Early Learning Programs in the US – Contemporary Analysis

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Introduction

Early learning holds enormous promise for young children and especially for young children in low-income families. However, most investments in early learning have not resulted in both significant <u>and</u> sustained gains for children. Where gains have been achieved, too often these gains have suffered from academic fadeout. And while a number of programs have transcended academic fadeout, the cost-per-child of these programs is beyond what most families can afford and what policymakers at the federal-, state- and local level 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 <u>and</u> sustained gains for young children at lower cost-per-child levels 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, we discuss 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, we analyze the cost-per-child of successful early learning programs. We then highlight the most significant cost drivers and steps program designers can take to reduce costs-per-child to affordable and sustainable levels without reducing quality or sacrificing outcomes for children.
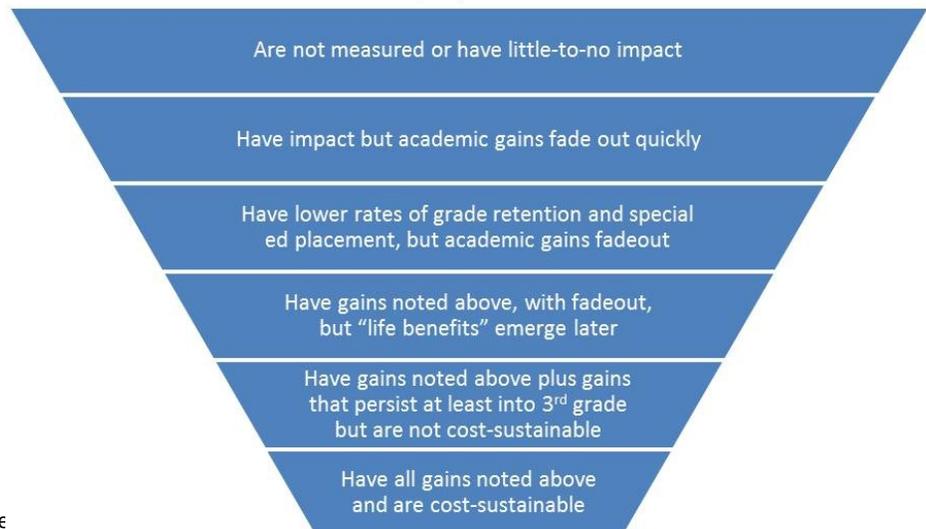
Our Taxonomy

Our focus is the **3 million U.S. children, ages 3-5, from low-income families**.[1] For programs using different income eligibility requirements, we will explicitly state these. Other parts of our taxonomy are footnoted.[2]

Frustration

We share a frustration as we see a lot of numbers thrown about regarding early learning outcomes, long-term cost-benefit ratios, etc. Although there are many experimental successes there are few, real-world, scaled-up successes showing persistent gains. There are even fewer successes when applying any measure of cost-sustainability.

We see programs that:

- Are not measured or have little-to-no impact
- Have impact but academic gains fade out quickly
- Have lower rates of grade retention and special ed placement, but academic gains fadeout
- Have gains noted above, with fadeout, but "life benefits" emerge later
- Have gains noted above plus gains that persist at least into 3rd grade but are not cost-sustainable
- Have all gains noted above and are cost-sustainable

[1] We define low-income families as those

[2] Unless otherwise noted, when we say "children", we are referring to low-income children as defined above. When we say "early learning" we are referring 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. We use the term "programs." Unless otherwise noted, when we use the term "gains" or "outcomes", we are referring 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. We use the terminology "sustained gains" or "early learning that sticks" to describe gains made at ages 3-5 that persist at least through 3rd grade.

Chief among our other top frustrations:

1. Head Start academic gains have been very small, have not persisted, and their cost-per-child is high.
2. Inability to shift the substantial, existing dollars in the system to drive better outcomes for children. [3]

The New Fact Base

Rather than trotting out the "usual suspects" to show early learning's persistent impacts (e.g. Abecedarian, Perry...) - none of which are cost-sustainable at scale - we find it useful to look to the states, counties, and districts, 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 transcend fadeout, 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. We also have a significantly better understanding of program elements that contribute to early learning that sticks and is cost-sustainable. We'll discuss those program elements, costs, and our cost-sustainability evaluation later in this document.

State/City Programs with Outcomes That Stick[4]

Early Learning programs that work, stick, and are (or could be made) cost-sustainable:

1. **New Jersey (Abbott Pre-K)**
2. **Boston Pre-K [5]**
3. **Maryland (Extended Elementary Education Program (EEEP))**
4. **North Carolina (More at Four)**
5. **Pennsylvania (Keystone STARS and Pre-K Counts)**

We move on to program impacts: Impact At A Glance

	Achievement Effect Sizes (*d*)	Persistence Through…	Children in Poverty Larger Gains	Primary Impacts
New Jersey	**0.30**	5th Grade	Yes	See text
Boston	**0.44 - 0.62**	3rd Grade	Yes	See text
Maryland	*	4th Grade	Yes	Increased kindergarten readiness by **32 percentage points** in 9 years
North Carolina	**0.24 - 0.51**	3rd Grade	Yes	See text
Pennsylvania	*	2nd Grade	Likely@	**2x-4x impact** on proficiency in language, math, social skills

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[3] We estimate 2012 total annual federal- and state spending on early learning for all children ages 3-5 (not including kindergarten) at $21-$27 billion. Were these dollars to be spent exclusively on low-income children, all 3 million low-income children in the U.S. could receive high-quality early learning at cost-sustainable levels (in this case $7,000-$9,000 per-child). More on this later in this paper.

[4] Requirements for selection include 1) Up and running effectively for at least 7 years. 2) Running at scale across a state, county, or large city. 3) Actual programs, not experiments or quasi-experimental studies (Boston Pre-K Evaluation excepted). 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 (Pennsylvania through 2nd grade).7) Use observation, quality ratings, and cycle those into coaching and professional development.[4]

[5] Boston Pre-K is open to all children but is overwhelmingly comprised of children from low-income families.

New Jersey (Abbott Pre-K). Target: Children in high-poverty areas. Dramatic gains in classroom quality and quality of instruction. Academic achievement gains average effect sizes (d=0.30). Students spending two years in Abbott Pre-K saw twice the academic gains as did students spending one year in the program. Program evaluation shows gains stick with Abbot Pre-K participants through 5th grade (latest measured so far) with effect sizes averaging (d=0.20). Long-term effects equivalent to a +10 percentile boost in state test scores. Focused on quality improvement, particularly for focus on quality of interactions in the classroom.

Boston Pre-K.   Target: Children in Boston, two-thirds of enrolled children are in poverty. Increases in children's vocabulary (d=0.44) and numeracy (d=0.59) are the largest measured to date of any public prekindergarten operating at scale.   Early reading skills among participants improved markedly (d=0.62).   Moderate improvements in working memory (d=0.24) and impulse control (d=0.28) *may* contribute to academic gains. Larger than average gains 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 Grade 3 MCAS English Language Arts, 43% of program participants scored proficient or advanced compared to 34% of non-participants. Focused on importance of quality interactions and strong, educationally-focused curriculum.

Maryland (Extended Elementary Education Program (EEEP) and "Judy Centers.") Target: Primary focus on children in poverty and improving kindergarten readiness.   Most dramatic improvements in kindergarten readiness in the nation: Up 32 percentage points in nine years.

Maryland Kindergarten Readiness: 2001-2011
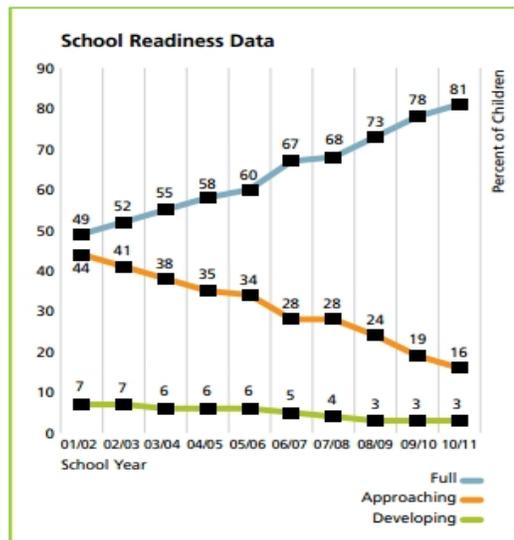
Long-term impacts currently under study. Maryland has made rapid and large, across-the-board gains on all measures of academic achievement through 4th grade.

North Carolina (More at Four). Target: 4-year-old children in poverty and lower-middle-class children. Significant academic achievement differences between matched-program and non-program participants. Effects persist into 3rd grade with reduced achievement gaps between non-low-income "More at Four" children and low-income "More at Four" children from (d=0.51) to (d=0.24). Participating in the program was associated with higher sustained math and reading test scores for poor children, but not for non-poor children.

Pennsylvania (Keystone STARS and Pre-K Counts). **Keystone STARS**. Target: Center-based early learning facilities caring for children (ages Birth-5). Currently focused on increasing classroom quality (environment and teaching) for children ages 3-5 in pre-K. Children participating in 3- and 4-STAR centers (highest-quality) more

than doubled (from one-third of children at grade-level to two-thirds of children at grade-level) their proficiency in language, math, and social skills in one year. **Pre-K Counts**. Target: Children in poverty and other at-risk children. 4-year-old children in Pre-K Counts increased Language and Literacy, Mathematical Thinking and Scientific Thinking proficiency from approximately 15% of students proficient to 75% of students proficient. Kindergarten teachers report Pre-K Counts children make a smoother transition to kindergarten and have the necessary skills to succeed. Grantees and teachers report Pre-K Counts children continuing to achieve at higher rates than similar non-participating children through 2nd grade. Shows impact of Quality Rating and Improvement Systems (QRIS) that strongly weight quality of classroom interactions, combined with strong curriculum and professional development focused specifically on improving teacher-child interactions and quality of instruction.[6]

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: teachers, observation, measurement, feedback, coaching, professional development, curriculum based on standards that connect to kindergarten and beyond, and the structure that supports these improvements. Now we move on to discuss these common factors.

High-Quality

"High-Quality" has become the mantra for early learning practitioners and policymakers over the past few years. That's good. If the field has learned anything over the past 10 years, it's that unless early learning is high-quality - and we'll get very specific about what that means - it doesn't work. The mantra around high-quality is also a bad thing because saying "High-Quality" for many has become a substitute for difficult work - determining which program elements must be high-quality to have impact transcend fadeout, while being cost-sustainable.

Robert Pianta has led and reviewed the literature on program quality and we think we have a good deal of this figured out. Some of Bob's work (e.g., the observation protocol for teacher quality: CLASS) is included in a number of large-scale applications. As we go deeper into these elements of high-quality, notice a number of overlaps between the elements of high-quality early learning and the elements of high-quality K-12. [7]

Elements of High-Quality
Teachers
Far and away, teachers account for the majority of students' achievement gains in early learning. Increasing teacher quality is the highest-impact investment that can be made. We'll now get more specific about exactly what we mean by high-quality teaching.

Quality of Teacher-Child Interactions
The Quality of Teacher-Child Interactions is the mechanism responsible for learning in early learning settings.

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 produces 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.

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[6] One high-profile program - Tulsa Pre-K - is not included on our list. Tulsa Pre-K is a universal system open to all children. With limited dollars available, we believe creating high-quality Pre-K for all low-income children should be a higher priority than universal Pre-K.
[7] We will review costs and cost-sustainability in the section after Elements of High-Quality.

Mounting evidence suggests that attending to each of these domains in classroom observations helps to fully 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.

Quality of Instruction

More specifically, the Quality of Instruction is the primary mechanism responsible for cognitive and achievement gains in early learning settings.

We now have evidence showing teacher-child interactions are generally positive and emotionally supportive. The same evidence shows us 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.[8] The histogram below depicts this rather clearly:

Average Ratings of Interactions in Pre-K - 3rd Classrooms
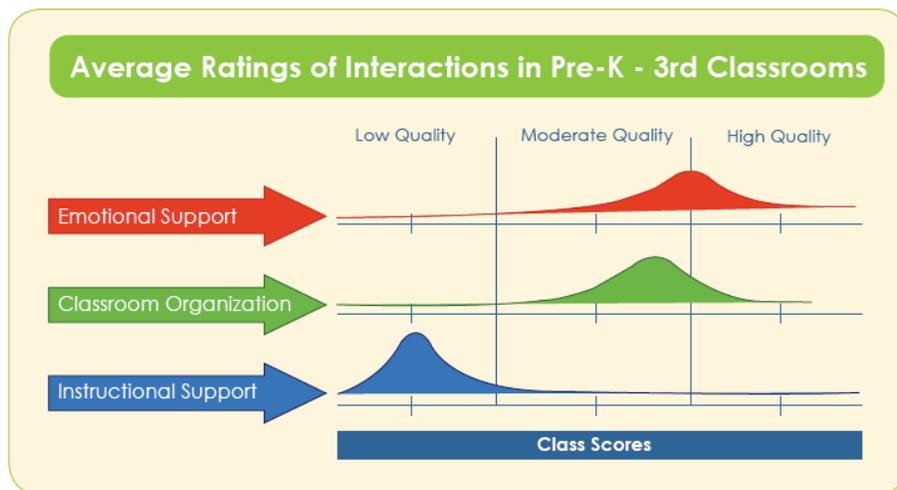
What's notable in this graph is the very low level of instructional support present in Pre-K classrooms at this level of scale and scope (includes Head Start, state-funded Pre-K).[9] This low level of instructional support means that teachers' interactions with children in preschool are oriented nearly entirely on rote performance of discrete facts (letters, numbers) with little or no attention to application (problem solving, thinking, reasoning) or to vocabulary, concepts, and understanding. This has huge (negative) downstream implications for children's performance on vocabulary, comprehension, math, etc., and reduces the chance children will be grade-ready or meet standards in future years.[10]

Critically, and we discuss this later, there are professional development models (online coaching, web-based video library, online and in-person courses) that have been tested and replicated in RCTs and 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 standardized assessments (e.g., CLASS). CLASS is being systematically integrated into preschool delivery systems throughout the United States and other countries. It recently

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[8] All 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.

[9] We found no difference in observed interactions (in any of the 3 domains) with regard to teacher experience or educational level. In fact teachers with an AA/CDA on average look slightly better than those with a BA/MA possibly because of the practical focus of the training.

[10] We find 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. When we look at threshold effects, we see that in classrooms in which teachers score a "3" or above on CLASS [Range 1-7] (Classrooms in which the teachers' interactions show signs of cognitive demand and conceptual focus) we see a stronger and significant association with positive outcomes. Importantly, below a score of 3, there is no association between teacher behavior and child learning – it's as if these classrooms add no value. And these are the majority of Pre-K classrooms.

became the gold standard for quality measurement in Head Start (e.g. programs can be re-competed because of low CLASS scores) and in market-driven reforms to improve quality in state early learning classrooms. 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.[11]

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 (more on this later).

Improving Quality through Coaching and Professional Development Using Technology
Numerous studies have documented that current professional development (PD) spending on teachers has little-to-no impact on teacher practice or outcomes for children.[12]

Conversely, results show that training teachers to see and label effective interactions results in improved quality of instruction and improved academic outcomes for children. 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, 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:[13]

- 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.[14]

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 benefits derived from teachers experiencing this professional development benefit children in poverty more than other children.[15] 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 over 10,000 classroom observations[16] demonstrating that young children whose teachers rate higher on CLASS are learning at a faster rate. Results consistently show small-to-moderate effect sizes (.10 - .20). Instructional and emotional quality predict more positive achievement and improved social outcomes. We see 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. And we see effects of Pre-K interactions persisting into later grades.[17] [18]

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[11] Scale-up 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.

[12] Estimates on the amount of this spending range from $2,500-$9,000 per-teacher, per-year.

[13] We are particularly heartened by the use of technology, especially as it reduces PD costs-per-teacher.

[14] 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 all focuses on building teachers' skills in describing and observing interactions. In an RCT involving trained instructors (2 days) across 10 higher ed sites (community colleges and state universities) teacher 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 this fall.

[15] 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.

[16] Designs isolate effects controlling for other influences, family demographics, prior performance, teacher/school effects...

[17] 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

We see the same patterns of validity in the use of CLASS (Upper Elementary and Secondary versions) in k-12.

Proven Curriculum

Improving teacher quality is essential but not enough. This improvement must be combined with proven curriculum focused on building the right skills (e.g., literacy, math, behavioral). The curriculum should embed optimal classroom practices within it and teachers must be well-trained on the chosen curriculum. This combination of teacher quality, proven curriculum, and teachers well-trained on curriculum yield the biggest gains in student achievement, and we believe gains most likely to stick.[19] Great curricula matters.[20]

Common Core State Standards (CCSS)

The broad adoption of Common Core is a huge win for high-quality early learning. In order to meet Common Core Standards, states and school districts are developing early learning standards and mapping these directly to CCSS.[21] Furthermore, school administrators and teachers are concluding: 1) Kindergarten readiness must improve markedly so instruction time in kindergarten can focus on meeting CCSS for 1st grade readiness; 2) The primary path to improve kindergarten readiness is high-quality early learning.

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 CCSS) and providing clear guidance to teachers and administrators as to where readiness gaps exist. We see this as progress. In addition to these new measures, states are using a combination of state achievement tests, program evaluations, and 4th grade NAEP 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 quality, teacher-child interactions, 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. More on costs in the next section. Here's what we know about the elements of structural quality in early learning:

1. Pre-K and kindergarten class sizes above 20 students are associated with poorer outcomes for children.[22]

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and math abilities. 3) A one-point difference in observed instructional supports appears linked to shifts in child outcomes. 4) Even into 1st 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.

[18] We believe a virtuous circle will develop: Standardized quality measures (like CLASS) now being built into Pre-K and Head Start, creating "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.

[19] Engel et al. (2013). Teaching Students What They Already Know. *Educational Evaluation and Policy Analysis, 35, 157-178* shows that most early grade (K-3) curricula are not well-designed and not connected to early learning curricula and 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.

[20] Pre-K curricula such as Dr. Doug Clements at the University of Denver "Building Blocks" (numeracy/math) have proven themselves in RCTs and such examples like this are embedded in successful early learning programs.

[21] Among other benefits, we believe CCSS have the potential to revolutionize Pre-K and early-grade curriculum design and materials.

[22] Even after controlling for factors that might correlate with large class sizes (e.g., family income in pre-k area, teacher quality, etc.).

2. 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.[23]

These two structural features tie to our earlier discussion about teacher quality. They make it possible (necessary, not sufficient) to have time for high-quality teacher-child interactions and high-quality instruction.

3. 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 hypothesis" 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.[24][25]

4. The formal education and degree attainment required of teacher aides/paraprofessionals is much lower.[26]

5. High-quality programs, including the ones highlighted in this analysis, typically offer 6-6.5 hours of early learning per day, 5 days a week, 180 days a year.

Given that 60-75% 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 20:2 and a lead teacher with an A.A. 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. Now, we move on to costs.

Costs (All Costs Are Per-Child, Per-Year)

Well-known, effective programs that stick, but are not cost-sustainable, not broadly-delivered: [27]

Educare	$16,000 - $25,000
Abecedarian	$16,000 - $40,000
Perry Preschool	$20,000

Large programs of mixed quality have broader cost ranges:

Head Start (e.g., WA)	$9,000
U.S. State-Run Pre-K Avg.	$7,800 [28]
WA State-Run Pre-K (ECEAP)	$7,000
Full-Time Licensed Care (WA)	$5,000-$12,000 [29]

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[23] Excepting Boston Pre-K which has a teacher-child ratio of 2:22. New Jersey Abbott Pre-K operates with a 2:15 teacher-child ratio.

[24] While the research may be split on this, looking at our examples of early learning that sticks, all programs featured require lead teachers to have a B.A. except Pennsylvania which requires only an A.A. Boston Pre-K goes a step further, requiring their pre-k teachers to have an M.A. within 5 years of commencing teaching.

[25] Rather than focusing on degree attainment, we believe it most important that early learning teachers be trained and proficient in establishing socioemotional warmth, creating high-quality teacher-child interactions and delivering high-quality of instruction. The components of this training exist and it has proven successful with teachers with A.A. degrees and up.

[26] A Child Development Associate (CDA) as standard requiring a high school diploma/GED, 120 hours of formal early childhood education training, and 480 hours of professional experience with preschool children ages 3-5.

[27] All costs in 2012 Dollars unless otherwise specified. Note that some of these programs provide many services other than strictly early learning. Our analysis is focused on academic and achievement gains as well as socioemotional gains that enable achievement in current and future grades.

[28] Definitive study here is Levin and Schwartz, 2007. Costs used here is in 2012 dollars.

Aforementioned early learning programs that work, stick, and are (or could be made) cost-sustainable:[30]

New Jersey (Abbott Pre-K)	$12,000 - $15,000 [31]
Boston Pre-K	$12,000 [32]
Maryland (EEEP Initiative)	$9,800
North Carolina (More at Four)	$8,500
Pennsylvania (Keystone STARS/Pre-K)	$7,500

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, we believe a cost-sustainability target averaging $8,000-$10,000 per-child, per-year is feasible.[33]

Table 1 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.

TABLE 1

Six Hour Pre-K Program: Estimated Annual Per-Child Costs in 2012 Dollars [34] [35]

Teacher Qualifications	Class Size		
	15	**17**	**20**
B.A. I	$10,050	$9,200	$8,250
B.A. II [36] [37]	$8,950	$8,200	$7,400
A.A.	$7,950	--	--

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 between $21 billion and $27 billion annually.[38] Were those dollars to be strictly focused on early learning for the 3 million low-income children in the U.S., between $7,000 and $9,000 per-child would be available. Though repurposing these dollars is no easy matter, consistent with Table 1, the amount of existing

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[29] Care is less expensive in rural areas, but more likely to be traditional day care without an instructional component.

[30] We believe the cost-sustainable range is $8,000-$10,000/year/child.

[31] Wage/benefit structure in ~ 20 states would support a program at the top of our $8,000-$10,000/year/child cost-sustainability target.

[32] Wage and benefit structure in ~ 30 states would support a program within our $8,000-$10,000/year/child cost-sustainability target.

[33] Mileage will vary. 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% less, to 40% less than K-12 teachers. Early learning teachers with A.A. degrees or lesser degrees are rarely paid more than $20/hour outside of high-cost states and cities.

[34] Source: Gault, 2007. Meaningful Investments in Pre-K. p.8. Estimates converted into 2012 dollars.

[35] For 180-day school year, Aide @ $15/hr inclusive of benefits, compensation - 60%+ of program costs.

[36] B.A. required but paid at 12% discount to K-3 staff with B.A. degrees.

[37] 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% 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 teachers.

[38] Head Start and Early Head Start comprise about $8-9 billion of this total.

dollars in the system would comprise all or a large portion of our 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.[39]

One immediate implication is clear: 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.[40] [41] Redirected dollars should focus on: 1) Systematic improvements in teacher 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 net-new money injected into the system should catalyze- or go directly toward this same focus. Washington State and other states are embracing this approach.[42]

Progress in Early Learning, At-A-Glance

Then (Pre 2010)	Now (2010)
Expensive Pre-K programs ($16,000+) that don't scale.	Cost-sustainable Pre-K programs ($8,000-$10,000) with high potential for scaling.
Academic gains in Pre-K are not sustained.	Pre-K programs showing academic gains through elementary grades.
No consensus on how to create and deliver high-quality Pre-K.	Field coalescing around the elements of high-quality that drive the best outcomes for children.
Scattershot, "Don't Ask, Don't Tell" philosophy.	More systematic, evidence-based, data-driven approaches. Room for innovation.
Insufficient focus on teacher-child interactions and quality of instruction, generally not measured.	Teachers matter most. Focus: teacher-child interactions and instruction, broad adoption of CLASS in-progress.
Lack of effective coaching and professional development (PD), no models to get to scale.	Coaching/PD, targeting instruction, using online coaching, video, and in-person and online coursework.
Low accountability for Pre-K student outcomes.	Increased use of data for accountability, kindergarten readiness assessments post-Pre-K, measuring Head Start grantees and dropping those that are low-quality.
Weak- or no standards in early learning.	Early learning standards now the norm, moving quickly to connect to CCSS.
Lack of proven curricula to boost student achievement.	Proven "What Works" curricula in literacy, numeracy...

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

[40] Based on overwhelming evidence that high-quality early learning has the largest, positive impacts on children in low-income families.

[41] The Obama Administration's "Preschool for All" is a misnomer in that its main emphasis is Pre-K for children at or below 200% of federal poverty guidelines. We remain focused on children at or below 100% of federal poverty guidelines.

[42] Many of the key elements of quality are being implemented in the state. Through the state's newly-implemented Quality Rating and Improvement System (QRIS), CLASS is being used in all Head Start and state-run (ECEAP) Pre-K programs (optional for other Pre-K programs). Funding has increased for CLASS-based coaching and professional development. A kindergarten readiness assessment has been introduced (WaKIDS) and is now scaling up. Early learning programs and school districts are aligning the state's early learning guidelines to Common Core to help improve quality of instruction and drive better outcomes for children. Funding from the foundation has been catalytic in driving this work, in securing federal dollars to fund much of this work, and in encouraging the state to reallocate existing dollars and expertise toward these efforts.