



# **Building, Building Out, and Building Up: A Decade of Research on the Boston Prekindergarten Program**

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# Boston Prekindergarten History

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2005

UPK start;  
Department  
of Early  
Childhood  
established

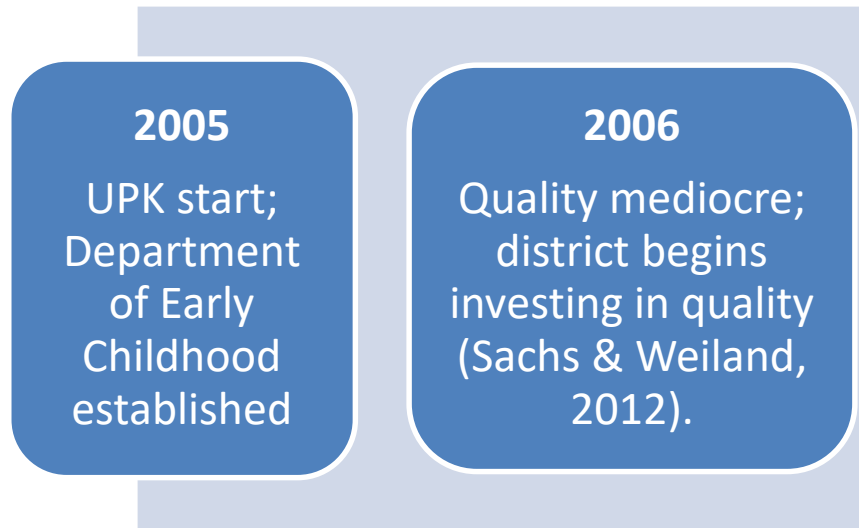
## ***Structural quality investments***

- Teachers paid on the same scale as K-12 teachers
- Teachers subject to same educational requirements as K-12 teachers  
(including masters degree within 5 years)
- Not means-tested; open to any child in the city, regardless of family income
- 1:11 teacher-student ratio

# Boston Prekindergarten History

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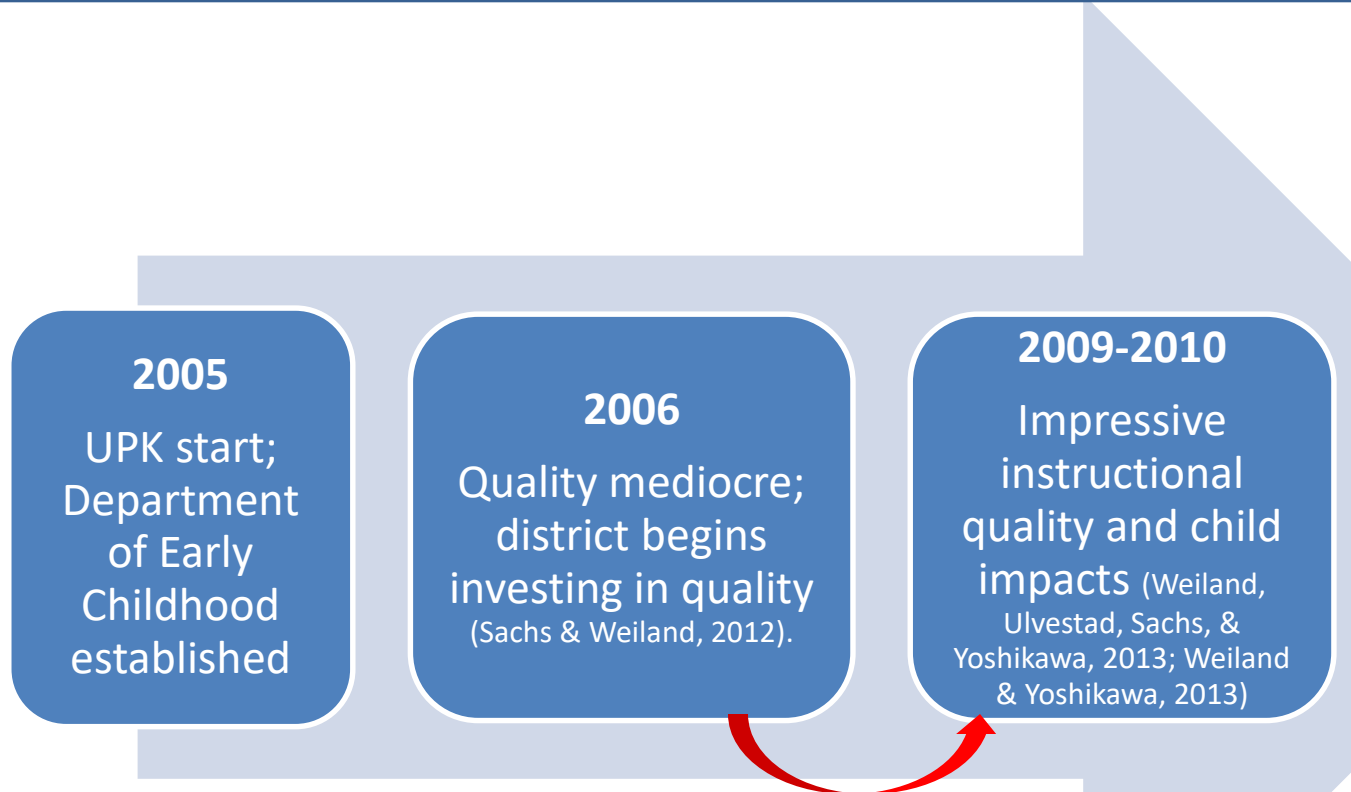
*“Boston preschools falling far short of goals... hobbled by mediocre instruction” – Boston Globe, 2007*



## ***Process quality investments***

- Proven language, literacy, and mathematics curricula
- Paired with training on the curriculum (6 days math; 7 days language and literacy) and weekly to bi-weekly in-classroom coaching by an expert coach
- Classroom quality observed and evaluated by outside researchers bi-annually. Data are non-punitive. Fed back to teachers to improve their practice and used for district-wide planning.

# Boston Prekindergarten History

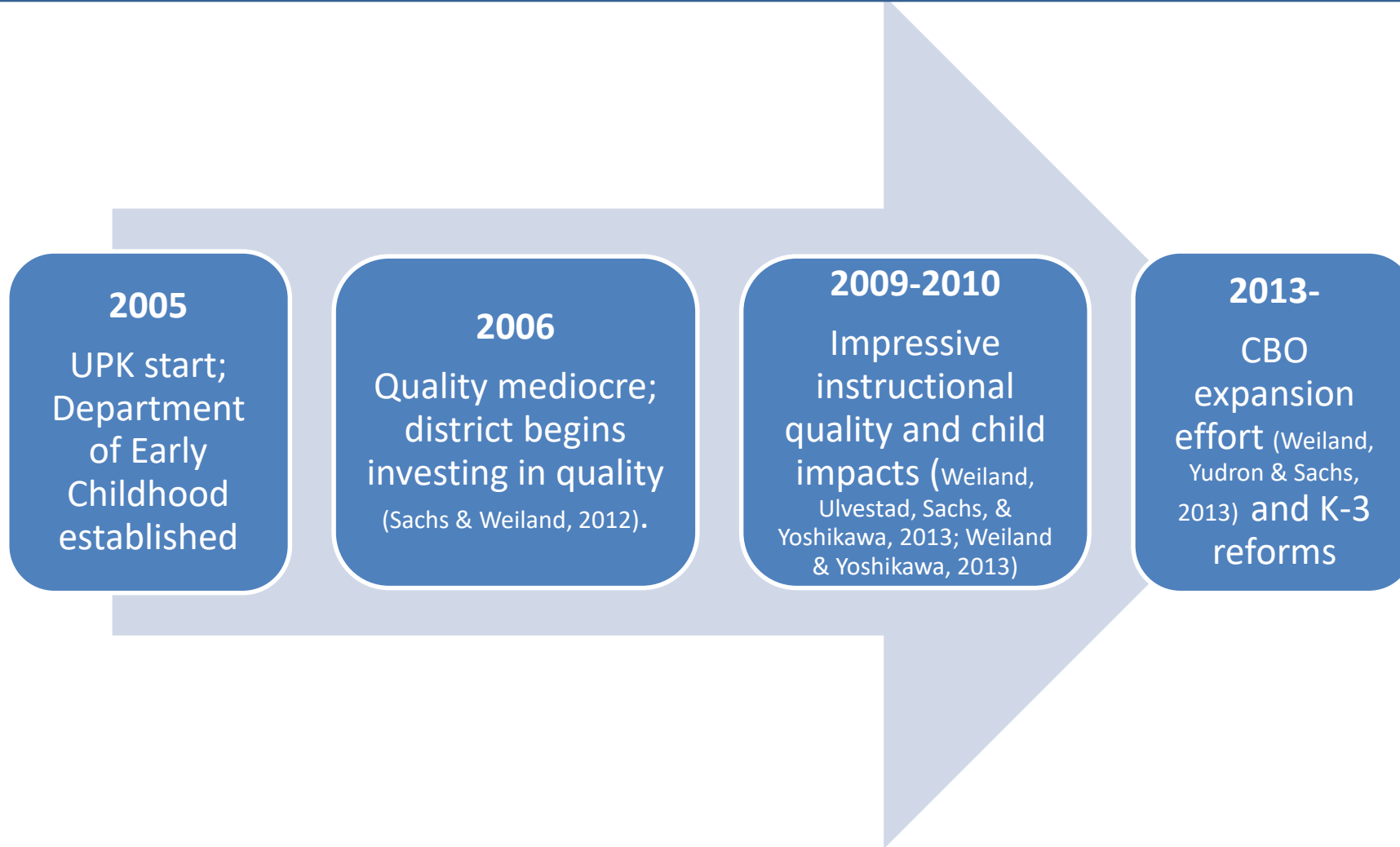


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# Boston Prekindergarten History

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**2005**

UPK start;  
Department  
of Early  
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established

**2006**

Quality mediocre;  
district begins  
investing in quality  
(Sachs & Weiland, 2012).

**2009-2010**

Impressive  
instructional  
quality and child  
impacts (Weiland,  
Ulvestad, Sachs, &  
Yoshikawa, 2013; Weiland  
& Yoshikawa, 2013)

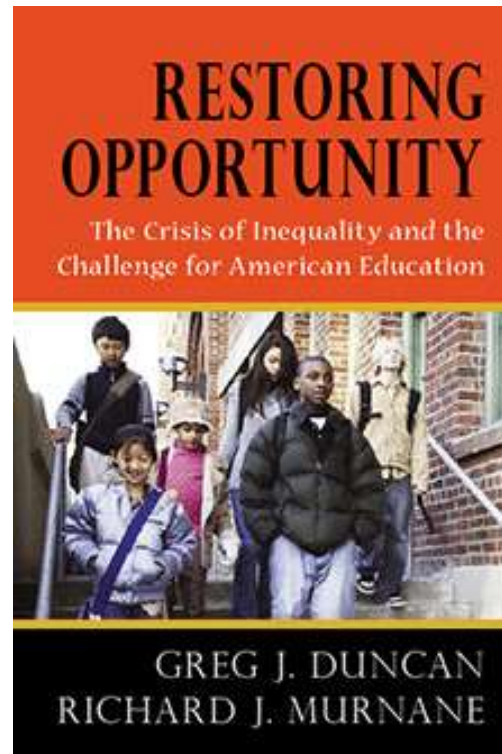
**2013-**

CBO  
expansion  
effort (Weiland,  
Yudron & Sachs,  
2013) and K-3  
reforms

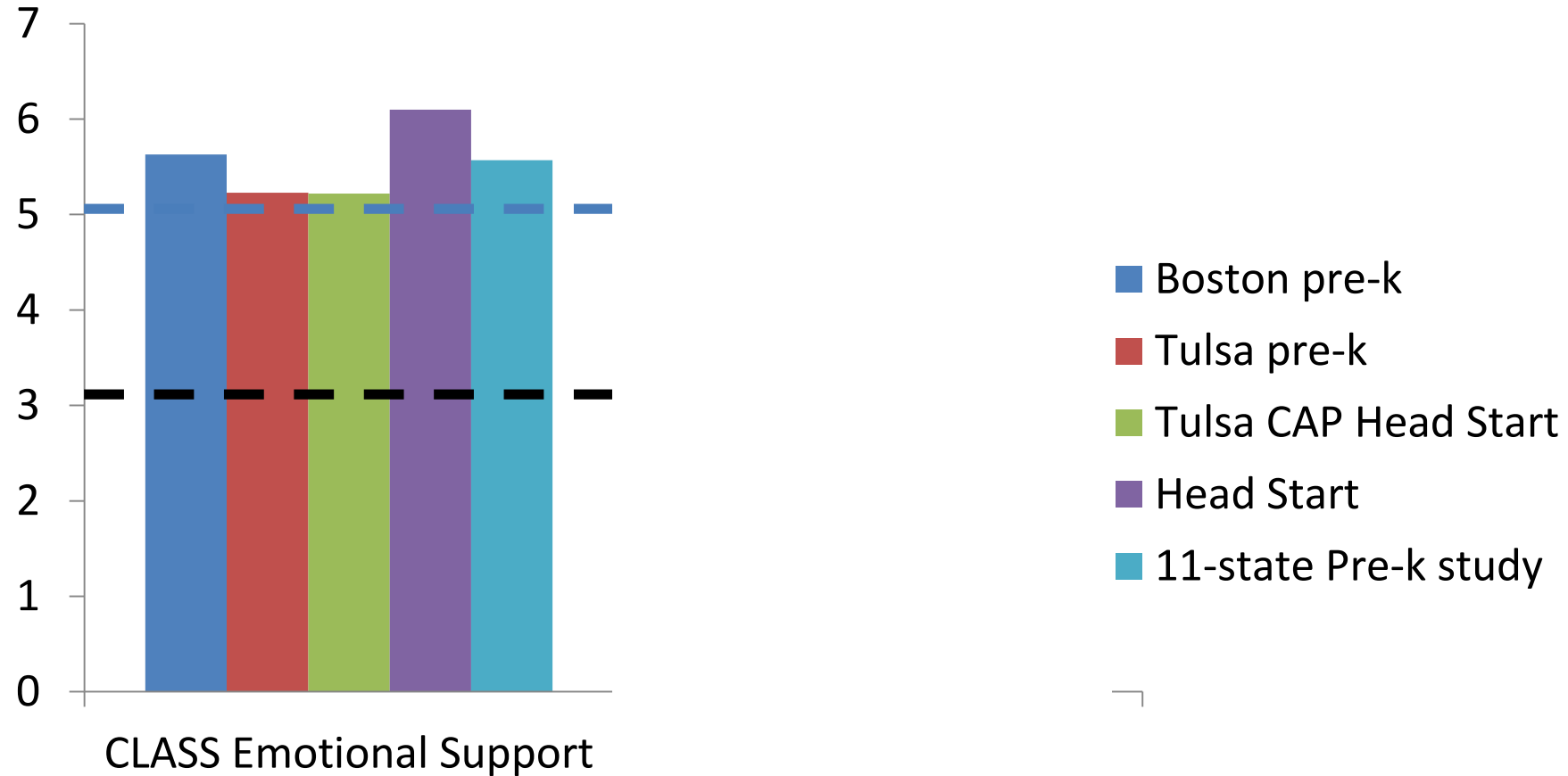
# A peek inside

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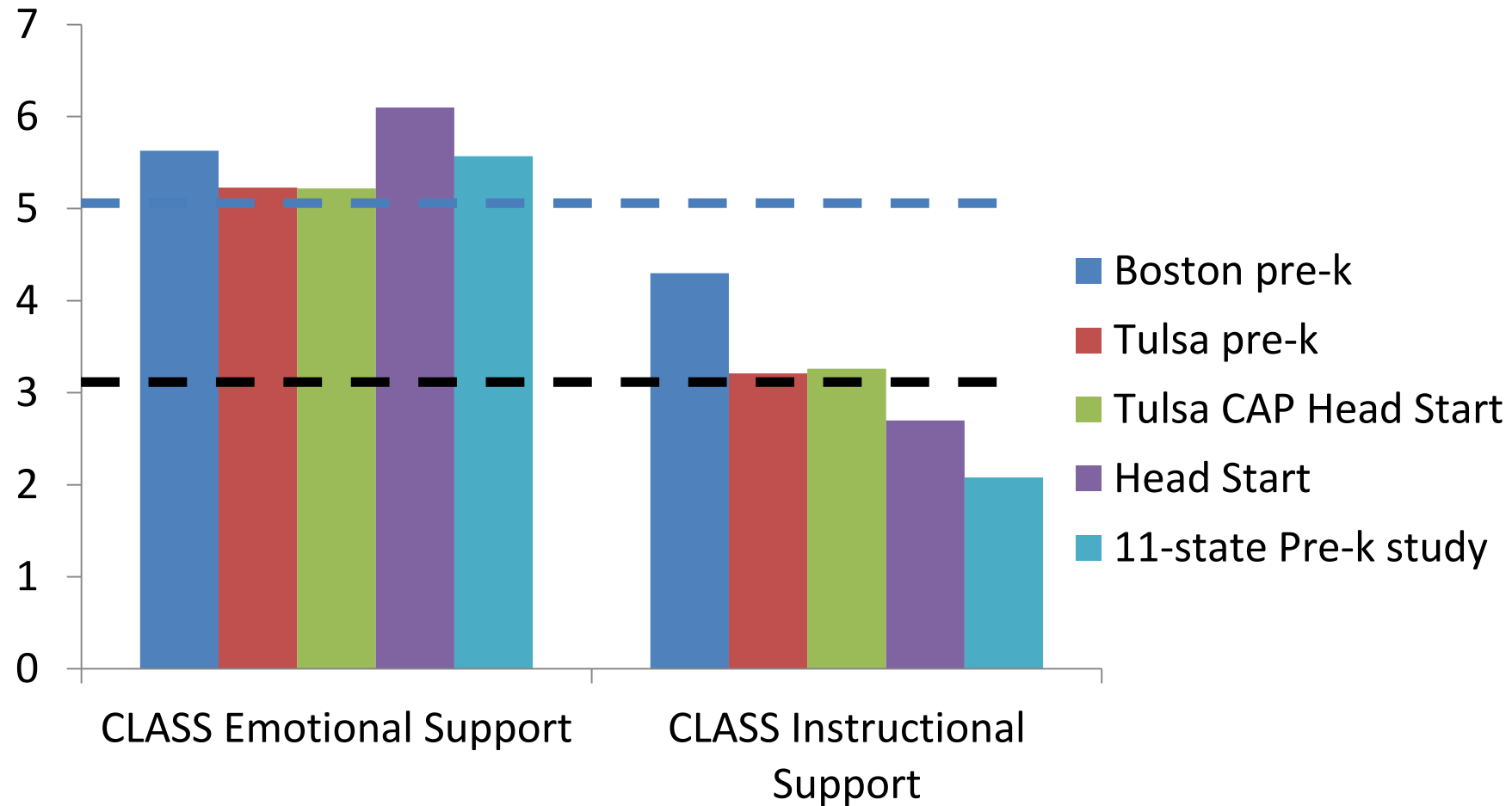
<https://www.youtube.com/watch?v=URZkGPwcsn0&t=3s>



# Boston Quality Findings



# Boston Quality Findings





# Impacts on children

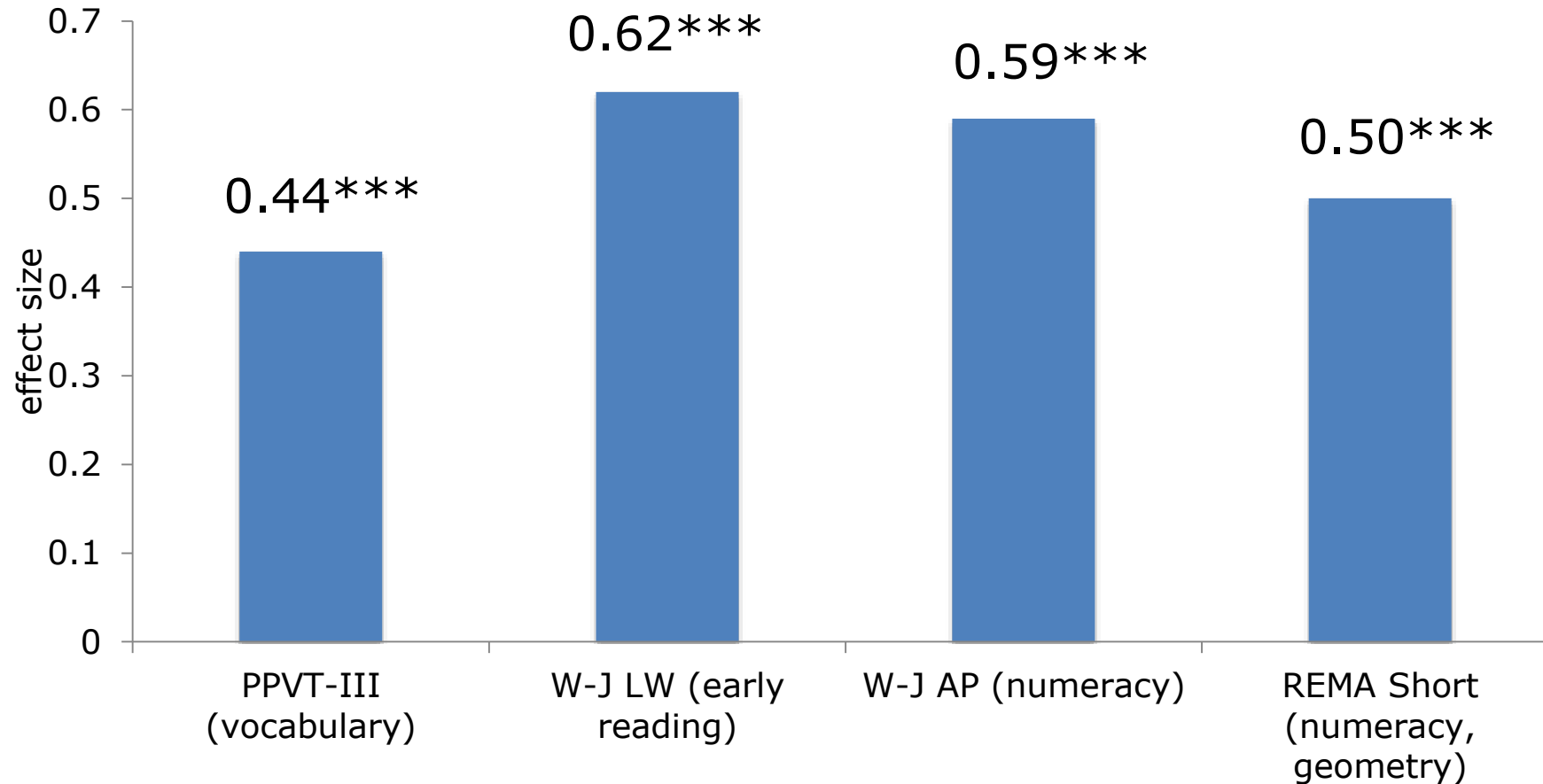
(Weiland & Yoshikawa, 2013)

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- Rigorous regression discontinuity design
- 2,018 children included
- 85% of district schools and 70% of students in those schools
- Diverse student population
  - 11% Asian, 27% Black, 41% Hispanic, 3% Other, 18% White
  - Home language: 50% English, 27% Spanish, 22% Other
  - 69% receive free/reduced lunch, 9% students with disabilities
- Counterfactual: Majority of control group children were enrolled in other preschool programs

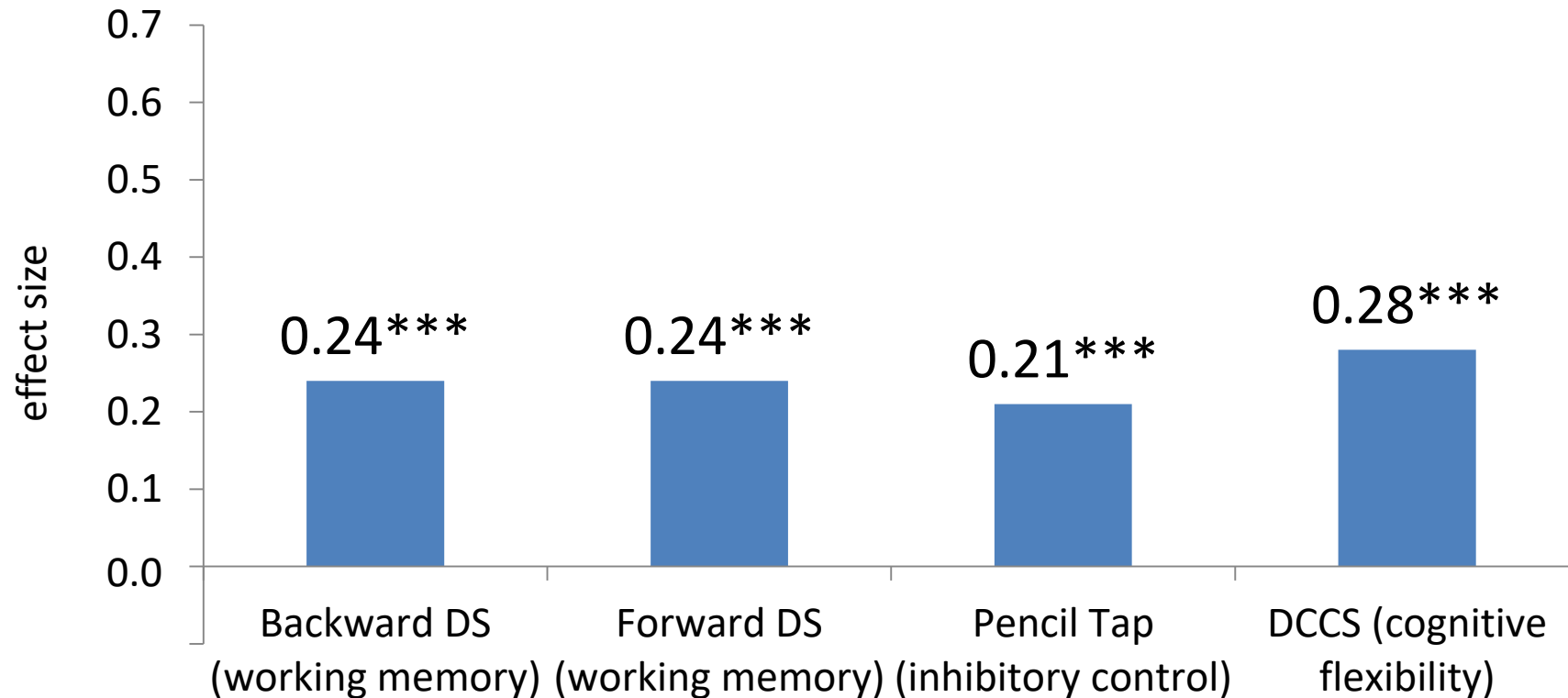
# Largest impacts on child language and math of any large-scale prekindergarten program to date

(Weiland & Yoshikawa, 2013, *Child Development*)



# Positive Effects on Executive Function and Socio-Emotional Skills

(Weiland & Yoshikawa, 2013, *Child Development*)



# What drove success in Boston?

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- Curricula and PD? “Strongest hope” model
- Treating teachers like K-12 teachers?
- Peer effects?
- Stable leadership?
- Having a strategic plan and vision?
- Using research as a tool for building, not just grading?



# Building out: Expansion to CBOs

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- Pilot in 14 classrooms in 10 centers, 2013-2015
- Curriculum, coaching, training for teachers; Training for center directors; Pay increase for teachers.
- Study examined (Yudron, Weiland, & Sachs, 2017):
  - Curricula fidelity
  - Instructional quality
  - Barriers
- Goal of study: Identify *how* to expand to CBOs



# Key findings



- CBO staff participated at high rates, generally liked the intervention
- Curricula fidelity was generally low
- Quality increased in year 1 but gains not sustained. Fell short of BPS levels.
- Specific barriers:
  - No consistent start time; no common planning time; mixed-age structure; retaining prior curricula; instructional leadership challenges; turnover.

# Building Up: K-2 reforms

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- K-2 curricula reforms
- *Focus:* Push the good parts of prekindergarten up



# K-2 reforms example

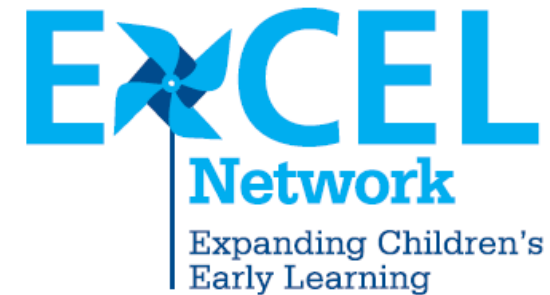
| CURRICULAR FEATURE            | PREVIOUS PRACTICE   | FOCUS CURRICULUM  |
|-------------------------------|---|---|
| <b>Content of instruction</b> | <ul style="list-style-type: none"> <li>■ Substantial repetition of preschool content in elementary school</li> <li>■ Lessons are focused on basic skill development, not integrated into thematic lessons directed at content knowledge</li> <li>■ Subjects (literacy, language, math, science, social studies) taught separately</li> <li>■ Shallow content instruction, spread across many content areas (e.g., 16 topics for language/literacy in kindergarten)</li> </ul> | <ul style="list-style-type: none"> <li>■ Content builds from preschool to second grade with little repetition</li> <li>■ Lessons are theme-based and focus on building critical thinking and content knowledge</li> <li>■ Connections are made across subject areas</li> <li>■ Deep content instruction (e.g., 4 themes for language/literacy in kindergarten, 6 in first grade)</li> </ul> |
| <b>Format of instruction</b>  | <ul style="list-style-type: none"> <li>■ Kindergarten/elementary school structures and formats not aligned with preschool</li> <li>■ Primarily whole-group</li> <li>■ Teacher-directed, with mostly passive listening and individual seatwork</li> </ul>  | <ul style="list-style-type: none"> <li>■ Structures and formats mirror preschool</li> <li>■ Primarily small-group</li> <li>■ Student-directed, with teacher support</li> <li>■ Promotes active engagement with materials and tasks that relate to broader themes</li> <li>■ Project-based, including collaborative work with peers</li> </ul>   |



# The building continues on



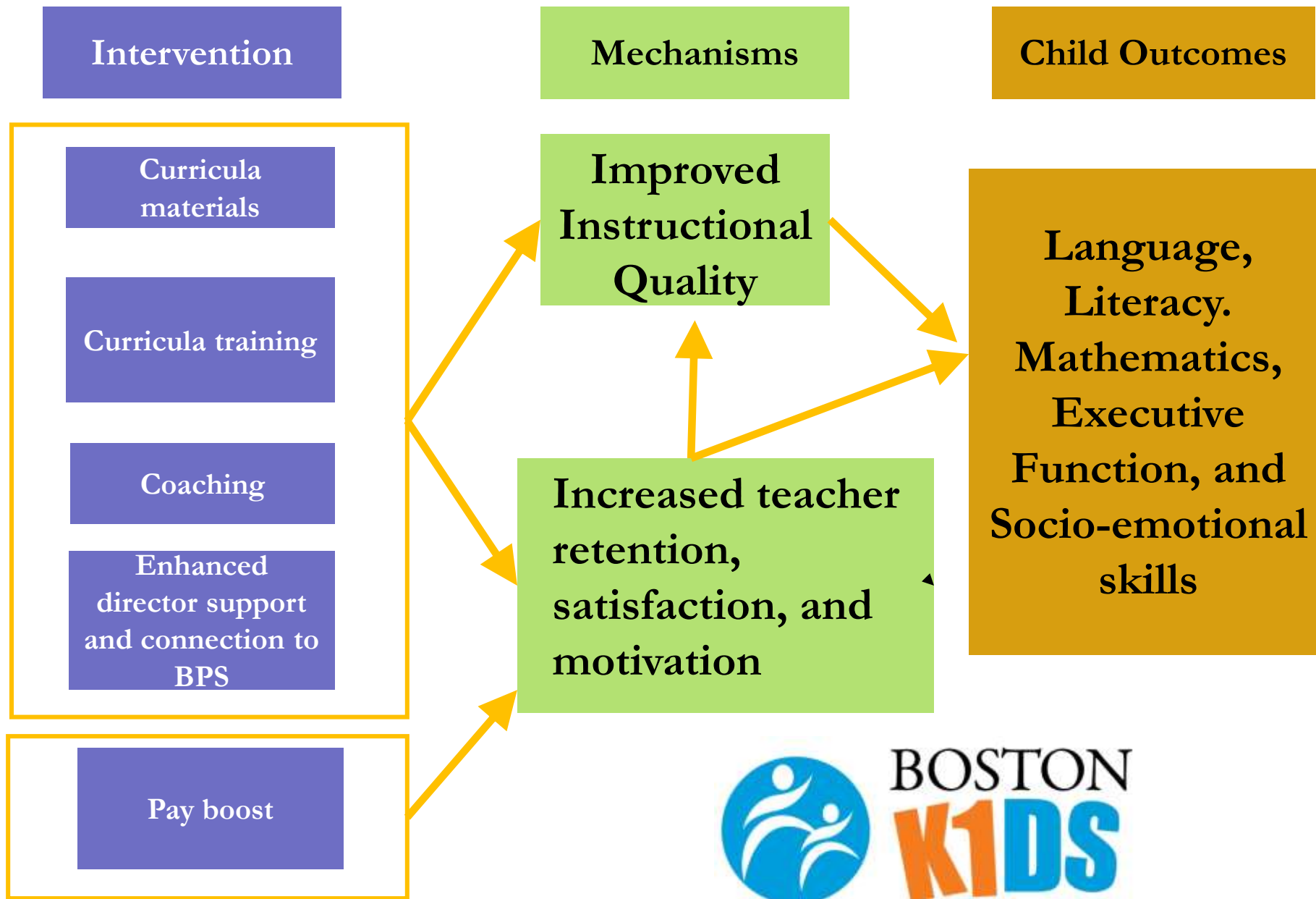
- Longitudinal research on effects of Boston prekindergarten in progress
- Part of IES Early Learning Network
  - Focus: Malleable home, classroom, school, and system factors that promote children’s gains from P-3



# Acknowledgements

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**Theory of Change**

# CBO Pilot and BPS child characteristics

|  | CBO Year 1 | CBO Year 2 | BPS  |
|--|------------|------------|------|
| Latino/a   | 26%        | 34%        | 41%  |
| African American   | 57%        | 49%        | 26%  |
| White  | 8%         | 7%         | 13%  |
| Asian American   | 6%         | 6%         | 11%  |
| Native English Speakers  | 67%        | 69%        | 50%  |
| At least 4 years old by Sept 1 of school year  | 66%        | 60%        | 100% |
| Receiving financial assistance to attend prekindergarten (CBO) or receiving free/reduced lunch (BPS) | 87%        | 89%        | 69%  |

Note: CBO Year 1:  $N_{\text{children}}=259$ , CBO Year 2:  $N_{\text{children}}=220$ . The financial assistance that children in CBO classrooms received to attend prekindergarten included MA EEC vouchers and UPK subsidies received by the center. BPS prekindergarten  $N_{\text{children}}=2,018$ . The BPS sample was from the Preparing to Succeed study which included children who attended the BPS prekindergarten Program in 2008-2009 or 2009-2010 (see Weiland & Yoshikawa, 2013). All children in BPS attend for free.

# CBO Pilot math quality

|  | <u>CBO</u>         |                  |                  | <u>BPS</u>     | <u>CBO-BPS diffs.</u><br><u>(standardized)</u> |        |        |
|--|--------------------|------------------|------------------|----------------|--|--------|--------|
|  | Baseline<br>(N=13) | Year 1<br>(N=14) | Year 2<br>(N=10) | (N=23)         | Baseline                                       | Year 1 | Year 2 |
| <b>N in-depth math activities</b>                          | 2.40<br>(1.70)     | 2.29<br>(2.64)   | 1.90<br>(1.20)   | 3.22<br>(2.04) | -0.40  | -0.46  | -0.65  |
| <b>Average length (in min) of in-depth math activities</b> | 6.51<br>(3.13)     | 8.75<br>(7.95)   | 6.20<br>(4.42)   | 9.01<br>(4.78) | -0.52  | -0.05  | -1.38  |
| <b>N routine math activities</b>                           | 2.90<br>(1.7)      | 2.29<br>(1.77)   | 2.60<br>(1.71)   | 2.57<br>(2.41) | 0.14   | -0.12  | 0.01   |

Note: Standard deviations appear in parentheses in the table. CBO-BPS differences were standardized by dividing their difference by the relevant BPS standard deviation. All BPS observation data are from the Spring 2015 observation period. CBO means across time were not statistically significantly different from one another, nor were CBO-BPS differences in means ( $p>0.05$ ).

# CBO Pilot Fidelity to Curricula

| Curriculum             | Components   | N (%) in which component was observed | Avg. score | SD   | Min  | Max  | N scoring 65%+ |
|------------------------|--|---------------------------------------|------------|------|------|------|----------------|
| <b>OWL</b>             | Intro to Centers   | 13 (92.9)                             | 38.5       | 23.7 | 0    | 72.2 | 2              |
|                        | Centers  | 12 (85.7)                             | 55.0       | 16.4 | 39.6 | 79.2 | 4              |
|                        | SWPL   | 4 (28.6)                              | 65.6       | 5.1  | 59.4 | 71.9 | 3              |
|                        | Small Groups   | 4 (28.6)                              | 75.0       | 30.0 | 30   | 90.0 | 3              |
|                        | Storytime  | 11 (78.6)                             | 51.7       | 12.5 | 38.5 | 79.2 | 2              |
|                        | Let's Find Out About It  | 2 (14.3)                              | 70.8       | 1.2  | 70   | 71.7 | 2              |
|                        | Let's Talk About It  | 0 (0)                                 | --         | --   | --   | --   | --             |
|                        | Across all components  | 14 (100)                              | 51.3       | 17.1 | 22.1 | 77.0 | 4              |
|                        | Across most commonly obs components (Intro, Centers, Storytime)          | 9 (64.3)                              | 46.7       | 15.0 | 36.3 | 73.2 | 1              |
|                        |  |                                       |            |      |      |      |                |
| <b>Building Blocks</b> | General  | 12 (85.7)                             | 55.9       | 27.4 | 15   | 90.0 | 6              |
|                        | Centers  | 1 (7.1)                               | 50.0       | --   | --   | --   | 0              |
|                        | Whole group  | 8 (57.1)                              | 61.7       | 18.6 | 28.6 | 85.7 | 5              |
|                        | Small groups   | 10 (71.4)                             | 54.0       | 16.7 | 36.9 | 86.9 | 2              |
|                        | Computers  | 2 (14.3)                              | 26.9       | 27.2 | 7.7  | 46.2 | 0              |
|                        | Across components  | 12 (85.7)                             | 55.9       | 18.4 | 21.9 | 82.3 | 4              |
|                        | Across most commonly obs components (General, Whole Group, Small Groups) | 7 (50.0)                              | 59.1       | 18.5 | 34.1 | 82.7 | 3              |

# CBO Pilot Classroom Quality

|                               | CBO Mean |      |      | BPS  | Std. difference |       |       |
|-------------------------------|----------|------|------|------|-----------------|-------|-------|
|                               | Baseline | Yr 1 | Yr 2 | Mean | Baseline        | Yr 1  | Yr 2  |
| <b>ELLCO</b>                  |          |      |      |      |                 |       |       |
| <b>Language and Literacy</b>  | 2.76     | 3.87 | 3.10 | 3.44 | 1.11*           | -0.70 | 0.56  |
| <b>Classroom Environment</b>  | 3.35     | 4.12 | 3.60 | 3.77 | 0.84            | -0.73 | 0.34  |
| <b>COEMET</b>                 |          |      |      |      |                 |       |       |
| <b>Math Instruction</b>       | 3.00     | 3.02 | 2.83 | 3.51 | 0.60*           | 0.58  | 0.80* |
| <b>Classroom Culture</b>      | 3.08     | 3.85 | 3.61 | 3.61 | 1.12            | -0.55 | 0.00  |
| <b>CLASS</b>                  |          |      |      |      |                 |       |       |
| <b>Emotional Support</b>      | --       | --   | 5.52 | 5.71 | --              | --    | 0.32  |
| <b>Classroom Organization</b> | --       | --   | 4.80 | 5.57 | --              | --    | 1.17* |
| <b>Instructional Support</b>  | --       | --   | 2.89 | 3.71 | --              | --    | 0.81* |

Note: \*  $p < 0.05$ ; CBO  $N=13$  at baseline and  $N=10$  at the end of year 2. BPS  $N=23$  in Spring 2015. Standardized differences were computed by dividing the difference between CBO and BPS prekindergarten scores by the BPS prekindergarten Spring 2015 standard deviation of the relevant subscale.