

Boston's Rapid Expansion of Public School-Based Preschool

Promoting Quality, Lessons Learned

In his 2005 State of the City address, Boston Mayor Thomas Menino directed the Boston Public Schools (BPS) to “provide all 4-year-olds in the city with full-day school within five years.”

There were several reasons for this commitment, including an emerging consensus that early childhood education makes a positive difference in long-term outcomes for children. He realized that Boston's public schools needed to compete with private schools to attract students, but the existing infrastructure of community-based programs did not have enough resources to provide high-quality programming for all children. Now, five years after the mayor's decision, 85 percent of the 85 BPS elementary schools have at least one preschool classroom.

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Making the case for the BPS preschool

Research suggests that universal public school preschool programs are effective in improving child outcomes (Gormley et al. 2005; Wong et al. 2007). But across the country, debate continues on whether to establish preschool programs in public schools rather than to strengthen existing community-based programs. There is one universal agreement—that regardless of the setting, quality matters for young children (NICHD Early Child Care Research Network [ECCRN] 2002; Magnuson et al. 2004).

This article shares some lessons learned in Boston over the last five years and presents empirical evidence of the factors that contribute to preschool classroom quality and young children's outcomes in urban public school settings.

Nuts and bolts of the BPS

BPS students are culturally and economically diverse (see table below):

Black	Hispanic	White	Asian	Eligible for free or reduced-price lunches	Receive special education support	Use a home language other than English
39%	37%	13%	9%	72%	20%	43%

Source: Boston Public Schools at a Glance, 2009–2010, BPS Facts, no. 17 (Feb. 2010). www.bostonpublicschools.org/files/BPS%20at%20a%20Glance%2010-0225.pdf

In the 2009–2010 school year, BPS enrolled more than 2,100 children in preschool and more than 4,200 children in kindergarten. Staff ratios in pre-K classrooms are two adults for every 22 children (ratio of 1:11), while kindergarten classrooms are staffed with a full-time teacher and a half-time paraprofessional (ratio of 1.5:22). All BPS early childhood staff are required to have a bachelor's degree and to attain a master's degree within five years of entering the school system. BPS early childhood educators (preschool and kindergarten) earn substantially more than their counterparts in community-based programs. The 2009–2010 average teacher salary is \$73,000, and the average salary for paraprofessionals is \$34,000.

Quality improvement strategies

To promote high quality in its preschool classrooms, with some effect on kindergartens, BPS used several strategies, which include the following:

- identify and modify the literacy curriculum (*Opening the World of Learning*, by J.A. Schickedanz and D. Dickinson)

and the mathematics curriculum (*Real Math Building Blocks: PreK*, by D.H. Clements and J. Sarama) for all preschool programs

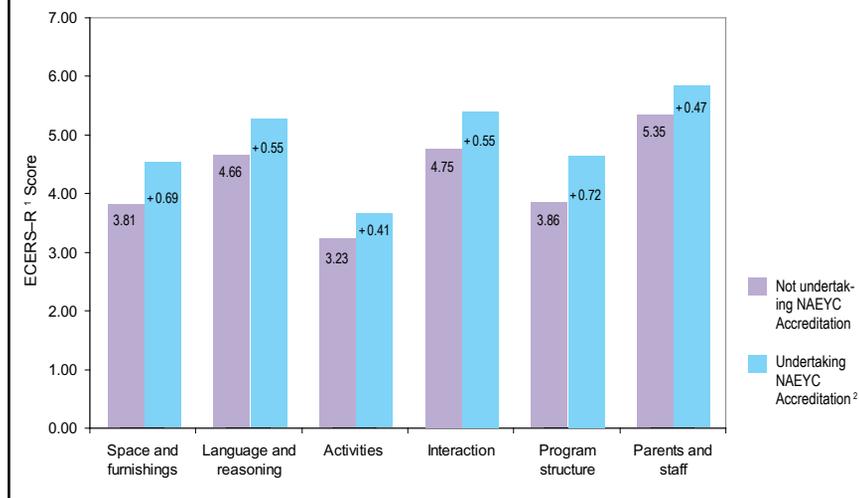
- provide direct classroom coaching for all preschool teachers (1 coach per 10 classrooms for three years)
- ensure consistent and targeted professional development
- support NAEYC Accreditation of preschool classrooms and kindergarten classrooms (21 schools by 2009–2010, with a 10-year plan to accredit programs in all elementary schools with preschool and kindergarten classrooms).
- offer a professional early childhood fellowship for elementary school principals
- conduct literacy assessments for pre-K and on to second grade

In tandem with these investments, BPS contracted with Wellesley College's Centers for Women to conduct biannual classroom quality measures and child outcomes (Marshall & Roberts 2008) using the following early childhood field assessment tools:

- ECERS-R (Early Childhood Environmental Rating Scale-Revised), which focuses on the global and the structural quality of the classroom
- CLASS (Classroom Assessment Scoring System), which focuses on process characteristics of the classroom, including the richness of interactions between children and teachers
- ELLCO (Early Language and Literacy Classroom Observation Tool), which measures the quality of the literacy environment
- PPVT-III (Peabody Picture Vocabulary Test-III), which measures child receptive vocabulary

For example, in 2007–2008, researchers used the ECERS-R, the CLASS, and the ELLCO to collect classroom quality information in 119 preschool and kindergarten classrooms. Researchers also randomly selected 963 children in 146 classrooms and assessed their receptive vocabulary as a measure of their progress during the preschool and the kindergarten years. As a follow-up, the next year (2009) all BPS kindergarten teachers administered the Dynamic Indicators of Basic Early Literacy Skills (DIBELS). Although some debate the merit of these measures, they are nonetheless important systemwide indicators of classroom quality and children's progress, and they provided BPS with data to be used to improve practice and child outcomes.

The Relationship between Undertaking NAEYC Accreditation and Classroom Quality in BPS Preschool and Kindergarten Classrooms



Source: Internal BPS analysis (Boston Public Schools [BPS], Department of Early Childhood Education, 2008).

¹ ECERS-R refers to Early Childhood Environmental Rating Scale-Revised.

² Undertaking NAEYC Accreditation primarily includes classrooms engaged in the accreditation process, plus 13 classrooms in 4 NAEYC-Accredited schools.

Results and conclusions

From 2006 to 2008, Boston's preschool classrooms showed substantial quality improvements in all measured areas (Marshall & Roberts 2008). Ratings are on a 7-point scale, with 4.5 to 6 = Good.

- In the ECERS-R Interactions, the number of preschool classrooms ranked at the "Good" benchmark rose from 51 percent to 75 percent.
- In the ECERS-R Language-Reasoning subscale, preschool classrooms reaching "Good" increased from 42 percent to 60 percent
- In the CLASS Emotional and Social Supports quality ratings, the number of preschool classrooms achieving "Good" climbed from 58 percent to 78 percent in two years.

Kindergarten classrooms showed substantial improvements in CLASS Emotional and Social Supports, with the number of those meeting the level of "Good" rising from 59 percent in 2006 to 71 percent in 2008. In general, however, kindergarten classrooms lagged behind preschool classrooms in measures on Space and Furnishings, Language-Reasoning, Program Structure, and Interactions.

The role of NAEYC Accreditation in ensuring quality

A BPS survey of early childhood programs found that the process of undertaking NAEYC Accreditation positively correlated with several quality scales. The link between the process of undertaking NAEYC Accreditation and classroom quality is especially pronounced in kindergarten. Programs engaged in the accreditation process scored more than a point higher (on the 7-point scale) on several quality measures than programs not engaged in the process (see "The Relationship between Undertaking NAEYC Accreditation and Classroom Quality in BPS Preschool and Kindergarten Classrooms").

Consistent with research from Minnesota on NAEYC Accreditation (Stephens 2006), preschool and kindergarten children in BPS schools engaged in the NAEYC Accreditation process had significantly higher vocabulary score gains from fall to spring. This link remained when controlling for child vocabulary (PPVT-R) scores in the fall and child characteristics such as race/ethnicity, eligibility for the free/reduced-price lunch program, home language,

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and special needs. When controlling for the global quality of the classroom as measured by the ECERS-R, preschool and kindergarten children in BPS school classrooms undertaking the process of NAEYC Accreditation significantly outscored children in classrooms not undertaking the accreditation process.

Possible selection bias and data limitations

In analyzing the BPS study data (Marshall & Roberts 2008) to date, the BPS Department of Early Childhood has been careful to note that the results so far are not causal. There may be factors within the schools that chose to undertake NAEYC Accreditation that would have led to gains even in the absence of NAEYC Accreditation. When comparing NAEYC-Accredited preschool and kindergarten classroom programs with nonaccredited programs, we found no differences between schools in factors such as third-grade test scores, school size, availability/provision of wrap-around services (such as before- and after-school care), principals' participation in an early childhood fellowships program, and the percent of early childhood teachers with master's degrees. Nonetheless, correlation is not causation and does not rule out the possibility that other factors led to the quality changes observed.

Potential mechanisms of accreditation

Despite the limitations in the BPS data, we (the authors) believe that a link between NAEYC Accreditation, quality, and child outcomes is plausible for several reasons. The Department of Early Childhood Education accreditation facilitation project staff work specifically with teachers. Through coaching and by furnishing supplies and materials, the staff have helped teachers create more choice time for children and a higher

likelihood that children will go deeper in their exploration of center activities. In turn, this promotes more in-depth and higher quality discussions between children and their teachers.

Research suggests that the amount of cognitively challenging talk children experience is related to the amount of time children spend talking with adults (Smith & Dickinson 1994), and the National Research Council's Committee on the Prevention of Reading Difficulties in Young Children (Snow, Burns, & Griffin 1998) highlights the importance of rich teacher-child discussion. In short, undertaking the process of NAEYC Accreditation is real-time professional development that may make a difference in classroom quality and child outcomes and may serve as a critical component in improving preschool and kindergarten programs.

The role of mixed-income classroom populations

The Department of Early Childhood Education also examined the relationship between the percentage of children eligible for free/reduced-price lunches and children's gains in vocabulary from fall to spring. We found that children in classrooms with peers from families with mixed incomes had higher PPVT-III scores than did children whose classmates were mostly from families with lower incomes. This difference was statistically significant and held after controlling for children's PPVT-III scores in the fall and child characteristics, including the child's own free/reduced-price lunch status.

Although not causal, this finding suggests that children's classmates influence their vocabulary development. This is consistent with a vast literature on peer effects (Hoxby 2000; Henry & Rickman 2007; Aizer 2009) and, if corroborated by causal research, may have important implications for income-

targeted child care programs that tend to group together children from families with low incomes in one setting.

Preschool's impact on outcomes

The BPS study (Marshall & Roberts 2008) also examined whether attending preschool in a Boston public school improves children's vocabulary scores and reading skills compared to those of children who enter kindergarten without attending BPS preschool. The results are promising. For example, on the DIBELS, the mean Letter Naming Fluency score was significantly higher for children from a BPS preschool. On average, children named 24.2 letters in one minute, compared to 17.7 letters correctly identified by children who were new to BPS.

However, the families of children who attend BPS preschool differ more widely in income levels and other factors compared to families of children who enter BPS in kindergarten. A forthcoming rigorous study of the BPS preschool program will investigate the causal impact of attending BPS preschool on children's kindergarten readiness.

Lessons learned

Taken collectively, the quality improvement work in Boston provides several additive lessons for the field.

- Providing high-quality early childhood education is achievable in a large public school district in a short period of time.
- NAEYC Accreditation appears to be an important quality enhancement for both preschool and kindergarten and is positively related to child outcomes and vocabulary development.
- Mixed income classrooms may play a significant role in lifting all children's vocabulary scores.

On May 1, 2010, BPS Superintendent Carol Johnson received a Community

Advocates for Young Learners Institute award for being the first urban superintendent targeting NAEYC Accreditation of all of the city's elementary schools by 2020. NAEYC Executive Director Jerlean Daniel presented the award. In her speech, Superintendent Johnson noted, "Some children in this country have the remarkable opportunity to rise well above their families' means within the short span of a single generation."

Our work in Boston's universal preschool program suggests that within five short years, with appropriate resources supporting program quality, an urban district can rapidly improve the opportunities to succeed that its students deserve.

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Additional resources

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