’ engagement in instruction. Improved language stimulation techniques are especially beneficial to high-poverty classrooms. Children with trained teachers made greater gains in tests of early literacy, had lower levels of problem behavior, and demonstrated higher levels of expressive language.

20 Designs isolate effects controlling for other influences, including family demographics, prior performance, and teacher/school effects.

21 Most notably: 1) Children in pre-K classrooms offering higher levels of Instructional Support displayed better language skills at the end of the kindergarten year; 2) Kindergarten Instructional Support scores made an independent contribution to gains in children’s language and math abilities; 3) A one-point difference in observed instructional supports appears linked to shifts in child outcomes; 4) Even into first grade, the academic achievement benefits of being in a classroom that rates high on Instructional Support disproportionately benefits children from homes where their mothers have low levels of education.

22 A virtuous circle is possible: standardized quality measures (like CLASS) now being built into pre-K and Head Start create “market signals” demanding that quality scores improve, leading to repurposing of coaching and professional development dollars that will lead to increases in quality, resulting in better outcomes for children in Head Start and pre-K.

23 Engel (2013) illustrates that most early grade (K-3) curricula are not well-designed and not connected to early learning standards. They further note that kindergarten teachers spend most of their time teaching skills most children already know and do not build on gains children made in pre-K. Engel believes this plays at least some role in the fading out of early gains children make.
**Early Learning Standards**

Over the last decade, almost all states have developed early learning standards or have improved on existing early learning standards (Barnett, 2012). Many states are now focused on connecting these standards to their K-12 systems to ensure a more seamless transition for children.

**Standardized Outcomes Measures for Children**

Federal- and state-funded early learning programs are coming under increased scrutiny and being pushed toward more accountability. Most states are responding by adopting systematic and proven ways to measure kindergarten-readiness and future-grade readiness that map to early learning standards. These measurements are providing guidance to teachers and administrators as to where kindergarten-readiness gaps exist. In addition to these new measures, states are using a combination of teacher and student observation, teacher-administered tests, and program evaluation scores as input by which achievement outcomes are being measured.

**Structural Quality**

Pre-K programs exhibit two categories of quality: process quality and structural quality. Process quality refers to elements of quality, such as teacher-child interactions, and the quality of instruction—issues covered earlier in this paper. Structural quality refers to classroom characteristics such as group size, teacher-child ratios, teacher and staff education/training/certification, and length of the early learning day.

Understanding which elements of structural quality most impact child outcomes is critical in two ways. First, it increases the chances that desired outcomes will be achieved. Second, elements of structural quality are far and away the most significant cost drivers in early learning. Those costs are discussed in the next section.

Summarizing the academic literature on elements of structural quality in early learning:

1. Pre-K and kindergarten class sizes above 20 students are generally associated with poorer outcomes for children (Barnett, 2004).26
2. Likewise, teacher-child ratios above 2:20 (one lead teacher, one aide, and 20 children in a classroom) are associated with poorer outcomes for young children. Almost all high-quality early learning programs, including all of the programs featured in this paper with outcomes that stick, have teacher-child ratios of 2:20 or better.27

Class size and teacher-child ratios tie to the earlier discussion about teaching quality. These elements make it possible (necessary, but not sufficient) for teachers to have the time available for high-quality teacher-child interactions and high-quality instruction, while allowing children to explore and play either independently or in small groups.

1. The data on the importance of teacher degree attainment and certification is murkier. As far as lead teachers are concerned, credible research supports the “B.A. is required for high-quality teaching

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24 Pre-K curricula such as Dr. Doug Clements’ (University of Denver) “Building Blocks” (numeracy/math) have proven themselves in RCTs and such examples are embedded in successful early learning programs.

25 Most states are (appropriately) choosing to view kindergarten-readiness via a comprehensive set of domains. These domains generally include health and physical well-being, social and emotional skills, and cognitive skills. Increasingly, states are further segmenting these domains into finer classification (e.g., cognitive skills, including approaches to learning, language, and literacy).

26 Even after controlling for factors that might correlate with large class sizes (e.g., family income in pre-K area, teaching quality, etc.).

hypothesis” (Bueno, 2010), as well as the “B.A. is not required and is very weakly correlated with better outcomes than teachers with lesser credentials can achieve” hypothesis (Early, 2007).28 29

2. The formal education and degree attainment required of teacher aides/paraprofessionals is much lower.30

3. High-quality programs, including the ones highlighted in this analysis, typically offer 6-6.5 hours of early learning per day, five days a week, 180 days a year.

Given that the majority of the costs of providing early learning are the costs of teacher/aide salaries and benefits, the required elements of structural quality—even assuming a teacher-child ratio of 2:20 and a lead teacher with an associate degree—place a floor on how low cost-per-child costs can be driven in early learning while still achieving outcomes that stick for children.

Costs (All Costs Are Per-Child, Per-Year)
Well-known, effective programs, not cost-sustainable, not broadly-delivered:31

<table>
<thead>
<tr>
<th>Program</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educare32</td>
<td>$11,000 - $23,000</td>
</tr>
<tr>
<td>Abecedarian</td>
<td>$16,000 - $40,000</td>
</tr>
<tr>
<td>Perry Preschool</td>
<td>$20,000</td>
</tr>
</tbody>
</table>

Large programs of mixed quality have broader cost ranges:

<table>
<thead>
<tr>
<th>Program</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Start (e.g., WA)</td>
<td>$9,000</td>
</tr>
<tr>
<td>U.S. State-Run Pre-K Avg.</td>
<td>$7,80033</td>
</tr>
<tr>
<td>WA State-Run Pre-K (ECEAP)</td>
<td>$7,000</td>
</tr>
<tr>
<td>Full-Time Licensed Care (WA)</td>
<td>$5,000-$12,00034</td>
</tr>
</tbody>
</table>

28 While the academic literature may be split, all of the programs reviewed in this paper require lead teachers to have a B.A. Boston Pre-K goes a step further, requiring their teachers to have an M.A. within five years of commencing teaching.

29 Rather than focusing on degree attainment, it may be most important that early learning teachers be trained and proficient in establishing social-emotional warmth, creating high-quality teacher-child interactions, and delivering high-quality instruction based on established standards and proven curricula. There is widespread recognition that teacher preparation programs need to be strengthened (regardless of degree earned). Ongoing research suggests components of teacher preparation (e.g., revamped courses and online pre-service coaching) can be improved and yield more effective teachers—though these components have yet to achieve scale.

30 A Child Development Associate (CDA) is standard and requires a high school diploma/GED, 120 hours of formal early childhood education training, and 480 hours of professional experience with pre-K children ages 3-5.

31 All costs in 2012 dollars unless otherwise specified.

32 Educare’s cost per child per year varies according to location and includes extensive, comprehensive services and longer hours of care than most other early learning programs.

33 The definitive study is Levin and Schwartz, 2007. Costs are in 2013 dollars.

34 Early learning is less expensive in rural areas, but more likely to be traditional day care without an instructional component.
Aforementioned early learning programs that work, stick, and are (or could be made) cost-sustainable:

<table>
<thead>
<tr>
<th>Program</th>
<th>Cost Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Jersey (Abbott Pre-K)</td>
<td>$12,000 - $14,900</td>
</tr>
<tr>
<td>Boston Pre-K</td>
<td>$12,000</td>
</tr>
<tr>
<td>Maryland (EEEP Initiative)</td>
<td>$9,800</td>
</tr>
<tr>
<td>North Carolina (More at Four)</td>
<td>$8,500</td>
</tr>
</tbody>
</table>

**Cost Analysis: Sustainability and Implications**

Given the previously discussed elements of quality required for early learning success, and given what federal, state and local governments are already spending on early learning, a cost-sustainability target averaging $8,000-$10,000 per-child, per-year is feasible.

The table below shows early learning program cost options, assuming a 48-state average compensation and benefits package, with various assumptions as to lead teacher degree and class size.

<p>| Six Hour Pre-K Program: Estimated Annual Per-Child Costs in 2013 Dollars |
|-------------------------------------------------------------|------------------|</p>
<table>
<thead>
<tr>
<th>Teacher Qualifications</th>
<th>Class Size</th>
<th>15</th>
<th>17</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.A. I</td>
<td></td>
<td>$10,050</td>
<td>$9,200</td>
<td>$8,250</td>
</tr>
<tr>
<td>B.A. II(^{39,40})</td>
<td></td>
<td>$8,950</td>
<td>$8,200</td>
<td>$7,400</td>
</tr>
<tr>
<td>A.A.</td>
<td></td>
<td>$7,950</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

35 At a cost-sustainable range of $8,000-$10,000/year/child.

36 Wage and benefit structure in ~20 states would support a New Jersey (Abbott)-type program at the top of the $8,000-$10,000/year/child cost-sustainability target.

37 Wage and benefit structure in ~30 states would support a Boston Pre-K-type program within the $8,000-$10,000/year/child cost-sustainability target.

38 In some states, early learning teachers with B.A.’s are paid on the same salary and benefits scale as K-3 or K-12 teachers (e.g., New Jersey, Boston/Massachusetts). In high-cost, high-teacher salary/benefits states, *solely the cost of one teacher and one aide in a classroom can exceed $6,000 per-child, per-year*. In other states, early learning teachers with B.A.’s are paid anywhere from 10 to 40 percent less than K-12 teachers. Early learning teachers with associate degrees or lesser degrees are rarely paid more than $20/hour outside of high-cost states and cities.


40 For 180-day school year, aide @ $15/hour inclusive of benefits, compensation – 60 percent+ of program costs.

41 B.A. required but paid at 12 percent discount to K-3 staff with B.A. degrees.

42 Research and practice indicate that when the pay gap between K-12 teachers with a B.A. and early learning teachers with a B.A. reaches somewhere in the neighborhood of 25 percent or more, early learning teachers often leave the field for jobs in the K-12 system. Large pay disparities between the early learning system and the K-12 system also undermine time and effort invested in the coaching and professional development of early learning teachers—at least as far as children in early learning reaping the benefits of having higher-quality instruction.
The Dollars (in Large Part) Are in the System

As noted earlier, federal, state, and local governments are already making substantial investments in early learning totaling $21-27 billion annually.43 Were those dollars to be strictly focused on early learning for the 3 million lowest-income children in the U.S., $7,000-$9,000 per child would be available.44 Though repurposing these dollars is no easy matter, the amount of existing dollars in the system would comprise all or a large portion of the early learning cost-sustainability target of $8,000-$10,000 per child. This repurposing would also cover all costs to systematically implement all of the observation, measurement, teacher feedback, proven curricula, establishing and connecting standards, and measuring child outcomes noted in this paper.45

There are two immediate implications: There is substantial money already in the system and the bulk of it could be redirected to deliver high-quality early learning to children in low-income families.46 A focus on different practices (i.e., the essential elements of high-quality early learning) will get better results. Redirected dollars should focus on: 1) Systematic improvements in teaching quality via observation, measurement, teacher feedback, coaching, and professional development; 2) Use of proven curricula; 3) Improved teacher preparation focused on improving the quality of teacher-child interactions and quality of instruction; 4) Measuring outcomes for children and using that data to improve individual child outcomes and to inform overall instruction. Any additional money injected into the system should catalyze or go directly toward this same focus.

Progress in Early Learning: The New Fact Base at a Glance

<table>
<thead>
<tr>
<th>Then (Pre 2010)</th>
<th>Now (2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expensive pre-K programs that don’t scale.</td>
<td>Cost-sustainable pre-K programs ($8,000-$10,000) with high potential for scaling.</td>
</tr>
<tr>
<td>Academic gains in pre-K are not sustained.</td>
<td>Selected exemplar pre-K programs showing academic gains through elementary grades.</td>
</tr>
<tr>
<td>No consensus on how to create and deliver high-quality pre-K.</td>
<td>Field coalescing around the elements of high-quality that drive the best outcomes for children.</td>
</tr>
<tr>
<td>Low accountability.</td>
<td>More systematic, evidence-based, data-driven approaches. Room for innovation.</td>
</tr>
<tr>
<td>Insufficient focus on teacher-child interactions and quality of instruction, generally not measured.</td>
<td>Teachers matter most. Focus: teacher-child interactions and high-quality instruction, broad adoption of CLASS in-progress.</td>
</tr>
<tr>
<td>Lack of effective coaching and professional development (PD), no models to get to scale.</td>
<td>Coaching/PD, targeting instruction, using online coaching, video, and in-person and online coursework.</td>
</tr>
<tr>
<td>Not enough focus on pre-K student outcomes.</td>
<td>Increased use of data to measure outcomes, kindergarten readiness assessments post-preschool, measuring Head Start grantees and dropping those that are low-quality.</td>
</tr>
<tr>
<td>Inconsistent adoption of whole child, comprehensive early learning standards.</td>
<td>Early learning standards now the norm, moving quickly to connect to kindergarten standards.</td>
</tr>
<tr>
<td>Lack of proven curricula to boost student achievement.</td>
<td>Proven curricula in literacy and numeracy exist (adoption of proven curricula remains low).</td>
</tr>
</tbody>
</table>

43 Head Start and Early Head Start comprise about $8-9 billion of this total.

44 Lowest-income in this case being children in families at 100 percent-or-below federal poverty guidelines.

45 Startup costs would add an estimated $400-$700 per child for the first year only.

46 Based on overwhelming evidence that high-quality early learning has the largest positive impacts on children in low-income families.
REFERENCES


Levin, H. M., & Schwartz, H. L. (2007, March). What is the cost of a preschool program?. In *National Center for the study of Privatization in Education*. Symposium conducted at the meeting of the AEFA Annual Conference, Baltimore, Maryland.


The Annie E. Casey Foundation, KIDS COUNT Data Center, http://datacenter.kidscount.org/ Estimate interpolated for children ages 3-5 in families with incomes less than 150% of the federal poverty limit (FPL) and less than 200% FPL.


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