Report on the federal Preschool Expansion Grant – Year One

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I. Executive Summary

In December 2014, the Massachusetts Department of Early Education and Care (EEC) was one of 18 states awarded a federal Preschool Development Grant and one of 13 such grants focused on preschool expansion. The Preschool Development Grants are a discretionary federal grant program that is jointly administered by the U.S. Department of Education and the U.S. Department of Health and Human Services. These grants support states in (1) building or enhancing their infrastructure to provide high-quality preschool programs (referred to as Preschool Development Grants) and (2) expanding high-quality preschool programs in high-need communities (referred to as Preschool Expansion Grants - Massachusetts' category). Each state grantee uses their funds in a unique way to expand state-funded high-quality preschool.

Massachusetts' approved application proposed working with five communities in these efforts to expand high-quality early childhood education to four-year-old children whose families earn under 200 percent of the federal poverty line. In applying for this funding, EEC noted, "Our most vulnerable families include those living with limited income, some in deep multi-generational poverty, whose daily lives are characterized by significant housing instability, health and mental health needs, nutrition challenges and the now well-known impact of chronic trauma, toxic stress and adverse childhood experiences. Our military, refugee and immigrant families also face many of these same challenges. For all of these populations with young children, access to high-quality preschool represents both a common need and an immensely effective public policy to stabilize the family and advance both child and parent well-being." The efforts to expand state-funded prekindergarten as reflected in the Preschool Expansion Grant (PEG) program represents a recognition that "the overall third grade reading performance is troubling enough, with 43% of children scoring below proficient, but the performance of low-income children is even more alarming with a staggering 61% below proficiency. Massachusetts can, and must, do more to engage and support children, especially vulnerable populations, during the critical years preceding kindergarten."

Five high-need communities in Massachusetts -- Boston, Holyoke, Lawrence, Lowell, and Springfield -- have been funded to implement full-day, full-year preschool for four-year-olds through public-private partnerships between the local education agency (LEA) and two or three local licensed early learning providers (ELPs). The public school districts are granted the funds from EEC and are subcontracting with the ELPs for the direct services they provide to children and families in the community. While only ELPs are running the PEG funded classrooms, the LEAs are working with the ELPs around the selection and implementation of curriculum, coordination and provision of comprehensive services, family engagement supports, and inclusive services for special populations, as well as joint professional development. Massachusetts' approved grant application can be found on the Department of Early Education and Care's Preschool Development Grant website.

EEC has also contracted with Abt Associates to perform a multi-component, longitudinal evaluation of the use of PEG funds in Massachusetts, to learn from the communities implementing the PEG grant, support quality improvement at the local level, and inform decisions about sustaining and expanding programs and policies developed through this grant. This report draws on the findings of the first year of this evaluation to provide information about the governance structure, supports offered to teachers and parents in each community, organization and quality of the programming for children, and Kindergarten readiness of the first cohort of children to attend the program.

The first year of the PEG program has shown that collaborations between public school districts and EEC-licensed early education providers can be effective at designing and implementing high-quality prekindergarten programs in a relatively short period of time.

- Despite opening their doors six months before classroom observations were conducted, most PEG classrooms were rated by external observers as demonstrating moderate to high levels of quality across three different measures of important dimensions of classroom quality.
- Classrooms were staffed by lead teachers with bachelor's degrees (or higher) and compensation was commensurate with the public schools.
- PEG programs have enrolled a diverse group of low income children, a substantial percentage without early education experience, and parents largely feel connected with the programs and comfortable in their ability to communicate with their child's teacher.
- At the end of their year in the PEG program, the low-income children enrolled demonstrated age appropriate skills in math, letter-word recognition, self regulation and the ability to develop positive relationships.

At the same time, some quality components remained only partially implemented or at levels lower than desired, suggesting areas of focus for the second year of implementation.

- Measures of particular interactions between teachers and children known to support language, literacy and conceptual understandings identified very few classrooms demonstrating very high quality interactions and some demonstrating low quality.
- At the end of the PEG program, the children enrolled demonstrated vocabulary skills that were lower than expected based on a national sample, although the biggest differences were observed among dual language learners.
- Implementation of some components of the planned programming varied greatly from community to community and, in some cases, program to program, including the comprehensive services available to families, the amount and type of professional development available to teachers, and the coordination with public school around children's transitions to Kindergarten and the provision of special education services.
- Efforts to fully enroll PEG classrooms in the first year fell short of targets. Only one of the five communities reached full enrollment and enrollment peaked across the state at 94% in March.

The collaboration between ELPs and LEAs have provided an opportunity to build a more systematic approach to creating quality early education in these communities, and also allowed programs to share expertise and build programmatic capacity across the community. At the same time, time and effort have been required to build relationships and negotiate around differences in policies and expectations. Capacity building at all levels of the system will be important in future years and EEC will continue to support communities through participation in management meetings and technical assistance provided both directly and through state-wide meetings. In year 2, these efforts will target the areas of development highlighted by the year 1 evaluation findings. In particular, attention will be given to alignment of professional development supports, continued attention to improving classroom quality particularly around children's language development, improved collaboration for inclusion, and more consistent provision of comprehensive services.

II. Introduction

EEC has completed its first year (2015–16) of overseeing the programs funded by the federal Preschool Expansion Grant (PEG), providing resources to 48 classrooms in five communities across Massachusetts - Boston, Holyoke, Lawrence, Lowell and Springfield. The local education agencies (LEAs) and early learning providers (ELPs) in each community worked collaboratively from January 2015 to design preschool programs that leverage local resources, are provided by the ELPs and supported by the LEA and began implementation in September 2015. Each community has a Head Start program as one of the ELPs, in addition to other programs that serve preschool children, such as two YMCA programs, a for-profit childcare center, two charter schools, and two other local licensed early childhood education (ECE) programs. The current plan provides space for approximately 850 children in 48 classrooms with services provided by 12 ELPs across the five communities. Four-year-old children are eligible if their family income is below 200 percent of the federal poverty line and if they will be eligible for Kindergarten in the following September. All programs were operational by end of October 2015, most began operations in September. All the communities, except Boston, limited initial enrollment to children who had never before attended any formal early childhood education program. In Boston, some children new to school were identified, but programs also extended the day and school year schedule and improved the quality of services for children they were already serving. Grant amounts were established based on the number of children each community proposed to serve. The first cohort of children to attend PEG-funded programs graduated in August 2016 and have since entered Kindergarten. The second cohort began attending these programs in September, 2016.

Table 1. Summary of Distribution of the PEG grants

LEA/Award	Children Served	Local Early Learning Partners (ELPs)
Boston PS $4,061,250	**286/year**	YMCA of Greater Boston, Nurtury, Action for Boston Community Development (ABCD) Head Start, Wesley, Boys and Girls Club, Paige, Ellis Memorial, Catholic Charities (Nazareth and Yawkey).
Holyoke PS $1,425,000	**78/year**	Valley Opportunity Council, Holyoke-Chicopee-Springfield Head Start
Lawrence PS $2,351,250	**129/year**	Community Day, Greater Lawrence Community Action Council
Lowell PS $2,850,000	**156/year**	Community Teamwork, Inc., Little Sprouts
Springfield PS $3,562,500	**195/year**	Square One, Holyoke-Chicopee-Springfield Head Start, YMCA of Greater Springfield

EEC identified a set of quality requirements for the PEG programs, which were aligned with and expanded on the federal Preschool Development Grant requirements. All of the required elements were at least partially implemented in the first year of the program. Components of quality that were fully implemented were as follows:

- All programs were in operation on a full-day, full-year schedule (at least 8 hours/day, 12 months/year);
- A maximum class size of 20 and maximum child-teacher ratio of 10:1 were maintained, and many classrooms were staffed with three teachers bringing ratios even lower;
- Teaching Strategies Gold® was used as a formative assessment tool;
- At least one educator in each classroom had a bachelor's degree in a relevant field; and
- All lead teachers were paid salaries commensurate with those of comparable positions in the public schools, many assistant teachers were as well.

Other components of quality were partially implemented or varied significantly in implementation across communities.

- Professional development was provided for all staff, including coaching in four of five communities, group trainings, and other supports for planning and implementation of curriculum. In all communities, some of the professional development was coordinated among ELPs and with the LEAs, but the types of supports, the dosage, and the extent of the alignment across ELPs and LEAs varied from community to community.
- A curriculum aligned with the Massachusetts Common Core Standards and EEC Standards and Guidelines was used, although the specifics of the choice and extent of the alignment across the community varied by grantee.

- Each grantee engaged in many efforts to communicate and connect with families. In four of the communities, each program had at least one dedicated family support coordinator to organize these activities, although the nature of the interactions with parents varied from program to program.
- Comprehensive services (including vision and hearing screenings, and referrals to services addressing health, mental health, and behavior) were provided to families and children as needed. All communities noted as a potential area of improvement for year 2 their efforts to evaluate and meet the needs of families. The manner in which case management was conducted in the first year varied by community and by program.
- Programs were committed to serving children with IEPs and those requiring other supports (e.g., children without permanent homes, dual language learners (DLLs), refugee or immigrant families, etc.). However, the extent to which programs served such students varied by community.
- Efforts have been made to build links with services for children from birth to age 3 (e.g., early intervention or home visiting services), as well as supports for the transition to Kindergarten, although the level of coordination varies by community.
- All programs plan to achieve a level 4 rating in the Massachusetts Quality Rating and Information System (QRIS) or National Association for the Education of Young Children (NAEYC) accreditation and granted level 3 QRIS rating by the end of the four year grant period. Programs' current levels range from Level 1 to Level 3.

Overall, PEG programs achieved good levels of classroom quality in the first year of implementation and the majority of children enrolled demonstrated school readiness in key academic and social skills. At the same time, all programs showed room for continued improvement in particular aspects of classroom quality and children's Kindergarten readiness.

- Classroom observation scores fell largely in the moderate to high levels of quality for most domains.
- Scores tended to be lower for measures assessing the instructional quality of teacher-child interactions, with a few classrooms in the low quality range.
- On average, PEG children scored at normative levels on assessments of math and letter recognition, and were rated by teachers as being at age expectations for most self regulation and social skills.
- Assessments of vocabulary revealed that substantial numbers of children, particularly dual language learners, scored below age norms on the vocabulary measure.

III. Program Implementation Evaluation

The Department of Early Education and Care has contracted with Abt Associates (Abt) to conduct a multi-year evaluation of the PEG programs, which includes four main components: an implementation study of quality components in PEG programs, a longitudinal study of outcomes

for PEG children and families, an impact study of effects on children and families, and a cost study. In Year 2 (2016–17) of the evaluation, the study team will begin the longitudinal study of outcomes for PEG children and families and the impact study of the effects of PEG on children and families. A cost effectiveness study will be conducted beginning in Year 3.

Year 1 of the PEG evaluation focused on the implementation study. Through the use of surveys, interviews and focus groups, Abt inquired about the successes and challenges of the collaborative governance model used by each community and detailed the programmatic supports received by parents and teachers. In the spring of 2016, Abt conducted classroom observations to measure the quality of child-teacher interactions, the supports provided for the development of language, literacy and mathematical skills, and the allocation of time across different types of activities. In the summer of 2016, Abt conducted child assessments with a sample of children in each classroom to assess the school readiness of the first cohort of children in this program. Finally, Abt conducted a budget review to identify the expected costs of the PEG programs as designed in each community. Table 2 provides an overview of the tools and sampling procedures.

Table 2. Year 1 Survey, Interview, and Focus Group Sample and Response Rates

	Sample	Response Rate
Surveys		
Teacher survey	All lead teachers and assistant teachers with available contact info	• Survey sent to 118 teachers (52 lead teachers and 66 assistant teachers) • Completed surveys obtained from 39 lead teachers (75 percent response rate) representing 35 of the 48 PEG classrooms and 33 assistant teachers (50 percent response rate) representing 27 of the 48 PEG classrooms
Parent survey	All parents of PEG children in 48 PEG classrooms	• Survey sent to 760 parents • Completed surveys from 336 parents/guardians (44 percent response rate)
Wilder Collaboration Inventory	All members of PEG leadership team in each community	• Inventory sent to 59 leadership team members across 5 communities • Completed inventories from 49 respondents (83 percent response rate)
Interviews		
Center director interview	All PEG center directors	• Interviews conducted with 28 center directors across 24 ELPs (includes teacher directors) (100 percent response rate)
LEA/ELP leader interview	All LEA coordinators and ELP leaders in each community	• Interviewed 5 LEA coordinators • Interviewed 10 ELP leaders across 16 agencies
Coach interview	All PEG coaches	• Interviews conducted with 10 coaches in 4 communities where PEG coaching was provided
Focus Groups		
Teacher focus group	One focus group each community, inviting all PEG lead teachers	• 8 teacher focus groups conducted, at least 1 per community • 40 teachers participated (primarily lead teachers)
Parent focus group	Multiple focus groups in each community, inviting all parents from 12 PEG centers	• 11 focus groups (at least 1 per community and up to 3 in 2 communities) • 70 parents participated

The report that follows draws from the PEG Year 1 evaluation findings[1] as well as information gathered by EEC as part of the EEC's programmatic monitoring of LEAs (through enrollment data and leadership interviews).

IV. Community Collaborations

Each PEG community was required to put in place structures for communication and collaboration among the public school districts and the community-based early education and care programs. These collaborations were expected to support program design, coordination of program activities and funding, and coordinated decision-making among the LEA and participating ELPs. In all PEG communities, the primary mechanism for this collaboration was the creation of a steering committee with representation from the LEA and each ELP. In some communities, multiple subcommittees were formed to ensure communication at different levels of leadership, such as subcommittees of executive management and of center directors, as well as those planning for particular programmatic requirements of the grant, such as family engagement supports, curriculum choices, and professional development activities.

As already described, the LEA in each community served as the lead agent for the grant and was responsible for managing the funds and monitoring the use of funds to meet the programmatic requirements of the grant. Public schools within the participating LEAs did not serve children; the PEG classrooms were run by the ELPs. Instead, each LEA identified particular supportive services, such as professional development, that they would provide. In this role, each LEA hired one or two people to coordinate the PEG grant and to manage the collaboration among partners. Descriptions of the program model in each community follow.

Boston

In Boston, the PEG collaboration built off prior efforts on the part of Boston Public Schools (BPS) to expand the use of the BPS prekindergarten curriculum to local, community-based providers (the Boston K1 in Diverse Settings (K1DS) model). The PEG collaboration began with the decision to expand to the K1DS model to three ELPs (Action for Boston Community Development (ABCD), Nurtury and the YMCA of Greater Boston). The LEA and these ELPs worked in the winter and summer (2014–15) to determine how best to implement the K1DS model in their programs and to design additional components of the grant, such as approaches to family engagement and comprehensive services, as well as birth to grade three alignment activities. As part of this planning process, the ELPs determined that there was not enough unmet need in Boston to justify limiting enrollment to children without prior early education experiences. Instead, the Boston ELPs decided to blend PEG funding with subsidy funds from EEC or Head Start funds, and they focused on improving the quality and extending hours of programs and classrooms that currently existed. Since the decision to blend funds left additional

[1]Checkoway, A., Goodson, B., Grindal, T., Hofer, K., Lamoreau, R.,Sarna, M., Watt, R., Yudron, M. & Douglass, A.. (2016). Year 1 Massachusetts Preschool Expansion Grant (PEG) Evaluation Report. Abt Associates: Cambridge, MA.

resources available, BPS conducted a follow up procurement process to identify additional ELPs to fund; these ELPs were all drawn from the pool of programs that had previously worked with BPS in implementing the K1DS model. The Boys and Girls Club, Catholic Charities, Ellis Memorial, Paige Academy and Wesley were selected to provide additional PEG classrooms.

BPS worked with the ELPs to implement the BPS curricula in PEG classrooms. BPS provided curricular materials, professional development, and coaching to PEG teachers. In two cases, BPS worked in collaboration with additional coaches hired by the ELPs to provide ongoing support between BPS coach visits. Each ELP managed the family supports and comprehensive services relatively independently, although monthly director meetings allowed for sharing of best practices.

Holyoke

In Holyoke, two ELPs oversaw four PEG classrooms located in Holyoke Public School (HPS) buildings, with each ELP responsible for one classroom in each school. HPS provided coaching and coordinated a larger initiative focused on building early literacy community-wide (Holyoke Early Literacy Initiative or HELI). PEG classrooms have been a key component of the larger plans for the preschool expansion in the community. PEG teachers participated in professional learning communities with public preschool and kindergarten teachers. Each ELP managed the family engagement and comprehensive service efforts independently and supplemented the professional development provided by HPS.

Lawrence

Two ELPs opted to each start new programs that each ran independently in Lawrence. Lawrence Public Schools (LPS) managed enrollment for the PEG classrooms and led efforts to increase alignment with public school kindergarten classrooms, recognizing that each public school in Lawrence operates fairly autonomously without one clear model or uniform curriculum for kindergarten in the community. During the course of the first year of PEG, the two ELPs began to consider possibilities for greater alignment across their PEG programs and decided to use the same curriculum starting in the second year, a change that may also lead to more coordinated professional development and coaching.

Lowell

Lowell Public Schools (LPS) and its partners decided to open one new early childhood center jointly run by the two PEG-funded ELPs. Although the two ELPs maintain separate licenses from EEC for the classrooms they run, the program has been viewed as one entity and decisions have been highly collaborative across the ELPs. Lowell Public Schools has provided coaching and coordinated supports with other district departments as needed.

Springfield

During the planning of the PEG grant, Springfield Public Schools (SPS) purchased a building to serve as an early childhood center, where PEG classrooms run by three ELPs were co-located with other SPS Prekindergarten and Early Head Start classrooms. To address the lack of

transportation resources, each ELP also opened classrooms located within one or two of their other existing sites across the city. All PEG classrooms used the same curriculum as the public school prekindergarten classrooms, and SPS provides professional development and coaching focused on the curriculum. Each ELP manages the family engagement supports and comprehensive services provided to children and families in their classrooms, although monthly management meetings for all ELPs support efforts to align these supports. SPS has also funded an occupational therapist, a speech pathologist and a behavioral specialist to consult with PEG teachers and provide additional comprehensive service supports.

Collaboration Success and Challenges

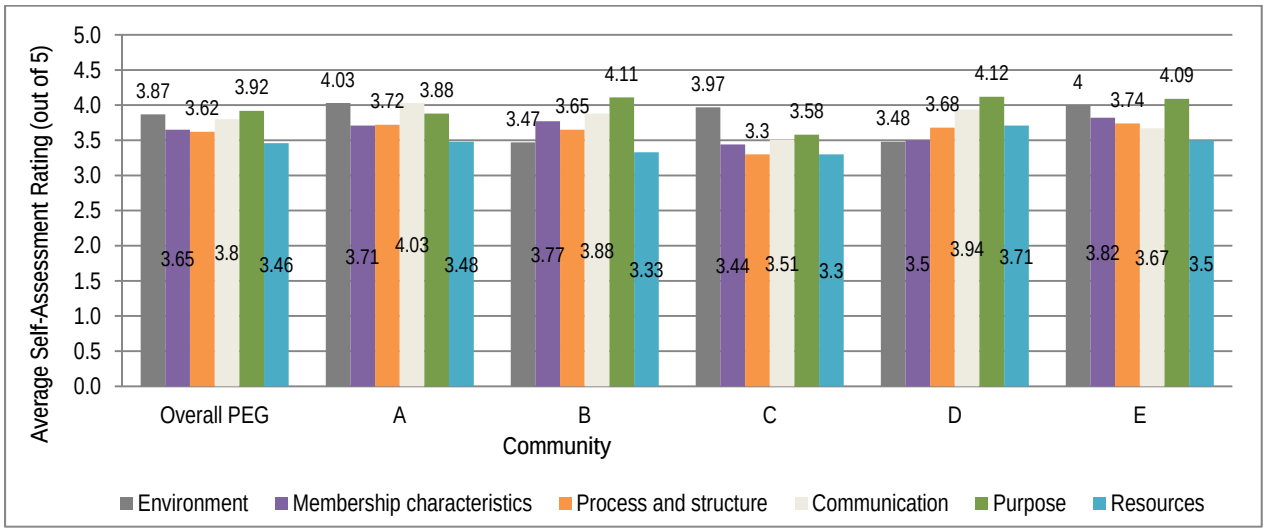
Overall, program leadership in the five communities rated the quality of the PEG collaboration as strong, with some areas for growth, but no areas of great concern, using the Wilder Collaboration Factors Inventory (see table 3 and Figure 1). In general, community leadership felt relatively clear about their shared purpose and rated the environment as reasonably conducive for collaboration, although there was less confidence in the availability of the necessary resources. Feelings about the effectiveness of the membership composition, structures and processes for collaboration, and communication were mixed.

Table 3. Wilder Collaboration Factors Inventory: Factors and Themes

Theme	Collaboration Factors
Environment	There is a history of collaboration/cooperation in the community (2)
	Collaboration is seen as a legitimate leader in the community (2)
	Political and social climate is favorable for collaboration (2)
Membership characteristics	There is mutual respect, understanding, trust among members of the collaboration (2)
	There is an appropriate cross-section of members in the collaboration (2)
	Collaboration members see collaboration as in their self-interest (1)
	Collaboration members are able to compromise (1)
Process and structure	Collaboration members share a stake in process and outcome (3)
	Collaboration has multiple layers of participation from member organizations (2)
	Collaboration members demonstrate flexibility in considering options/approaches (2)
	Collaboration has developed clear roles and policy guidelines (2)
	Collaboration demonstrates adaptability in the fact of changing conditions(2)
	Collaboration demonstrates an appropriate pace of development (2)
Communication	Collaboration members demonstrate open and frequent communication (3)
	Collaboration members have established informal relationships/ communication links (2)
Purpose	Collaboration has concrete, attainable goals and objectives (3)
	Collaboration members have a shared vision of the goals of the work (2)
	The collaboration has a unique purpose in the community (2)
Resources	Collaboration has sufficient funds, staff, materials and time to accomplish its goals (2)
	Collaboration leaders are skilled at working with other people/organizations (1)

Notes: Numbers in parentheses indicate the number of survey items within the factor.

Figure 1: Average Wilder Rating by Theme, Overall PEG and by Community



READS AS: On average, ELPs in PEG rated their communities' collaborative environments as 3.9 out of 5.
NOTES: Authors of the Wilder suggest that factor scores of 4.0 or higher show strength and probably do not need special attention; scores between 3.0 and 3.9 are borderline and may require attention; and scores of 2.9 or lower indicate concern and should be addressed.
SAMPLE: The N ranged from 5 to 14 respondents by community; for overall PEG, N=29 respondents.
SOURCE: Wilder Collaboration Factors Inventory of PEG ELP and LEA Directors (Spring 2016).

Leaders interviewed generally agreed that the collaboration provided an opportunity for sharing best practices and created a platform for building a more systematic approach to serving all four year olds in the community. Leaders noted that the collaborative process and regular communications resulted in stronger relationships between the ELPs and LEAs and the opportunity to break down some of the separation between different sectors in terms of policies and practices. ELP leaders reported gaining a better understanding of the LEA approach to early education and programming, and vice versa. In addition, some leaders noted that it was helpful to have the Head Start agency perspective represented given its resemblance to the PEG model. Collaborative members from three communities also noted that it was beneficial to work together (across ELPs and sectors) to conceptualize and clearly define a community approach to implementing PEG components that were new to some or all of the participating programs. The new components most referenced were comprehensive services and transition to kindergarten activities. Collaborative members from four of the five communities also appreciated the joint professional development. And several collaborative members noted that the regular meetings and communications with other programs resulted in increased knowledge of community activities and resources that could be shared with their families.

Challenges reported centered around the difficulties of communicating effectively across multiple agencies and aligning policies and procedures across the multiple systems (public schools, Head Start, and EEC licensing and QRIS systems). Seemingly simple tasks, like sharing staff across collaborating ELPs at the same site, became very difficult when licensing requirements were considered. Expectations for professional development also differ across systems, leading programs to struggle to provide all the required trainings (including those required by QRIS, Head

Start, licensing and the public schools) in the time available (only five additional closure days were allowed for trainings). Difficulties in ensuring information was communicated effectively within organizations were noted, particularly in larger organizations when different people attended meetings at different times and everyone needed to be kept abreast of development. When directors were not included on the primary leadership committee, teachers and directors sometimes commented that they felt they were the last to know about decisions.

Interviews conducted by EEC during the monitoring process also identified the importance of leadership from each agency coming to the table with a desire to collaborate and an attitude of respect for the contributions of all partners. Personal connections and face to face meetings played an important role in resolving challenges and building better alignment. At the same time, tensions did remain. Despite the efforts to coordinate enrollment to meet the needs of all students, some communities reported continued competition for students, either between ELPs or ELPs and the public schools. While in the first year of PEG, some ELPs struggled to fill their seats, in year 2, public schools (which typically provide a half day program) have reported concerns that they will not be able to fill their classrooms and have lost children to the PEG program. Finally, the LEAs were expected to lead the collaboration while also serving as fiscal and programmatic monitor for the ELPs, roles that many felt were conflicting.

Collaboration across agencies within communities, although appreciated as essential to local systems building, has been challenging. Time and effort has been required to understand the policies and procedures of other organizations, and to problem solve legal road blocks to simple tasks (i.e. sharing a staff across different agencies). Ongoing participation of staff with decision making authority from the agencies responsible for policies and regulations (EEC and the public schools in particular) have been important in supporting efforts to resolve issues quickly as they arise.

V. Supports for children and families

Children and Families

In the 2015-16 school year, PEG programs successfully enrolled children from low-income families, the majority of whom had not had any prior early education experience (65 percent). Despite the option of enrolling children from families with incomes up to 200 percent of the Federal poverty line, the mean PEG family income reported as part of the enrollment process was $18,111 dollars per year (lower than the 2016 federal poverty level for a family of four, $24,300). Fifty percent of parents surveyed reported only completing a high school education. The demographics of these classrooms varied by community, but overall the programs served large percentages of minorities and dual language learners (see Table 4).

Table 4: Race/Ethnicity and Home Language, Overall PEG and by Community

	Number and Percentage of Children											
	Overall PEG		Boston		Holyoke		Lawrence		Lowell		Springfield	
Race/Ethnicity												
Hispanic	472	57%	94	34%	76	73%	136	95%	56	35%	134	71%
Black—non-Hispanic	223	27%	155	55%	23	22%	3	2%	22	14%	43	23%
Caucasian—non-Hispanic	58	7%	14	5%	4	4%	3	2%	34	22%	8	4%
Asian-American	34	4%	3	1.%	0	0%	0	0%	30	19%	2	1%
Two or more races	22	3%	14	5%	1	1%	1	0.7%	3	2%	3	2%
American Native	1	0.1%	1	0.4%	0	0%	0	0%	0	0%	0	0%
Primary Home Language												
English	516	60%	204	73%	84	81%	38	27%	86	54%	158	84%
Spanish	249	29%	56	20%	20	19%	104	73%	31	20%	38	28%
Haitian - Creole	19	2%	17	6%	0	0%	1	0.7%	0	0%	0	0%
Other[a]	71	8%	26	9%	2	2%	0	0%	41	26%	2	2%

[a]Other common languages included Portuguese, Khmer, and Chinese; the most common other language was Portuguese.

Notes: Percentages may not add up to 100 because numbers are rounded to the nearest whole, except when they are between 0 and 1%.

At the same time, PEG programs reported some significant challenges in recruiting the "hard to reach" families that the PEG grant mandated they target. Filling the program with children who had never received any formal early education services was difficult in three of the five communities, as enrollment was slow in Holyoke, Springfield and Lowell. In January, EEC made the decision to open enrollment to children with prior early education experience to fill these classrooms. Families were also often transient; programs report they frequently lost as many children as they enrolled in any given month. Enrollment data submitted to EEC in May confirms this pattern. Only one community reported stable enrollment and four of the five never reached full capacity in the first year of operation. EEC will continue to pay close attention to the challenges programs report in enrolling eligible children, but began year 2 with the expectation that children with prior early education experience would remain ineligible in the four communities originally adhering to this requirement. Continued challenges with enrollment in two of these communities has since led to the decision to allow 20 percent of openings to be filled with children with prior preschool experience, as long as they were not enrolled in another program at the time of application to the PEG program.

Attendance was also a challenge, with absentee rates of 14 percent on average across all communities. Since the program runs year round, these numbers include any vacations that families chose to take; when two weeks of vacation were discounted, absentee rates fell to 8 percent. In particular, attendance tended to drop during school vacation weeks, when families often opted to keep younger children home with older siblings. In the summer, programs reported that these rates worsened, as many families chose to take vacation during this time, or simply relaxed their efforts to get children to school every day. Programs continue to message the importance of consistent attendance through communications from teachers and from family engagement staff and EEC plans to monitor attendance closely in the second year.

Supports for Families

A primary requirement of the PEG funding was attention to efforts to engage with families and provide comprehensive services. Although programs varied in the ways they provided these services, the evidence from interviews, focus groups and surveys with parents, teachers and administrators suggests that programs were very successful at connecting with families and moderately successful at meeting families' needs through comprehensive services.

The majority of PEG centers (21 out of 28 centers - in Boston some smaller programs did not include this position) had a family support coordinator who organized group parent engagement activities and provided case management to PEG families. The center-wide activities included family potlucks, field trips, holiday parties, outdoor activities and field trips, and multicultural nights. According to center directors, the majority of programs (17) held monthly parent events; although in the other programs, parent activities were less frequent. Also, almost all centers (26) sent home a parent newsletter on a regular basis. About 70 percent of programs (19) had interpreters to help communicate with parents who spoke another language, either available at the site on a daily or weekly basis (7) or as needed (12). Teachers were also actively involved in efforts to connect with and communicate with families. A substantial majority of PEG lead teachers (87 percent) reported holding regularly scheduled parent-teacher conferences. Teachers generally were comfortable communicating with parents/guardians and maintaining home-school connections; over 80 percent of surveyed lead teachers felt very confident in their ability to speak with parents about student progress and behavior, communicate through paper classroom newsletters, and describe classroom activities to parents. Slightly less than half of lead teachers (41%) reported involvement in making home visits, and were often accompanied by the family support coordinator when they did visits. In these centers, home visits were scheduled as often as a few times per year, while others reported conducting visits on an annual or as-needed basis. Home visits were designed to support connection building between teachers and families when conducted by the teacher, and as opportunities for case management work when conducted by the family support coordinator.

In general, PEG programs' efforts to engage families appear to have been successful. Of center directors interviewed, 15 of 28 (54 percent) reported that more than three-quarters of PEG families were engaged in the program. Overwhelmingly, surveyed parents expressed broad satisfaction with the program. Nearly all parents (94 percent) indicated that they felt welcome at their children’s schools. Families also expressed satisfaction with the quality and intensity of their communication with teachers; 91 percent indicated that teachers kept them informed them about their child’s progress in school and 95 percent felt that teachers were interested in their children and cooperative with their families. The vast majority of PEG parents (89 percent) reported that they felt “very connected” or “somewhat connected” to the program; none felt "very disconnected." The level of perceived connection seemed to vary by center, ranging from centers where 90 percent of parents reported being very connected to centers where 66 percent of parents reported feeling very connected.

All programs provided referrals to a variety of services (in additional to referrals for special education services), mostly targeting children's needs, such as medical, dental and mental health services. Centers less frequently referred families to adult-focused services such as GED preparation/adult literacy programs or immigration services. While some centers appeared to have a clear system in place for identifying family needs and referring families to services, many centers provided less guidance and support, perhaps leading to mixed levels of parent satisfaction. About half of PEG centers (12 of 28) systematically collected relevant information on family needs using parent surveys/needs assessments. Most centers (24) also collected information through more informal discussion with parents, at the time of enrollment and/or during the school year. The proportion of families within programs referred for comprehensive services varied by program. About half of PEG programs (12 of 28) programs reported that few families (10 percent or less) had received comprehensive services either directly from the PEG program or through referrals, and in five programs, the majority of parents (more than 75 percent) received services through the program.

Parents reported varying levels of agreement across communities regarding the sufficiency of comprehensive service referrals. Overall, 54 percent of parents "strongly agreed" that they were referred to services they needed (and 12 percent "agreed slightly"), while 9 percent "disagreed" slightly or strongly. Furthermore, a significant proportion of parents (44 percent) reported that they had not received any comprehensive services through the PEG program. The percent of parents who indicated agreement that they were referred to services they needed (either strongly or slightly) ranged from 51 percent to 81 percent across the communities.

In reflecting on the first year of implementation, all PEG communities noticed the challenges they faced in fully understanding and addressing the needs of families and children, and committed themselves to addressing these issues in year 2. Program staff dedicated to working with families continue to be part of the budgets of each community. These family engagement staff will continue to run family events, help with enrollment outreach efforts, conduct home visits and provide case management and referrals to families. Supplementary staff have also been included in the budgets of many communities, including speech and occupational therapists hired by the school districts to consult with PEG teachers and behavioral support and mental health specialists hired by many programs work closely with teachers.

Special Education Referrals

Coordinating special education referrals is an area of the grant where programs have faced more challenges. The grant requires that PEG programs serve the same percentage of four year olds with special education needs as the state average (6.9 percent in Massachusetts). However, in a context where strong efforts have been in place for years to identify and serve three and four year olds with special needs through inclusive preschool classrooms, the requirement in four communities that disqualified children with prior preschool experiences has impeded efforts to ensure equal representation of the special education population in PEG classrooms. Therefore, the numbers of children with IEPs in these programs largely reflects children who were

identified and referred during the PEG prekindergarten year. Programs were reluctant to refer children without taking time to fully understand the child's needs and acknowledged that the process could be slow once a referral was made.

Ultimately, less than half of the PEG centers (12 of 28 centers) reported that they helped families obtain services for children with Individualized Education Plans (IEPs). Less than one-tenth of parents surveyed (8 percent) reported that their child was actually referred for special education services. Of the parents who received IEP-related services, 70 percent were very or somewhat satisfied, 13 percent were neutral, and 17 percent were somewhat or very dissatisfied with the services that they received.

The referral process could also be challenging. Center directors identified a shortage of LEA special education staff and the high demand for services as barriers to a quick referral process. The teachers felt that public school teachers had more resources for working with children with special education needs, such as support for determining when to refer and in implementing accommodations in a child's IEP. Coordination with parents during the IEP process was another challenge that multiple center directors discussed during interviews. They noted that parents were sometimes distrustful of the IEP process or did not agree that their child might have a developmental delay or disability.

In recognition of these challenges, public school coordinators have made efforts to bring special education staff to PEG leadership meetings and ensure that time is given to discussing the problems programs are facing. These efforts will continue in the second year of the program and communities have also been encouraged to consider ways PEG programs may be used to provide supplemental programming for children with IEPs, if appropriate, when the inclusion classrooms are only half day programs. EEC is also collaborating with special education staff from DESE to provide a series of professional learning communities focused on collaborations with community-based programs around the provision of special education services.

Parent Attitudes

One of the central goals of PEG is to promote family self-efficacy in terms of supporting their child’s education and the results of parent surveys suggest that programs have been consistently successful in this effort. Over 90 percent of parents were confident in their ability to communicate with their child’s teacher, their ability to communicate effectively with their child about the school day, their knowledge of what their child was learning, and their ability to help their children continue their learning at home. A slightly lower proportion of parents reported that they had the skills to help out at their child’s program (83 percent). These perceptions were generally consistent across PEG communities.

PEG parents also reported high levels of engagement with their children in home activities that are supportive of children’s development and learning. Parents were asked about their involvement with their child in a variety of different types of activities. The most frequent activity parents reported engaging in was talking with children about school, which 93 percent of parents reported doing every day. About one-third of parents (35 percent) reported reading to their child every day.

Notably, the proportion of PEG families who reported reading to their child daily is very similar to responses from low-income families in a national sample[2]. The frequencies of home activities reported by parents were similar across the five PEG communities.

Kindergarten Readiness

A central goal of the PEG program is to support Kindergarten readiness in all children. The decision to target programming to children without any prior early education experience was made, in part, to address the challenges public schools in the five communities have reported in serving high numbers of children without any prior preschool experience and with associated limitations in their school readiness. Toward the end of the first year of PEG implementation (June-July 2016), the research team measured academic performance, using three nationally normed assessments to understand children's letter-word recognition skills, math understandings, and expressive vocabulary development just prior to entering Kindergarten. Teacher reports of children's social-emotional development at the end of the year through their ratings in the Gold® tool by Teaching Strategies were also examined. Although it is impossible to identify the contribution of PEG programs to children's skills, without having assessed these skills at the beginning of the PEG program, these assessment results provide an important window into the school readiness of the first cohort of children in PEG.

Overall, the results were positive, with children showing age appropriate skills, on average, in math and letter-word recognition. Given the gap in achievement expected for children from low-income homes and the extent to which early literacy and math skills predict later school achievement[3], the fact that children in PEG classrooms have achieved normative levels of skill development in these areas is an important accomplishment. The results for vocabulary were a more mixed, as the overall averages were lower than national norms. These results seemed to be driven, in part, by the high numbers of children served for whom English was not their first language. Children's social-emotional development was also rated by teachers as largely meeting age expectations, although children's ability to solve social problems was the least developed of the skills assessed.

Data collectors trained by the evaluation team conducted individual assessments using standardized measures of early math, early literacy, and vocabulary. Each of the standardized tests of academic skills is normed such that a standard score of 100 represents the performance of

[2] In 2007, 40 percent of poor 3- to 5-year-olds were read to every day, compared with 50 percent of children in families at 100–199% of poverty, and 64 percent of children in families at 200% of poverty and above. Source: Federal Interagency Forum on Child and Family Statistics. America's Children: Key national indicators of well-being, 2009. Federal Interagency Forum on Child and Family Statistics, Washington, DC: U.S. Government Printing Office. Based on National Household Education Survey analysis.

[3] See Duncan, G.J., Dowsett, C.J., Claessens, A., Magnuson, K., Huston, A.C. et al. (2007). School readiness and later achievement. *Developmental Psychology, 43*(6), 1428-1446. Storch, S.A. & Whitehurst, G.J. (2002). Oral language and code-related precursors to reading: Evidence from a longitudinal structural model. *Developmental Psychology, 38*(6), 934-947. U.S. Department of Health and Human Services, Administration for Children and Families, (May 2003). Head Start FACES 2000. Washington, DC.

an average student at this age (based on a national sample of children from all socioeconomic groups). The standardized assessment measures included:

- **Early Math**: Woodcock-Johnson III Tests of Cognitive Abilities: Applied Problems Subtest;
- **Early Literacy**: Woodcock-Johnson III Tests of Cognitive Abilities: Letter-Word Identification Subtest; and
- **Vocabulary Comprehension**: The Expressive One-Word Picture Vocabulary Test.

Prior to beginning the assessments, children who were identified as coming from non-English speaking homes were screened on their understanding of English. The *preLAS* was used as a screening measure to confirm whether the child could appropriately be tested in English or should be tested in Spanish. All but five of the 331 children in the sample passed the English language screener and were tested in English. The remaining five children were assessed in Spanish with the two Woodcock Johnson subtests and with a bilingual version of the vocabulary assessment.

Average standard scores for the three academic content areas are show in Table 5 below. On two of the measures, the average scores were close to the expected standard score for their age (score of 100). When the range of scores was considered, a greater percentage of PEG children fell in the expected or above expected range than the national norm sample for math skills and letter recognition (see Figure 2). However, only 65 percent of the sample fell in this range for vocabulary knowledge.

Table 5. Overall PEG Early Academic Skill Scores

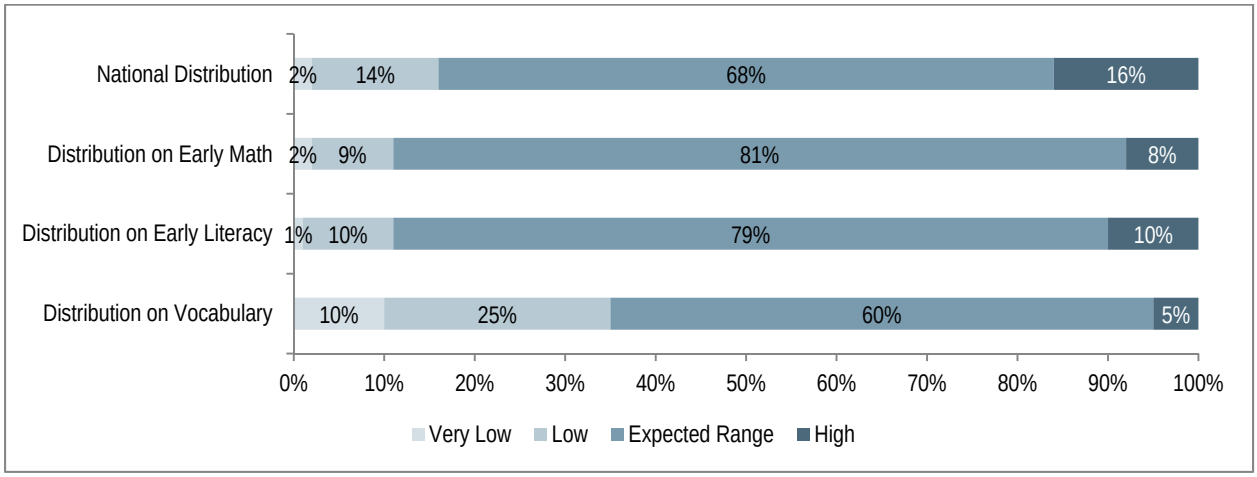
Construct	Mean	Standard Deviation	Range
Early Math	98.13	12.56	59–133
Early Literacy	99.40	13.46	60–155
Vocabulary	90.64	15.71	50–131

READS AS: PEG children scored a mean of 98.13 on the early math construct, with a standard deviation of 12.56. Scores ranged from 59–133.

SAMPLE: N=324–326.

SOURCE: PEG Child Assessment Data(Summer 2016) using the Woodcock-Johnson III Tests of Cognitive Abilities: Applied Problems Subtest for early math skills, the Woodcock-Johnson III Tests of Cognitive Abilities: Letter-Word Identification Subtest for early literacy skills and the Expressive One-Word Picture Vocabulary Test for vocabulary skills.

Figure 2. Overall Distribution of PEG Children on Standardized Assessments

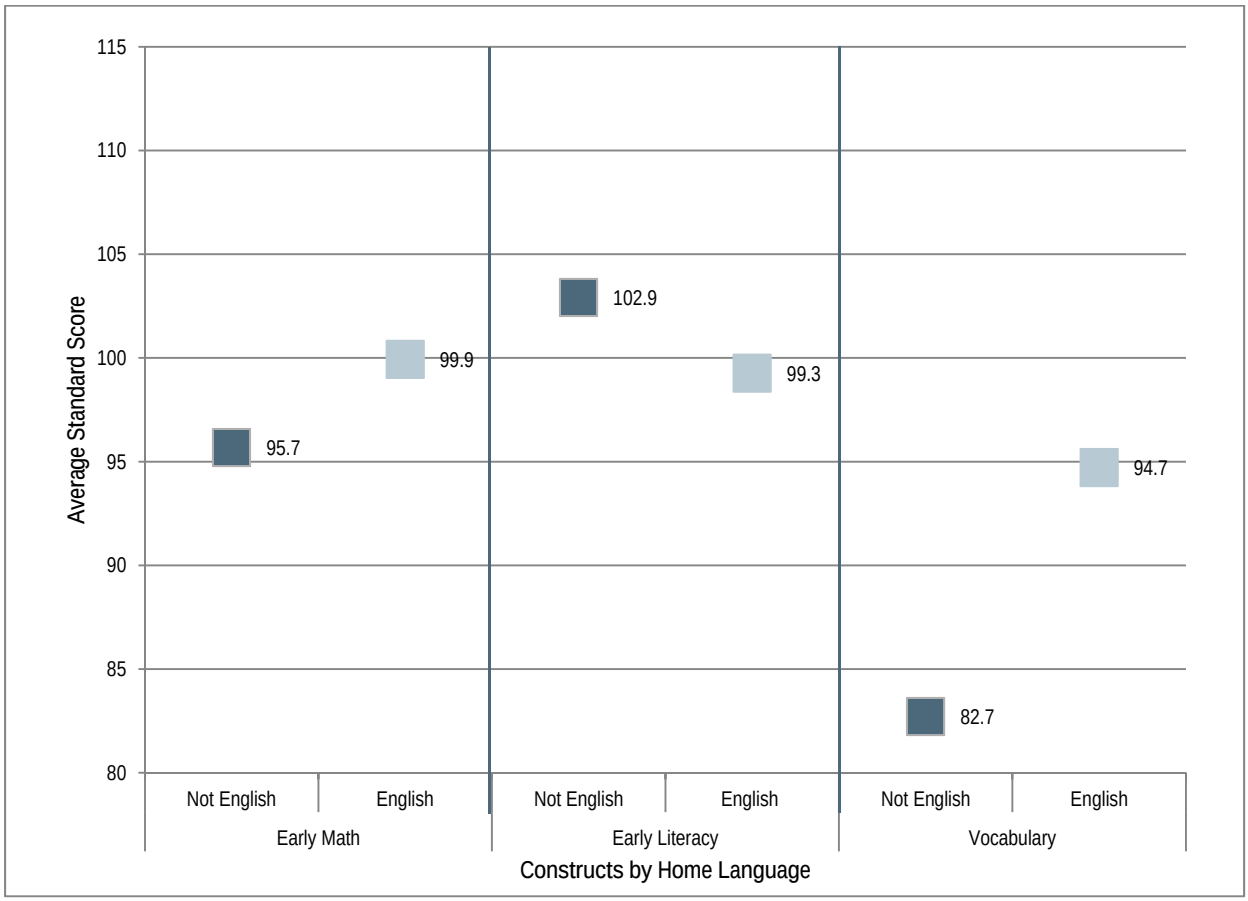


READS AS: Two percent of PEG children scored very low on the early math construct, which is consistent with the percentage of children receiving a very low score nationally. Nine percent of PEG children scored low on the early math construct, which is lower than the 14 percent of children in the national distribution that scored low on the early math assessment.
NOTE: The national distribution represents the distribution of scores on standardized measures with mean = 100 and standard deviation = 15.
"Very Low": More than 2 standard deviations below the expected mean of 100 (<70)
"Low": Within 2 standard deviations below the expected mean of 100 (70–84)
"Expected Range": Within 1 standard deviation above or below the expected mean of 100 (85–115)
"High": More than 1 standard deviation above the expected mean of 100 (>115)
SAMPLE: N=324–326.
SOURCE: PEG Child Assessment Data(Summer 2016) using the Woodcock-Johnson III Tests of Cognitive Abilities: Applied Problems Subtest for early math skills, the Woodcock-Johnson III Tests of Cognitive Abilities: Letter-Word Identification Subtest for early literacy skills and the Expressive One-Word Picture Vocabulary Test for vocabulary skills.

The study team examined whether the achievement scores were different for the children from homes where the primary spoken language was not English. In the sample of PEG children selected for the assessments, 40 percent lived in homes in which English was not the primary spoken language. Spanish was the predominant home language (other than English), and there were smaller numbers of children from homes where other languages were spoken, including Chinese, Haitian Creole, Khmer, and Portuguese. Just over 30 percent of the sample of 331 children (104) were administered the *preLAS* screener for English proficiency based on parent identification of home language and/or teacher identification. Yet, only five children failed the screener and received the Spanish or bilingual version of the assessments.

The average difference between the home language groups was most pronounced for the vocabulary assessment, and dual language learners scored substantially lower on the test of vocabulary than children from homes where English was the primary language (see Figure 3). English speaking children performed near the norm for math and letter recognition, but also slightly lower for vocabulary.

Figure 3. Early Academic Skills Scores by Home Language



READS AS: On average, PEG students from homes where English was not the primary language scored 95.67 on the early math construct and PEG students from homes where English was the primary language scored an average of 99.9.
SAMPLE: For PEG students from homes where English is not the primary language, N=98, missing=0–1. For PEG students speaking English at home, N=127–128.
SOURCE: PEG Child Assessment Data(Summer 2016) using the Woodcock-Johnson III Applied Problems Subtest/Woodcock Munoz Problemas Applicados for early math skills, the Woodcock-Johnson III Letter-Word Identification Subtest/Woodcock Munoz Identificacion de letras-Palabras for early literacy skills, and the Expressive One-Word Picture Vocabulary Test (English only) for vocabulary skills.

In addition to academic achievement outcomes, there is currently ever-increasing importance placed on non-cognitive skills by researchers, practitioners, and policy makers. PEG teachers rated children's socio-emotional skills using the Teaching Strategies GOLD® (TS GOLD) at least once during the 2015–16 school year. The Social-Emotional section of the TS GOLD that was used in the PEG programs includes nine skills grouped into three primary Objectives: 1) self-regulation of emotions and behaviors; 2) positive relationships; and 3) participation in group situations. For each of the nine skills, a student is rated on a scale from 1 to 9. Individual skill scores are then averaged into the appropriate Objectives.

The study team examined teacher ratings from spring of the 2015–16 preschool year for 606 students from 40 PEG classrooms[4] (see Exhibit 10.7). Average scores for all three Objectives were moderate (age expectations differ slightly for each objective, but scores of 6 or above generally met expectations). Scores were lowest for *Participation in Group Situations* and highest for *Positive Relationships*. In all rated objectives except for "solving social problems", at least 85 percent of the children were scored as falling into or above the expected range of scores. Only 80 percent of children were in the expected range for "solving social problems" (one component of the "Participation in group situations" scale.

Table 5. Teaching Strategies GOLD® Ratings for Overall PEG

Objective	Mean	Standard Deviation	Range
1. Self-regulation of emotions and behaviors	6.26	1.12	1.3–9.0
2. Positive relationships	6.44	1.15	2.0–9.0
3. Participation in group situations	5.77	1.25	1.0–9.0

READS AS: PEG teachers gave their students a mean score of 6.26 for self-regulation of emotions and behaviors, with a standard deviation of 1.12 and a range of 1.3–9.0.
SAMPLE: N=606.
SOURCE: PEG Child Socio-emotional Skills Assessment (Summer 2016) using TS Gold.

These results show the strengths and continued challenges for the cohort of children attending PEG-funded programs in Massachusetts. These children showed normative levels of development in critical literacy, math and social-emotional skills, skills that are important predictors of school success[5]. Growth in these skills tends to be stable or even diverge over the years. Children who are on the low end of the distribution tend to remain on the low end of the distribution or increasingly get left behind throughout school, and face repeated challenges as the result of these gaps[6]. Starting Kindergarten with normative skills in math and early literacy is, therefore, very important for later school success.

The results for vocabulary abilities were a little more mixed. Although children from English speaking homes scored close, albeit slightly below, the national norms, dual language learners

[4]Data provided by EEC included 40 of the 48 PEG classrooms.

[5] Longitudinal studies such have consistently demonstrated that early math, letter recognition, language and self regulation skills predict the same skills later in elementary and all contribute to children's school success. See Duncan, G.J., Dowsett, C.J., Claessens, A., Magnuson, K., Huston, A.C. et al. (2007). School readiness and later achievement. *Developmental Psychology*, *43*(6), 1428-1446. Storch, S.A. & Whitehurst, G.J. (2002). Oral language and code-related precursors to reading: Evidence from a longitudinal structural model. *Developmental Psychology, 38*(6), 934-947. NICHD Early Child Care Research Network. (2005).Pathways to reading: The role of oral language in the transition to reading. *Developmental Psychology*, *41*(2), 428-442.

[6]Jordan NC, Levine SC. (2009). Socioeconomic variation, number competence, and mathematics learning difficulties in young children. *Developmental Disabilities Research Reviews,*15:60-68; Layzer, J. and Price, C. (2008). Closing the gap in the school readiness of low-income children. Paper for panel, *Approaches to Measuring and Narrowing the School Readiness Gap.* Washington, DC; Lonigan, C.J. and Shanahan, T. (2008). Developing early literacy: Report of the National Early Literacy Panel. A scientific synthesis of early literacy development and implications for intervention. National Institute for Literacy, Washington, D.C.

who passed the English language screener scored significantly lower. Vocabulary skills play an important role in later reading comprehension and are even more likely to be stable through elementary school than other skills, such a letter recognition, so these limitations should be taken seriously[7]. At the same time, it is important to acknowledge that children from non-English speaking homes (particularly those with no prior preschool experience) may have started the year with very little knowledge of English as compared to their peers; it cannot be known from these data whether those children made greater gains throughout the year despite scoring below their peers in the spring[8]. Child assessments will be conducted at the beginning and end of the second year of the evaluation, allowing us to identify the growth in skills during the PEG year. It will be essential in the second year that PEG programs support teachers in using effective practices to build children's vocabulary and associated language skills. Similarly, the lower than expected results for children's ability to solve social problems highlights another area of development to which PEG programs should attend in year two.

VI. Teachers and Teacher Supports

Teaching Staff

The teachers working in PEG classrooms were relatively well-educated and well compensated (as required by the grant). Across the five PEG communities, the lead teacher salaries ranged from $54,000 to $71,000, with an average of $54,246. Assistant teacher's salaries averaged $43,248. PEG classrooms generally were staffed with one lead teacher and two assistants, or an assistant and an aide. For comparison, in Massachusetts, Head Start teachers are paid $28,078 on average, and child care teachers $24,980, while Kindergarten teachers average $67,170[9]. These salaries bring PEG teachers' compensation more in line with compensation of public school teachers and, unlike Head Start and childcare teachers, raises salaries above the levels likely to make them eligible for public assistance benefits (i.e. SNAP income eligibility for a family of three is $26,124/ year).

[7] It has been shown that although elementary school has influence on reading and math skills, no unique school effects could be found for vocabulary knowledge. Christian, K., Morrison, F.J., Frasier, J.A., & Massetti, G. (2000). Specificity in nature and timing of cognitive growth in kindergarten and first grade.

[8] In the evaluation of the Tennessee public pre-k program, researchers reported that English language learners started lower than their peers at the beginning of pre-k but made greater gains during the year on a composite of measures including early math, early literacy, and vocabulary, even though they still finished the year scoring lower than English-speaking children. Lipsey, M. W., Farran, D. C., & Hofer, K. G. (2015). *A randomized control trial of the effects of a statewide voluntary prekindergarten program on children's skills and behaviors through third grade* (Research Report). Nashville, TN: Vanderbilt University, Peabody Research Institute.

[9] U. S. Department of Education (2016). *Troubling pay gap for early childhood teachers* [Fact sheet]. Retrieved from http://www.ed.gov/news/press-releases/fact-sheet-troubling-pay-gap-early-childhood-teachers

Table 6. Characteristics of PEG Teachers, 2015–16

	Lead Teachers		Asst. Teachers	
	n	%	n	%
Education				
High school diploma or GED	0	0%	10	31%
Associate's/Technical/Vocational Degree	0	0	16	50
Bachelor's degree	30	77	5	16
Master's degree	9	23	1	3
Experience				
1 year	3	8%	7	21%
2–5 years	12	31	14	42
6–10 years	12	31	5	15
More than 10 years	12	31	7	21
Languages Spoken				
English	39	100%	32	97%
Spanish	10	26	15	45
Haitian Creole	3	8	0	0
French	1	3	0	0
Other	3	8	1	3
Other Work				
Externally Employed (Part- or Full-Time)	8	21%	5	16%
Other Education				
Currently in School as a Student	8	21%	13	41%

- READS AS: Zero lead teachers and 10 assistant teachers (or 31% of assistant teachers) held a high school diploma or a GED as their highest level of education.
- NOTES: Percentages were rounded to the nearest whole number; Responses for "Language Spoken" do not sum to 100 percent because multiple responses were permitted.
- SAMPLE: For lead teachers, N=38–39, missing=0–1. For assistant teachers, N=32–33, missing=0–1. For all teachers, N=71–72, missing=0–1.
- SOURCE: PEG Teacher Survey (Spring 2016).

The level of education of PEG lead teachers is higher than that reported nationally for programs serving disadvantaged preschool children; nationally 45 percent of center-based teachers and caregivers serving children ages 3–5 had a bachelor's degree or higher[10]. It is also higher than the 30 percent that was recently reported for center-based teachers in Massachusetts[11]. In general, PEG programs were able to hire lead teachers quickly, drawing in some cases from teachers who had been working in other programs run by the same agency. Difficulties in hiring were generally only reported for the third teacher and floater positions, the lowest paid of the

[10] National Survey of Early Care and Education Project Team. (2013). *Number and characteristics of early care and education (ECE) teachers and caregivers: Initial findings from the National Survey of Early Care and Education (NSECE).* OPRE Report #2013-3. Washington DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

[11] Marshall, N. L., Dennehy, J., Johnson-Staub, C., & Wagner-Robeson, W. (2005*). Massachusetts Capacity Study: Characteristics of the current early education and care workforce serving 3-5 year olds.* Wellesley, MA: Center for Research on Women, Wellesley College.

teaching positions. Additionally, ELPs reported difficulty in filling open positions in other agency programs created when teachers moved to the PEG program, which reflects a larger concern in the field that hiring and retaining qualified staff have become much harder in recent years[12]. Overall, the evidence to date suggests that the salaries being offered were effective at enticing qualified teachers to the PEG program, at least for the lead teacher positions. At the same time, programs are concerned that PEG teachers may recognize public school staff work shorter days and a shorter year for similar salaries and leave for jobs in the public schools. Teacher reports of their satisfaction with their salaries were also mixed (only 64 percent of lead teachers and 45 percent of assistant teachers were satisfied), supporting this concern. In future years, teacher retention will be considered to understand the extent to which these salaries and associated supports for teachers encourage teachers to remain in PEG programs.

Teacher Attitudes

In general, PEG teachers were satisfied with their jobs (93 percent were "very satisfied" or "somewhat satisfied") and felt confident in their teaching abilities. Ultimately, it is expected that teachers who feel more positively about their jobs and their own competencies will remain in the program and be more likely to embrace opportunities to develop their practice, thereby providing the program with a stable and increasingly skilled workforce.

More than half of lead teachers surveyed (60 percent) reported that ELP and center directors were “very supportive” in helping them manage their classrooms effectively, while another 23 percent of teachers characterized their leadership as “somewhat supportive.” Teachers were similarly positive in focus groups; most teachers reported that they generally felt supported by their ELP and center directors.

PEG teachers expressed a high level of confidence in their ability to work with students. All teachers agreed they made a significant difference in students’ lives and that they were successful at reaching even the most difficult students (97 and 90 percent respectively agreed "very strongly"). Teachers were less confident about their influence on their students’ achievement and motivation, relative to the influence of their home environments and peers. Only 70 percent disagreed with the statement, "Most of a student's motivation depends on the home environment, so I have limited influence." However, teachers were highly confident in their ability to communicate with parents and guardians; on average, teachers rated their ability to communicate with parents about various topics as above 4.6 on a 5-point scale.

Professional Development

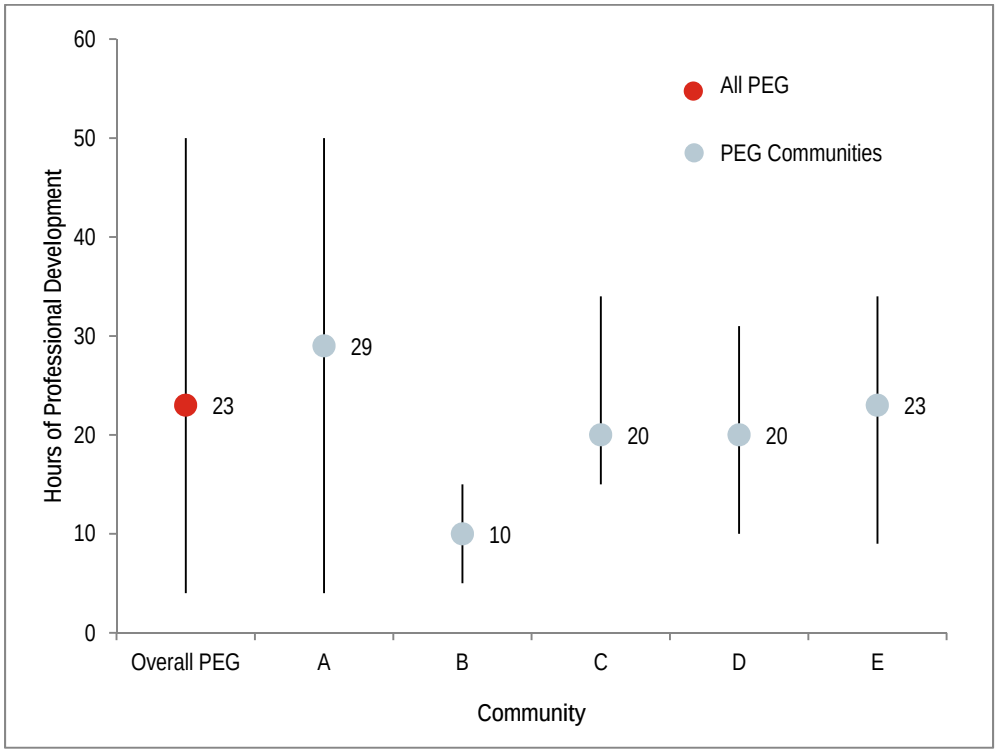
A primary set of supports provided to teachers in the first year of PEG were professional development opportunities. PEG districts and programs were allowed to design their own professional development programs, which could vary in intensity and topics covered. At the same time, PEG communities were encouraged to collaborate in and align professional development activities and approaches across all participating agencies. Most center directors

[12] This issue was raised during public comment at the EEC Board meeting on December 8, 2015.

(75 percent) reported that professional development to teachers was provided primarily by school district staff. Less often, ELP and center staff delivered the professional development. The most common forms of professional development supports were group training, coaching and support for planning time, although only four of the five communities provided coaching in the first year.

On average, PEG lead teachers reported attending 23 hours of professional development during 2015–16 (Figure 4). However, there was substantial variation among teachers in the amount of professional development received, ranging from a few to 50 hours. Assistant teachers reported receiving, on average, 61 percent of the hours of professional development received by lead teachers.

Figure 4. Average Hours of Professional Development for PEG Lead Teachers: Overall and by Community

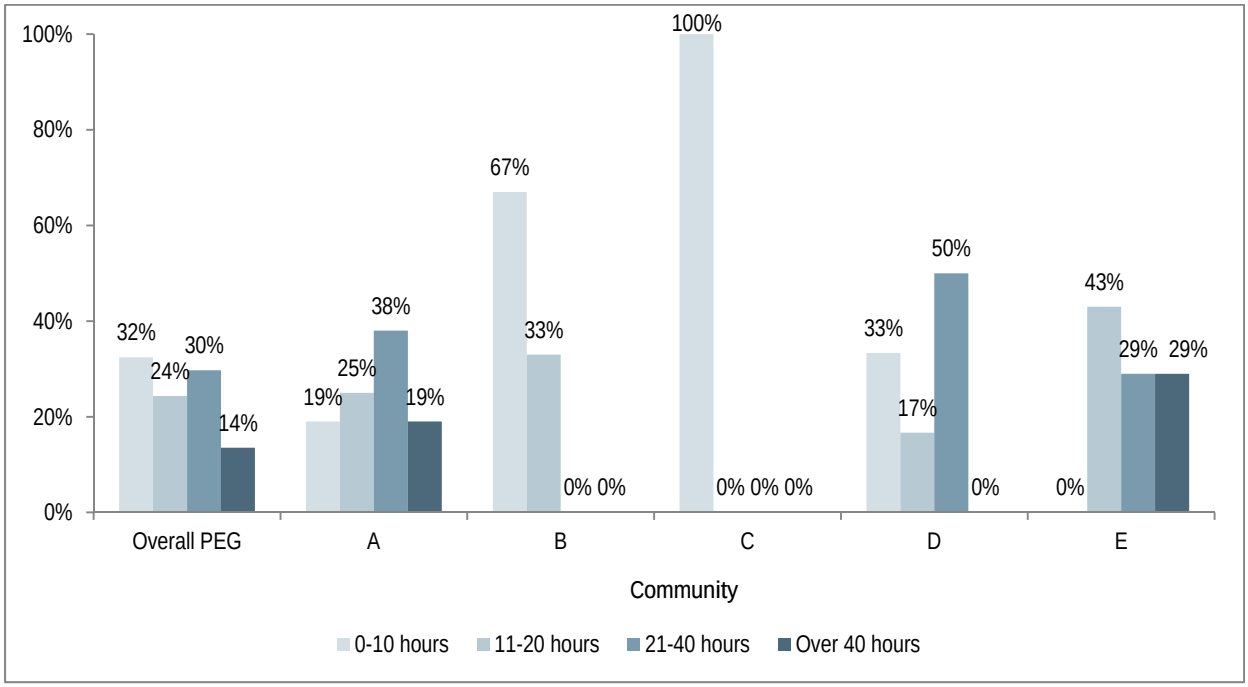


READS AS: PEG lead teachers reported receiving between 4 and 50 hours of professional development over the past year, with an average of 23 hours.
SAMPLE: N ranged from 3 to 10, by community. For overall PEG, N=25, missing=13.
SOURCE: PEG Teacher Survey (Spring 2016).

Coaching was encouraged but not required and PEG communities including this support were free to design their own coaching model in terms of content, dosage, and strategies. Coaches met with individual PEG teachers or teaching teams to support teachers in thinking more intentionally about their practice, using particular curriculum and developing particular skills in interacting with children to support different areas of development. Coaching dosages varied among teachers both within and across communities (Figure 5). While programs in Lawrence did not provide coaching, at least one of the center directors offered instructional support to the PEG teachers in her building and the recently hired Early Childhood Coordinator at LPS will provide coaching in year 2.

In the four communities with PEG coaches, the coaches were hired by the school district. All of the coaches had expertise in early childhood education and development. With one exception, coaches were former early childhood teachers. In three communities, PEG coaches were hired from an existing pool of district coaches or experienced district teachers.

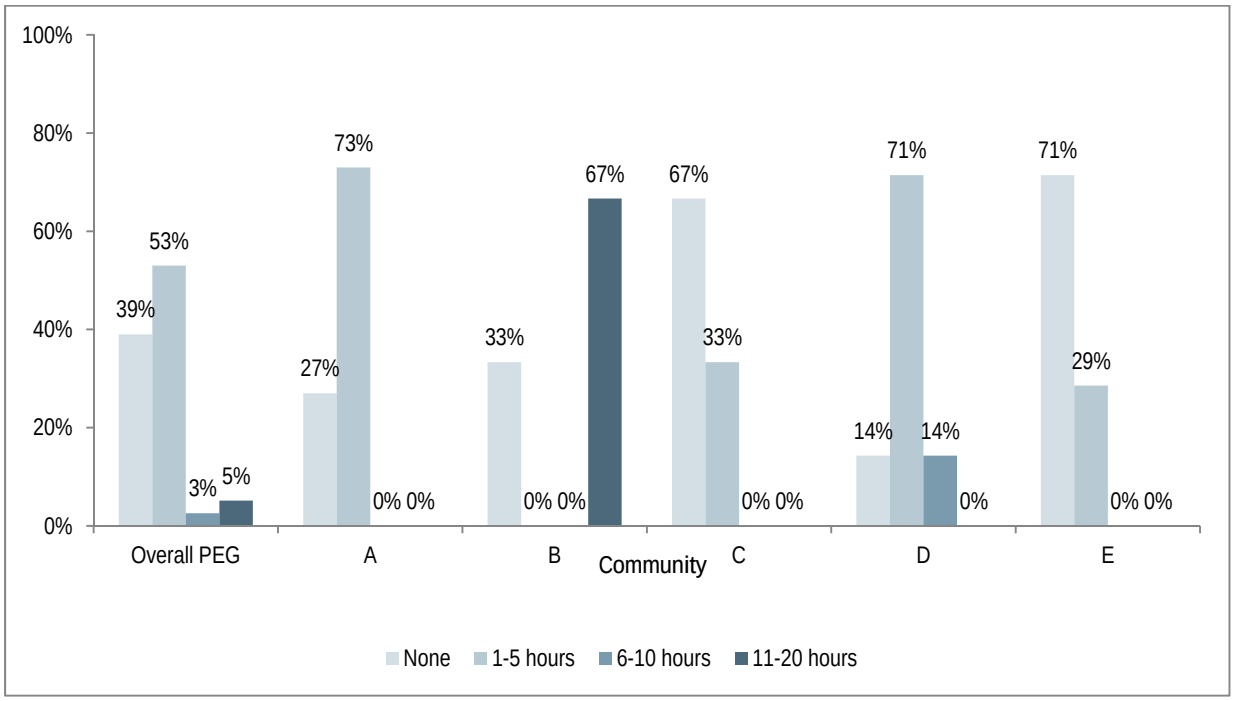
Figure 5. Hours of Coaching Reported by PEG Lead Teachers: Overall PEG and by Community



READS AS: Thirty-two percent of PEG teachers reported receiving between 0 and 10 hours of coaching over the last year.
SAMPLE: N ranged from 16 to 3, by community. For overall PEG, N=37, missing=1.
SOURCE: PEG Teacher Survey (Spring 2016).

The PEG model did not include a requirement that teachers have paid time for planning, but EEC encouraged PEG programs to provide this support as a strategy for developing high-quality programming for children. About half of the lead teachers (53 percent) reported receiving 1–5 hours per week of formal release time for planning, while a smaller proportion (8 percent) received 6 or more hours of planning time. In one community, teachers were hired as teacher-directors and had substantial periods of time scheduled for the associated administrative tasks; in this community teachers also report 11-20 hours a week of planning time. Approximately one-third of lead teachers (39 percent) received no formal release time per week (Figure 6). Assistant teachers reported similar hours of paid planning time.

Figure 6. Weekly Paid Planning Time Reported by PEG Lead Teachers: Overall PEG and by Community



READS AS: Thirty-nine percent of PEG lead teachers reported receiving no weekly planning time, and 53 percent of PEG lead teachers reported receiving one to five hours of planning time per week.
SAMPLE: N ranges from 3 to 15, by community. For overall PEG, N=38, missing=1.
SOURCE: PEG Teacher Survey (Spring 2016).

Curriculum and Assessment

All PEG classrooms were required to use an evidence-based curriculum aligned with state standards and all reported doing so; the primary curricula in use were Opening the World of Learning, Building Blocks (math), Creative Curriculum, Big Day for Prek and Splash Into Prek, with Frog Street, Fundations, Everyday Math and program-developed curricula reported as secondary resources. Communities varied in the extent to which all programs in the community used the same curriculum and the extent to which the curricula were aligned with public school Kindergarten curricula. In Boston and Springfield, the public school took the lead in identifying curricula for all partners that is aligned with Kindergarten curricula and provided supporting professional development. In the other three communities, decisions about curricula were made by individual agencies, although during planning for year 2, two communities have decided to use the same curricula in both programs and two are discussing ways to ensure alignment with Kindergarten expectations. The biggest challenge reported by teachers in using curricula is the extent to which they have received support in individualizing instruction to meet student needs. Although the vast majority of teachers (90 percent) were "very" or "somewhat satisfied" with effectiveness of their school's curriculum, 13 percent were "dissatisfied" with the support it provided for individualization of instruction and another 21 percent were "neutral" on this topic. Forty-eight percent of teachers also disagreed with the statement "I am given support I need to teach students with special needs."

All PEG programs conducted screening and assessments of children at enrollment and throughout the 2015–16 year. As required by PEG, all lead teachers who responded to the survey (38) reported using TS GOLD to assess children's progress across multiple developmental domains. Surveyed teachers reported using additional screening/assessment tools in just over half of the classrooms (20 of 38). The Ages & Stages Questionnaire (ASQ) - a screening tool that measures children's progress toward developmental milestones - was the most common additional assessment used in PEG classrooms (17 of 38 classrooms), followed by the DIAL (6), the PPVT (3), the Brigance (2) and PELI (2). Two English language proficiency screeners were used in some of the PEG programs, the WIDA (4) and the preLAS (1). The most common uses of this information was to provide information to parents and support individualization of instruction and lesson planning (83 percent each), suggesting that teachers have information they can use to support differentiation of instruction, but may not be confident in their ability to know what to do for particular children.

EEC will continue to provide support in year 2 to communities in assessing their curricular choices, considering alignment across the community and ensuring teachers understand how to differentiate instruction effectively, integrating the supports provided by the curriculum with the assessment data they have for particular children.

Classroom Quality

A primary mechanism by which PEG programs are expected to support children's school readiness is through the quality of teacher-child interactions and supports for children's development that exist in the classroom. By hiring well-trained teachers and providing extensive professional development, six months after opening, PEG classrooms have demonstrated moderate to high levels of classroom quality as observed using four different standardized assessment tools.

The study team conducted two-day classroom observations in February and March 2016 in all 48 PEG classrooms. Trained and reliable observers were in the classroom from the start of the school day until children began naptime (generally 8 a.m. – 1 p.m.), and used four structured observation measures (two on each day).

The structured observation measures included:

- **Classroom Assessment Scoring System for Pre-K (CLASS;** Pianta, La Paro, & Hamre, 2008). The CLASS measures overall instructional quality with a focus on interactions among teachers and students in the classroom. Each item score ranges from 1 to 7. A score of 1–2 is described as "low" quality in that aspect of teacher-child interaction. Scores of 3–5 are described as "moderate," and scores of 6–7 are described as "high" quality.
- **Early Language and Literacy Classroom Observation Pre-K (ELLCO**; Smith, Brady, & Anastasopoulos, 2008). The ELLCO captures more in-depth information on the quality of support for language and literacy development, including support for diversity of languages, abilities, and cultures. Each item score ranges from 1 to 5, with the highest scores described as "exemplary."
- **Classroom Observation of Early Mathematics – Environment and Teaching, version 3 (COEMET**; Sarama & Clements, 2007**).** The COEMET focuses on the quality and quantity of mathematics instruction and measures the richness of the math environment in the classroom. The

overall instructional environment is rated (1–5 scale) along with a count and rating (1–5 scale) of specific math activities (SMAs) and a count of mini math activities ("minis")– those that are brief and/or do not involve teachers or assistants but which nevertheless include mathematics content.

- **Observation Measures of Language and Literacy Instruction in Early Childhood Education Classrooms - Snapshot of Classroom Activities (OMLIT;** Goodson, Layzer, Smith, & Rimdzius, 2005). The Snapshot portion of the OMLIT measures classroom configurations and activities for each child and staff member in the classroom. The Snapshot provides a perspective on what a classroom looks like, based on how children spend their time—the activities they participate in and whom they are interacting with (i.e., number of other children, staff). In the Snapshot, 15 types of activities are coded, for example, time spent in reading, math, or science, and, within each activity that is occurring, the size of the child instructional grouping (whole group, small group, or individual activity) and how much of the time children are with adults.

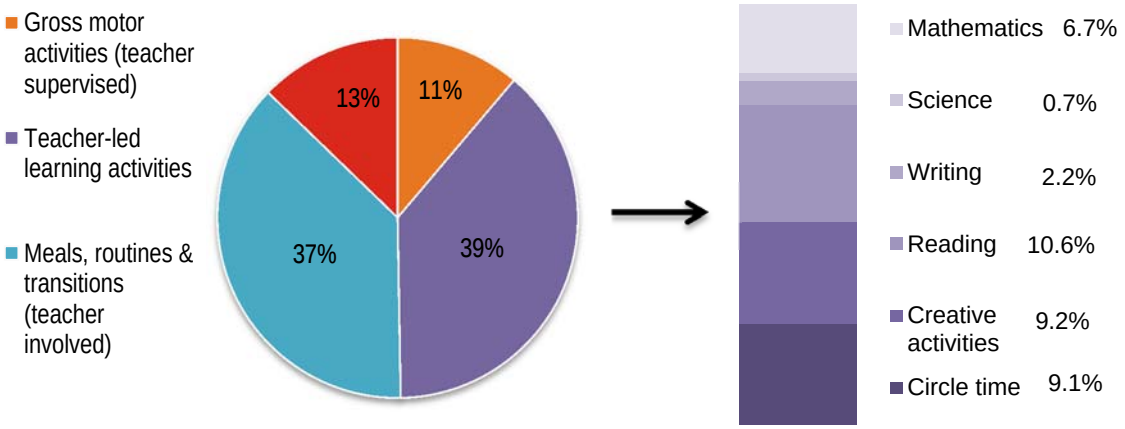
The CLASS and the ELLCO were administered simultaneously during the first day, and the COEMET and the Snapshot were administered together during the second day.

The results of the Snapshot show that children spent 63 percent of their time in activities with the potential to support development in different domains (see Figure 7). Thirty-nine percent of time was spent in teacher-directed activities in the classroom. Twenty-three percent of this time involved activities that explicitly targeted academic skills, although circle time and creative activities can integrate support for math, science, social studies and literacy development, and gross motor activities are important for physical development. Adult-child conversations are also important in scaffolding children's language development[13]. These conversations can occur during any type of activity, and children spent 86 percent of their time throughout the day in interactions with adults. Although children in PEG classrooms spent, on average, nearly one and a half hours during a one day, 6 hour observation (37 percent of observed classroom time) engaging in meals, routines and transitions, in about one-quarter of the classrooms (13 of 48 classrooms), teachers used these transition times as an opportunity for language and literacy-related activities. For example, in one classroom, teachers used index cards to practice phonics or played rhyming games with the children as they waited in line, and in another classroom, teachers read books to children during transition times.

[13] Bond, M.A. & Wasik, B.A. (2009). Conversation stations: Promoting language development in young children. *Early Childhood Education Journal, 36*(6), 467-473. http://dx.doi.org/10.1007/s10643-009-0310-7 Bowers, E.P. & Vasilyeva, M. (2011). The relation between teacher input and the lexical growth of preschoolers. *Applied Psycholinguistics, 32*(1), 221-247. http://dx.doi.org/10.1017/s0142716410000354 Hoff, E. (2006). How social contexts support and shape language development. *Developmental Review, 26*(1), 55-88. http://dx.doi.org/10.1016/j.dr.2005.11.002

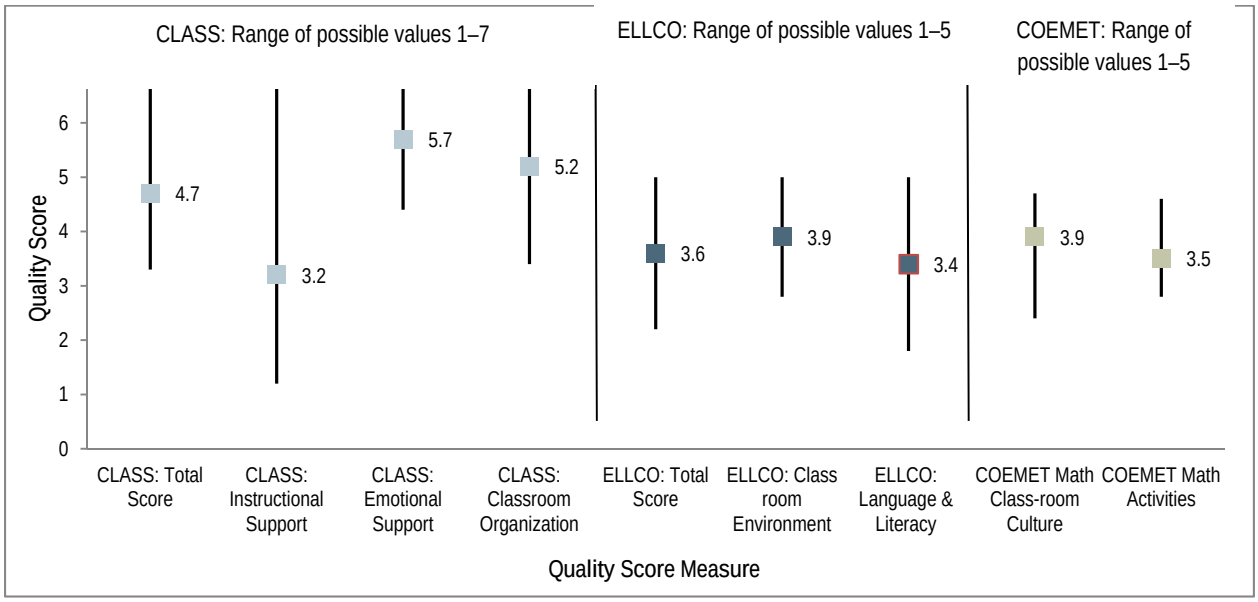
Figure 7. Percentage of Time Spent by PEG Children by Type of Activity

READS AS: PEG children spent an average of 37 percent of their time on meals and transitions during observations (conducted over 6 hours within one day in each classroom).
SAMPLE: N=48.
SOURCE: PEG Classroom Observations (Winter 2016).



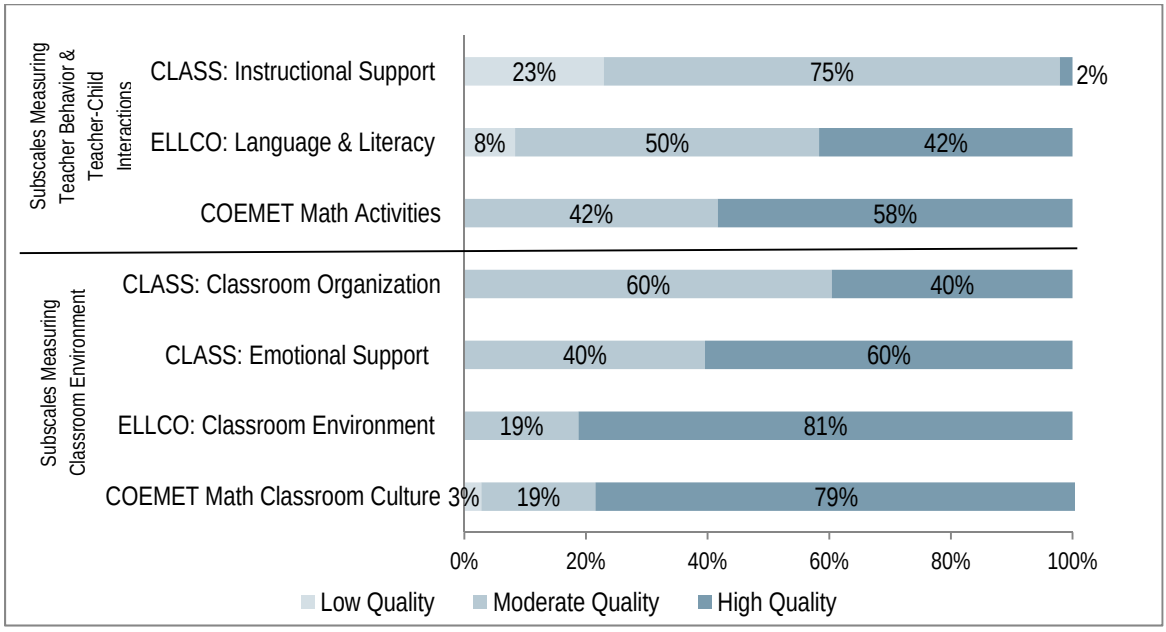
When the results of observations that focus on the quality of teacher-child interactions and supports for particular domains of development were considered, the ratings of PEG classrooms, on average, represented a moderate to high level of quality (Figure 8). The average CLASS rating for overall classroom quality in PEG classrooms was 4.7 out of 7 points. The average ELLCO rating was 3.6 out of 5 points. The average COEMET ratings for the quality of the math environment and instruction were, respectively, 3.9 and 3.5 out of 5. There was substantial variation across PEG classrooms on each of the classroom quality measures. Ratings of the PEG classrooms represented nearly the full range of values, from the lowest to the highest possible values on each subscale. For most dimensions, the vast majority of PEG classrooms fell in the moderate to high quality end of the scale (see Figure 9). However, measures of the quality of particular interactions between teachers and children known to support language, literacy and conceptual development, showed far fewer instances of very high quality interactions and more instances of low quality, suggesting some important areas for improvement. To put these findings in context, we note that these types of interactions tend to be more challenging for teachers to master and often yield lower scores (see Figure 10 for comparisons from other programs). At the same time, the concerns raised by the assessment data about children's language development heighten the need for PEG programs to address these common issues; the interactions measured by these scales are the ones most likely to improve children's language skills.

Figure 8. PEG Classroom Quality Scores, by Measure



READS AS: PEG classrooms earned an average total CLASS score of 4.7 out of 7, and classroom total scores ranged from 3.3 to 6.8.
NOTE: Squares represent average scores for all PEG classrooms. The lines display the range from the highest to lowest score.
SAMPLE: N=48.
SOURCE: PEG Classroom Observations (Winter 2016) using the CLASS-PreK, the ELLCO and the COEMET.

Figure 9. Number of PEG Classrooms with Low, Moderate and High Quality Ratings on Quality Measures



READS AS: Researchers observed that 23 percent of PEG classrooms received low quality ratings on instructional support, as measured by the CLASS tool.
SAMPLE: N=48.
SOURCE: PEG Classroom Observations (Winter 2016) using the CLASS PreK, the ELLCO and the COEMET.

The quality of instruction in PEG classrooms, on average, is comparable to quality recently reported for other preschool programs serving low-income children in Massachusetts. Two recent studies of preschool classrooms in Massachusetts also examined classroom quality using the CLASS and ELLCO. One study reported on 115 observations of preschool classrooms that served four year old children and participated in the Massachusetts[14] QRIS. A second study examined public school and community-based preschool programs that participated in the Boston K1DS program, the predecessor to PEG in Boston[15].

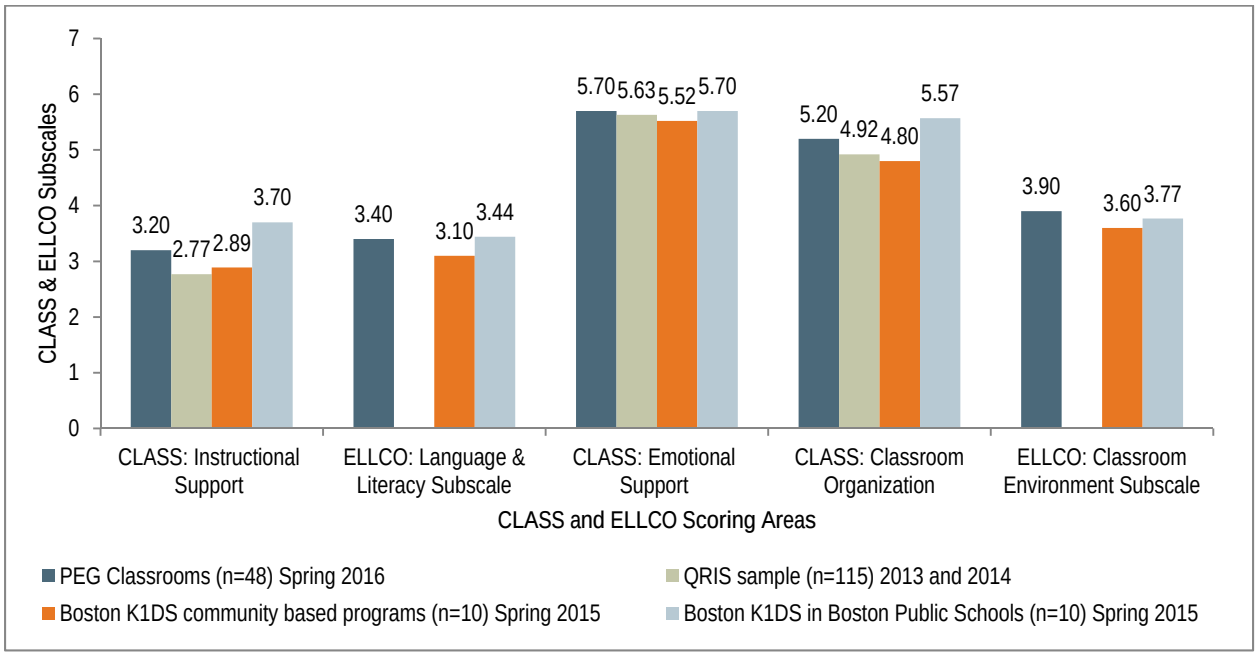
Average scores in the PEG classrooms were higher than the average scores reported for both the samples of QRIS programs and the K1DS community-based classrooms (this community-based sample included most of the programs currently funded by PEG in Boston). Compared to the BPS Prek classrooms assessed as part of the K1DS evaluation, PEG classrooms received higher average scores on ELLCO Classroom Environment and lower average scores on CLASS Instructional Support and CLASS Classroom Organization. Average scores on the ELLCO Language & Literacy Subscale and CLASS Emotional Support were similar (Figure 10). Additionally, when PEG CLASS scores are compared to those most recently reported by Head Start (in 2015 Emotional Support - 6.03, Classroom Organization - 5.82, Instructional Support - 2.88), PEG classrooms are comparable although slightly lower on Emotional Support and Classroom Organization, but higher on Instructional Support[16].

[14] Dahlke, K., Tucker, N., Weinberg, N., Reese, K., Chernoff, J., Chamorro, A., ... Flanagan, K. (2014). *Race to the Top—Early Learning Challenge Grant: Validation of Educator Competency Study 2014 Annual Report.* Massachusetts Department of Early Education and Care.

[15] Yudron,M., & Weiland,C. (2016). *BPS K1DS: Piloting the Boston Public Schools' prekindergarten model in community-based organizations.* Retrieved from: http://bpsearlychildhood.weebly.com/uploads/1/0/1/3/10131776/bpsk1ds_final_report_feb2016_11.pdf

[16] Head Start Early Childhood Learning and Knowledge Center. (2016). A national overview of grantee CLASS scores in 2015. Retrieved from https://eclkc.ohs.acf.hhs.gov/hslc/data/class-reports/class-data-2015.html

Figure 10. Average Classroom Quality CLASS AND ELLCO: PEG versus Other Preschool Cohorts



READS AS: Researchers observed that PEG classrooms received an average score of 3.1 for instructional support based on the CLASS ratings, which was higher than classrooms in the QRIS sample and the Boston K1DS community-based programs, but lower than Boston K1DS in Boston Public Schools.
SAMPLE: N=48.
SOURCE: PEG Classroom Observations (Winter 2016) using the CLASS-PreK and the ELLCO.

Overall, PEG classrooms have achieved good levels of quality, comparable to other high quality programs, during only one year of operation. With continued professional development and a stable workforce, the expectation is that this quality will continue to improve, particularly around supports for language development and instructional quality. The extent to which low-income children being served in these programs are leaving with skills on par with the standardized expectations for this age group is likely reflective of the levels of quality achieved in these classrooms. As the PEG programs look ahead to year two of implementation, focus can now be placed on concentrated efforts to improve on this baseline of quality, particular around the supports for Dual Language Learners, students with special needs and vocabulary development for all students.

VII. Expected Costs

The amount of PEG funds granted to each of the five communities was based on a per-student allocation anchored to the Commonwealth's K-12 Chapter 70 education foundation grant amount. This unit cost approach was enhanced to account for expanded hours (eight vs. six hours per day) and weeks (full year vs. school year), set a floor level to assure a minimum investment for the smallest community, Holyoke, and a ceiling for the largest community, Boston, adjusted to account for the higher cost of living in that community. Funds were awarded based on the number of students each community agreed to serve and each community provided a budget to EEC indicating how these funds would be allocated to cover the costs of full-day, full-year programming including all required elements of high-quality early education.

In order to take a preliminary look at how programs used the available PEG funds, the Abt team reviewed the PEG budgets, *as projected*, for the 2015-16 school year. Using a combination of the Local Education Agency (LEA) and Early Learning Provider (ELP) budgets along with the documented state-level contributions, the average cost per PEG classroom was calculated by key PEG component (Coaching, Professional Development, Family Engagement/Comprehensive Services, Teacher Salaries, Other Expenses, and In-Kind Contributions).

Average Projected Cost per PEG Classroom Statewide, 2015-16[17]

Overall, **$315,818.98** was budgeted per classroom across the state for 2015-16 operating costs. The large bulk of those funds were budgeted towards teacher salaries ($129,828.74) and 'Other' costs ($125,976.46), described in detail below. Relatively small percentages of funds were budgeted for family services ($41,216.96), coaching ($12,094.35), and professional development ($6,702.48). Figure 11 below shows the average budgeted amount per classroom organized by the primary PEG components (*excluding the 'Other' category*) for each of the five PEG communities. The cost of the evaluation was not included in these analyses. Of note, there were no PEG coaches in Lawrence, so no costs were budgeted. And Boston costs look slightly different from the other communities, in part due to the fact that they have blended PEG funding with subsidy and Head Start funding. Overall, the average cost *per child* in PEG programs in Massachusetts was **$18,075.09** (which includes budgeted state and local costs), though this ranged somewhat across communities ($17,745.00 - $18,430.91)[13].

Figure 12 shows the average budgeted amount per classroom *in the 'Other' category* for each PEG community. Some variation in these costs results from differences in the in-kind contributions of LEAs and ELPs. All communities included some LEA and ELP administrative staff time as an in-kind contribution, while in Holyoke the public schools also provided the space and custodial staff. In Boston, the blending of PEG funds with subsidy and Head Start funds results in cost estimates that do not reflect the full cost of the program. Administrative costs (personnel/fringe for staff positions like Program Coordinators, Executive Directors, Center Directors, Fiscal Officers, etc.) that were included in the budgets and are counted here in the 'Other' category make up over 1/3 of the entire category costs (average of $43,215) per community, and that percentage ranges from 22% to almost 50% across communities. The bulk of these funds were budgeted at the individual ELP level (average of 66%), while smaller percentages of these administrative costs came from the LEA budgets (22%) and from state contributions (12%).

Not surprisingly, the costs of teacher salaries are a substantial component of the costs of the PEG program, with administrative and operational costs coming second. The requirement that PEG teachers receive a salary commensurate with that of public school teachers is reflected in a per child cost that is much higher than what is typically provided through EEC subsidies. However,

[17]These state average numbers do not include Boston. Boston numbers reflect a blended model which depicts the cost of quality added on top of what is already subsidized but not the true cost of running an independent PEG program. In Boston, the average per-classroom cost across sites was $256,210.59 ($13,910.42 per child).

when the costs of this program are compared to the typical costs of public school classrooms, which only run 6 hours a day, 180 days a year, they are commensurate. On average, Massachusetts public school classrooms spent $14,936 per pupil in FY15[18]; PEG programs cost an additional $3000/ child more; a 20 percent additional cost for 30 percent more time during the school year and two additional months in the summer. Additionally, PEG costs are not out of line with the costs of two well-known programs from the 1960's and 1970's that have provided the strongest evidence to date of the cost effectiveness of preschool[19]. The Perry Preschool program, which provided part-day preschool to children aged 3 and 4 and included extensive family support services, cost $15,166/child and demonstrated a very high cost-benefit ratio of 17:1 when adult outcomes were taken into account. The Abecedarian program provided full-day early education to children from infancy through five, with some case management and referrals as needed, but did not include the extensive family engagement efforts of Perry. Returns were smaller, but still sizable, of 2.5:1 on an investment of $63,473 per child over five years ($12,695/ year). PEG costs are similar to these programs when the difference in dosage and family support services is accounted for, suggesting that the costs of PEG are reasonable for the quality the programs have achieved, and achieving high levels of quality creates a strong potential for positive returns on the investment.

At the same time, in absolute terms, PEG is more expensive than other programs, and it is important to consider the necessity of all costs involved. Understanding the contribution of each quality component of the program is challenging, and there is always a risk that reducing costs might also reduce returns to a level that undermines the cost-effectiveness of the program. However, there are some aspects of the PEG program that have a strong influence on costs and are worth discussing.

The first is the investment in supportive services to teachers and parents through professional development, particularly coaching, and family engagement staff. These services play an important role in the programs' efforts to improve the quality of the classrooms and ensure strong support from parents of their child's education. Although, these services collectively add about $60,000/ classroom to the cost of the program, they are all hypothesized based on recent research[20] to play a central role in maximizing impacts and likely are essential elements of the PEG model.

The high dosage of the PEG programming also has the potential to yield greater impacts, but increases staff costs substantially. To run an 8 hour day, three teachers are necessary to ensure adequate child-teacher ratios at all times. To have time for planning, meetings with coaches or

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[18] " FY16 expenditures per pupil," and accompanying explanation, *Massachusetts Department of Elementary and Secondary Education,* accessed on September 26, 2016, http://www.doe.mass.edu/finance/statistics/ppx15.html

[19] Wat, A. (2007). *Dollars and sense: A review of economic analyses of Pre-K.* PreK Now Research Series.

[20] Burchinal, M., Cryer, D., Clifford, R,. & Howes, C. (2002). Caregiver training and classroom quality in child care centers. *Applied Developmental Sciences, 6(*1), 2-11.; Henderson, A.T. & Mapp, K.L. *A New Wave of Evidence*. The Impact of School, Family, and Community. Connections on Student Achievement. Annual Synthesis 2002. National Center for Family and Community Connections with Schools SEDL: Austin, TX.; Tout, K., Zaslow, M., and Berry, D. (2006). Quality and qualifications: Links between professional development and quality in early care and education settings. *Critical Issues in Early Childhood Professional Development*, Baltimore, Md.: Brookes.

group trainings, teachers working an 8 hour day need coverage in the classroom, while the 6 hour day of a public school provides time for this work before and after children arrive and depart. Although there is evidence that full day programs are more effective than half day programs[21], it is not clear whether the smaller addition of 2 hours beyond the full 6 hour day will lead to better outcomes for children (although they are essential for working parents). Summer hours also increase costs, not just through the need to hire teachers to work for a full year, but also due to costs for rent, utilities and maintenance of the space during summer months. "Summer reading loss" has long been a documented challenge for low income children, a risk that services during the summer have the potential to counter[22]. However, the extent of this loss in the early childhood years and the effectiveness of summer programming for younger children is unclear. Additionally, programs report particularly low attendance during the summer, suggesting that children may not reap the full benefit regardless of effectiveness and that many parents do not value this additional time (at least among those parents not working).

Class sizes also play a role in shaping the per child costs. Most programs ran classrooms at or near the required limit of 20 children per classrooms, but when classrooms were smaller, the costs per child tended to be higher. Evidence on the impacts of smaller classes and lower child-teacher ratios is mixed, but recent work suggests that unless class sizes and ratios are very small (i.e. two teachers in a class of 15 children), the impacts of any differences are minimal[23]. It remains an open question as to the extent that each of these components is essential to the PEG model and one that will be explored qualitatively in future years of the evaluation.

The administrative costs were also high, which may be reflective of the pilot status of this program. Large amounts of EEC, LEA and ELP staff's time have been spent planning and coordinating PEG services. The time needed resulted, in part, from the planning efforts and early intense coordination required to get a new program off the ground, but also from the extensive monitoring required of both EEC and LEA staff in the two levels of oversight (EEC to LEA and LEA to ELP) built into the design of the grant. Administrative costs might be mitigated over time if the program were to expand without needing additional administrative staff. The contribution of administrative costs to the budget is an area that will also be examined closely in future years, to better understand the extent to which these costs are essential to the operation of the program.

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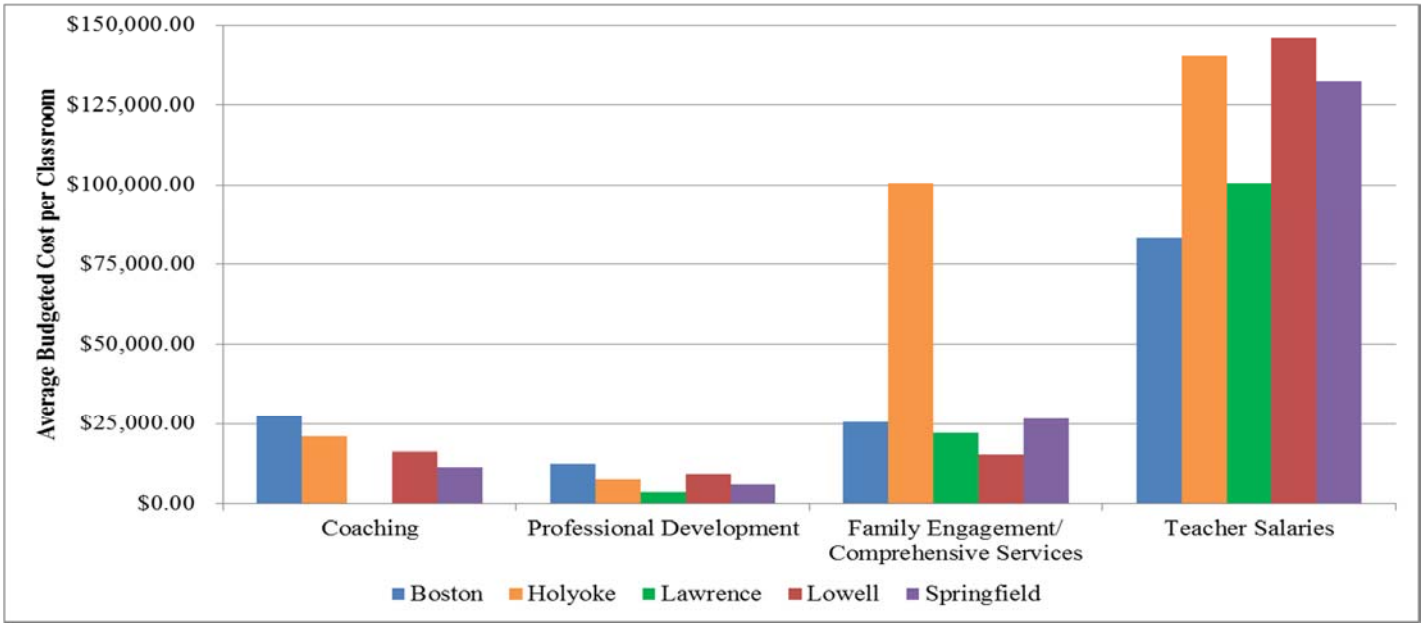
[21] Robin, K.B., Frede, E.C., Barnett, W.S. (2006). Is More Better? The Effects of Full-Day vs. Half-Day Preschool on Early School Achievement. *NIEER Working Paper.*

[22]McCombs, J.S., Augustine, C.H., Schwartz, H.L., Bodilly, S.J., McInnis, B., Lichter, D.S. & Cross, A.B. (2011). *Making summer count: How summer programs can boost children's learning.* RAND Corporation: Santa Monica, CA. Retrieved from http://www.rand.org/content/dam/rand/pubs/monographs/2011/RAND_MG1120.pdf

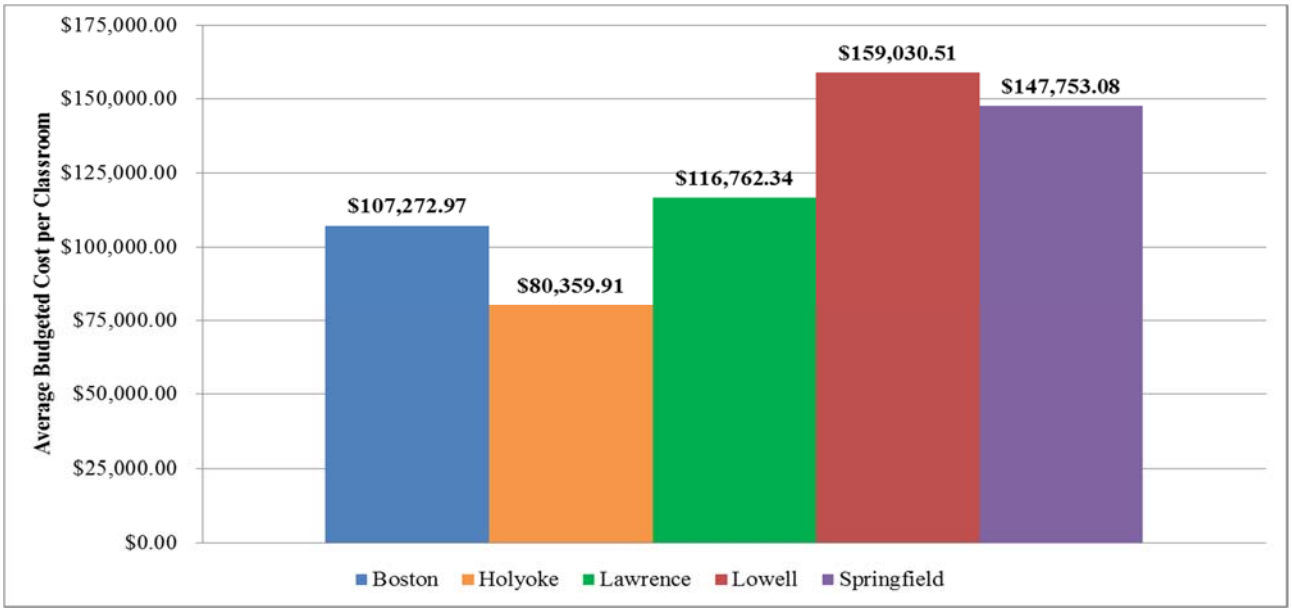
[23] Bowne, J.B., Magnuson, K., Schindler, H., Duncan, G.J. & Yoshikawa, H. (2016). A Meta-Analysis of Class Sizes and Ratios in Early Childhood Education Programs: Are Thresholds of Quality Associated with Greater Impacts on Cognitive, Achievement, and Social-Emotional Outcomes? *Under review. Mashburn, A.J., Pianta, R.C., Hamre, B.K., Downer, J.T., Barbarin, O., Bryant, D., … Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. Child development, 79(3), 732–49. Pianta, R., Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, D., & Barbarin, O. (2005). Features of Pre-Kindergarten programs, classrooms, and teachers: Do they predict observed classroom quality and child-teacher interactions? Developmental Science, 9(3), 144–159.*

Figure 11. Average 2015-16 Projected Cost per PEG Classroom, by Community and Component



Note: Lawrence has significantly smaller class sizes than the other communities resulting in more classrooms for the same number of children and noticeably lower costs for salaries per classroom because many classrooms were covered by one and a half teachers (one teacher split time between two classrooms).

Figure 12. Average 2015-16 Projected Cost per PEG Classroom for 'Other' Expenses, by Community



VIII. Conclusions

The first year of the PEG program has shown that collaborations between public school districts and EEC-licensed early education providers can be effective at designing and implementing high-quality prekindergarten programs in a relatively short period of time.

- Despite opening their doors six months before classroom observations were conducted, most PEG classrooms were rated by external observers as demonstrating moderate to high levels of quality across three different measures of important dimensions of classroom quality.
- The majority of families surveyed report feeling well informed and connected to the program and confident in their ability to communicate with their child's teacher.
- PEG teachers were relatively well compensated, well educated and generally satisfied with their jobs.
- PEG programs successfully enrolled low-income and diverse groups of children, the majority of whom had never before enrolled in any formal early education.
- At the end of their year in the PEG program, the low-income children enrolled demonstrated age appropriate skills in math, letter-word recognition, self regulation and the ability to develop positive relationships.

At the same time, some quality components remained only partially implemented or at levels lower than desired, suggesting areas of focus for the second year of implementation.

- Measures of particular interactions between teachers and children known to support language, literacy and conceptual understandings, identified very few classrooms demonstrating very high quality interactions and some demonstrating low quality.
- At the end of the PEG program, the children enrolled demonstrated vocabulary skills that were lower than expected based on a national sample, although the biggest differences were observed among dual language learners.
- Comprehensive services were not systematically provided across all programs and many parents were not aware of such supports.
- Professional development opportunities varied widely across programs in both type and dosage.
- Efforts to coordinate with public school programs, such as coordinating with special education staff and supporting children's transition to Kindergarten are still being developed in many communities.
- Efforts to fully enroll PEG classrooms in the first year fell short of targets. Only one of the five communities reached full enrollment and enrollment peaked across the state at 94 percent in March.

Despite achieving moderate levels of quality fairly quickly, PEG programs still have substantial areas of growth that will provide a focus of quality improvement efforts in future years. The collaboration between ELPs and LEAs have provided an opportunity to build a more systematic approach to creating quality early education in these communities, and also allowed programs to share expertise and build programmatic capacity across the community. In this context, an important opportunity exists to develop coordinated and sustained supports for program improvement focused on the issues identified in this report and informed by the data collected during the implementation evaluation. Capacity building at all levels of the system will be important in future years, from supports for program leadership to the coaching and other on-going professional development available to teachers.

Collaboration across agencies within communities, although appreciated as essential to local systems building, has been challenging. Time and effort has been required to understand the policies and procedures of other organizations, and to problem solve legal road blocks to simple tasks (i.e. sharing a staff across different agencies). Ongoing participation of staff with decision making authority from the agencies responsible for policies and regulations (EEC and the public schools in particular) have been important in supporting efforts to resolve issues quickly as they arise.

EEC will continue to support communities through participation in management meetings and technical assistance provided both directly and through state-wide meetings. In year 2, these efforts will target the areas of development highlighted by the year 1 evaluation findings. In particular, attention will be given to alignment of professional development supports, continued attention to improving classroom quality particularly around children's language development, improved collaboration for inclusion, and more consistent provision of comprehensive services.