***In Partnership with:*Monica Yudron and Anne Douglass**

**University of Massachusetts Boston**

***Prepared for:***

**Massachusetts Department**

**of Early Education and Care**

**51 Sleeper Street, 4th floor**

**Boston, MA 02210**

**617.988.6600**

***Submitted by:***

**Amy Checkoway, Barbara Goodson, Todd Grindal, and Kerry Hofer**

**With Renee Lamoreau,
Maureen Sarna, and Rian Watt**

**Abt Associates
55 Wheeler St.**

**Cambridge, MA 02138**

YEAR 1

**MASSACHUSETTS**

**PRESCHOOL EXPANSION GRANT (PEG)**

Evaluation Report: *Executive Summary*

December 5, 2016

The PEG evaluation team greatly appreciates the careful guidance and review from the Massachusetts Department of Early Education and Care, in particular Senior Research Specialist Dr. Jocelyn Bowne, who was deeply involved with overseeing the research and reviewing the report. We also sincerely thank the participating district staff, ELP leadership, program directors, teachers, other program staff, and parents who were essential partners in this research.

The listed authors of the report represent only a small part of the team involved in this research. We wish to acknowledge the contributions of the project quality advisor, Michael Lopez, as well as the capable data collection team led by Jackie Mendez, Maureen Sarna, and Rachel Luck with Djaniele Taylor, Renee Lamoreau, Katie Murphy, Lisa Setrakian, Michelle Blocklin, Marble Karuu, Faith Biegon, Samantha Burke, Alanah Hall, and members of the data analysis team including Alex Silverman, Tyler Morrill, Rian Watt, and Marissa Personette. We also want to acknowledge the team of dedicated staff hired to conduct classroom observations and child assessments. In addition, we thank Sarah Costelloe for serving as an additional senior reviewer, and Jan Nicholson and Erin Miles for their assistance in formatting this report.

**Executive Summary**

As part of the federal Preschool Development Grant Program in late 2014, the Massachusetts Department of Early Education and Care (EEC) was awarded a Preschool Expansion Grant (referred to as the Massachusetts PEG program) to expand high-quality early childhood education to four-year-old children from low-income families. The Massachusetts PEG program has provided the Commonwealth with a unique opportunity to increase access to high quality preschool through a mixed service delivery system. The PEG model is defined by the provision of key elements perceived to be important drivers of quality.

Massachusetts is concentrating its PEG resources in five underserved high need communities: Boston, Holyoke, Lawrence, Lowell, and Springfield. These communities provide full-day, full-year preschool for four-year-olds through public-private partnerships between the lead education agency (LEA) and local licensed early learning providers (ELPs). In each community, the participating ELPs, including a Head Start agency and one or more community-based agencies, provide the services with support from the LEA.

For families to be eligible for PEG, their income must be below 200 percent of the federal poverty level, and four out of the five communities also targeted four-year-olds that had not previously been enrolled in licensed child care settings. Beginning in September 2015, participating LEAs and ELPs in the five communities began implementing PEG in 48 four-year-old classrooms across 24 early education centers.

As part of the PEG program, EEC has invested in a rigorous external evaluation. The PEG evaluation is being conducted by Abt Associates Inc. in partnership with University of Massachusetts Boston. The multi-year evaluation has four components: an *implementation study* of the provision of quality elements in PEG classrooms, a *longitudinal study* of outcomes for PEG educators, children and families, an *impact study* of effects of PEG on children and families, and a *cost study*. The first year of the PEG evaluation (2015–16) focused on the implementation of PEG. The impact study and longitudinal study will begin in the second year of PEG (2016–17) and the cost study will analyze costs over the first three years of PEG.

## Major Findings

The following are this report’s major findings:

* In the first year of implementation, the PEG classrooms, on average, demonstrated a moderate to high level of overall quality, with higher scores on quality of the classroom environment and lower scores on instructional quality. Quality varied substantially across classrooms.
* At the end of the preschool year, PEG children, on average, demonstrated levels of early math skills, early literacy skills, and vocabulary comprehension close to the level shown in national samples of children entering kindergarten. However, the proportion of children meeting age expectations on these outcomes varied substantially across classrooms, and about one-third of PEG children overall were below age expectations on English language vocabulary.
* All eleven key PEG quality elements were implemented to some degree in the first year of the program. Some quality elements were fully implemented in all communities and centers, while other PEG quality elements were partially implemented both within and across communities and programs.
* PEG teachers reported a high level of job satisfaction and confidence at being able to teach and support the children in their classrooms.
* PEG parents reported a strong sense of connection to the program and satisfaction with the program’s support for their children’s development and learning.

## Detailed Findings on Classroom Quality

#### **The PEG classrooms, on average, represented a moderate to high level of overall instructional quality.**

Providing children with high-quality classroom instruction is a key goal of the PEG program. As of winter 2016, PEG classrooms, on average, received quality scores in the moderate to high range on the CLASS and the ELLCO, two commonly-used measures of classroom quality. As is typically observed in other preschool classrooms, on the CLASS PEG classrooms scored higher on Emotional Support and Classroom Organization (average ratings of 5.7 and 5.2, respectively) compared to Instructional Support (mean rating of 3.2). Quality varied widely across programs and classrooms.

## Detailed Findings on Children’s Kindergarten Readiness

#### **At the end of the preschool year, PEG children demonstrated levels of early math skills, early literacy skills, and vocabulary comprehension close to what would be expected for children entering kindergarten.**

On average, at the end of preschool, PEG children scored near age expectation in their early literacy and early math skills; only about 12 percent of children were substantially below age expectation. Similarly, on average, PEG students scored near age expectation on English language vocabulary; however, although the *average* student’s vocabulary score was not far below what might be expected, about one-third of PEG students were substantially below age expectation at the end of preschool. Vocabulary scores were generally lower for students from homes where English was not the primary language spoken. The proportion of children meeting age expectations on all of the measures varied across classrooms. It is important to note that, because of the timing of the evaluation’s start, in 2015–16 the study team was not able to measure where PEG children started out on these skills and how much they improved over the year.

#### **Toward the end of their preschool year, PEG children were rated by their teachers as having age-appropriate social skills in managing behavior and emotions and in developing positive relationships.**

The types of skills involved included the ability to follow limits and expectations, manage feelings, and take care of their own needs. PEG children were rated somewhat lower on their skills in group situations, such as balancing their own needs with needs of other children or solving social problems. Further, though the average scores were in the moderate range, a substantial number of children were rated below age expectations for many of the individual skills, primarily in forming relationships with adults and solving social problems.

## Detailed Findings on Implementation of PEG Quality Elements

#### **PEG achieved its goal of providing access to preschool to underserved children and families.**

In four of the five communities, the PEG program was the first formal early education experience for most participating children.

#### **PEG communities made progress with implementation on all eleven key quality elements in the first year of the program.**

The PEG model includes eleven elements perceived to be important drivers of quality such as:

* Full-day and full-year programming;
* Class sizes of no more than 20 students;
* Teacher-child ratio of no more than 10 students to one teacher;
* Lead teachers with Bachelor of Arts (BA) degrees;
* Compensation for lead preschool teachers comparable with that of local public school K‑12 teachers;
* Professional development and coaching for educators;
* Formal curricula;
* Formative assessment systems;
* Family engagement supports; and
* Comprehensive services for families, with inclusive services for special populations.

An additional element is the local governance structure including leadership from the participating districts and programs. This type of collaborative structure is seen as an important “enabling environment” or condition for the development and oversight of the PEG model.

Although all programs are expected to implement all eleven elements fully, the PEG model is supportive of local program development and approaches to implementation.

#### **Six of the eleven quality elements were *fully implemented* in all communities in 2015–16.**

#### These elements included:

* **Classroom operations.** All 48 classrooms provided full-day, full-year programming (at least 8 hours/day, 12 months/year).
* **Class size.** All 48 classrooms had enrollments of twenty or fewer students.
* **Staff-child ratio.** All 48 classrooms maintained a child-teacher ratio of no more than 10 children to one teacher.
* **Curriculum**: All of the classrooms used curricula that aligned with the Massachusetts Preschool Standards and Guidelines.
* **Assessment**. All of the classrooms conducted formative assessments of children using a standardized system--Teaching Strategies Gold®.
* **Teacher qualifications**. All lead teachers had a minimum of a bachelor’s degree in a relevant field.
* **Teacher compensation**. Lead teachers were paid an average of $54,246 (not including fringe benefits) in 2015–16, which is in line with what preschool teachers were paid by school districts and was higher than the typical teacher salaries in Head Start programs and other child care programs in Massachusetts.

#### **Five of the eleven PEG quality elements were partially implemented or showed substantial *variation in implementation across communities and/or centers* in 2015–16.**

These elements included:

* Amount of professional development training. On average, PEG lead teachers reported receiving 23 hours of professional development (PD) training in 2015–16 across a variety of topics. This ranged from as few as 5 hours to as many as 50 hours of professional development. There were substantial differences across PEG communities in the amount of professional development that teachers reported receiving, with average hours of training ranging from 10 to 29 in the five communities.
* Level and focus of coaching.Teachers were provided with coaching by LEA staff in four of the five PEG communities. The amount of coaching teachers received varied across communities and programs. Teachers reported receiving as few as 10 hours of coaching over the year and as many as more than 40 hours. The amount of coaching varied across communities. In three communities, more than half of the teachers reported receiving at least 20 hours of coaching, while in the fourth community, no teachers received 20 or more hours of coaching.
* Extent of family engagement**.** Most programs employed a family services coordinator; in four of the communities, each program had at least one dedicated staff member. The communication occurred through formal parent-teacher conferences and home visits, as well as more informal, ongoing discussions between parents and teachers at drop-off and pick-up, and through individual phone calls and text messages. In addition, almost two-thirds of centers reported conducting home visits. Most PEG centers were involved in helping families with the logistics of kindergarten transition planning and providing families with assistance in the kindergarten registration process.

About half of the center directors reported that over 75 percent of parents participated in family engagement activities; other center directors reported lower levels of engagement, including some programs in which fewer than 20 percent of parents were reported to be engaged with the program. In most programs, some parents volunteered in the classroom, although the frequency of volunteering varied across programs, from as often as weekly to once per year.

* Extent of comprehensive services for families (referrals and direct provision). Nearly all PEG center directors reported referring families for additional public services (including services addressing health, mental health, and behavioral needs), and about half of the programs provided some services directly to families.

Some parents reported accessing services such as special education, family nutrition, meal guidance, and parenting classes through the PEG program. However, some parents reported being unaware of what services were offered through PEG and did not receive any services during the year.

* Strength of local collaboration: Each community formed a collaborative body that represented PEG leaders from the LEAs and ELPs, and these collaborations met regularly to develop the PEG program design for their community, coordinate program activities across providers, and make decisions about implementation goals. Across the five communities, as of spring 2016, PEG leaders were particularly positive about the local context in which they conducted their work (the climate for collaboration was favorable, and the collaboration was perceived as a leader in the early childhood community), believed that the participating organizations saw collaboration as in their best interest, and agreed that members of their collaborative had a stake in both process and outcome. There was also widespread agreement that PEG leaders communicated regularly, both formally and informally. PEG collaborative members were less positive about the degree to which their collaboration had defined and worked toward a common mission. The collaborative members also reported that they did not always have sufficient human or financial resources for full implementation of their collaborative work.

## Detailed Findings on Teacher and Parent Experiences

The first-year evaluation included preliminary assessments of PEG teacher attitudes and experiences as well as parent experiences with the PEG programs and their home educational supports.

PEG teachers reported moderate to high satisfaction with being a PEG teacher.

One of the goals of PEG is to support teachers’ sense of professionalism and self-efficacy through professional development, coaching, and compensation. Ultimately, it is expected that teachers who feel more positively about their jobs and their own competencies will remain in the program, thereby providing the program continuity and stability.

In 2015–16, most PEG lead teachers felt positively about their job: half reported feeling very satisfied and another 44 percent reported feeling somewhat satisfied with their jobs. More than 90 percent of PEG teachers expressed a high level of confidence in their ability to make a significant difference in their students’ lives and in reaching even the most difficult students. Overall, teachers were highly confident in their ability to communicate with parents and guardians.

PEG parents reported feeling strongly connected to their programs.

The PEG model assumes that involving families will be beneficial to children’s learning and development by building a connection between the home and the preschool program and by supporting parent efforts to be more active teachers of their children in the home. By the end of the first year of PEG, more than 75 percent of surveyed parents reported that they were strongly connected to their child’s PEG classroom. Across the five communities, the percentage of “strongly connected” parents ranged from 66 percent to 90 percent. While nearly all parents (93 percent) also felt well-informed about meetings and special school events for parents, somewhat fewer (81 percent) agreed that parent activities were scheduled at convenient times.

PEG parents reported feeling confident about their ability to communicate with their child’s teacher, and reported that teachers did a good job of informing them about their child’s progress in school.

Families expressed satisfaction with the quality and intensity of their communications with teachers. Nearly all parents indicated that teachers kept them informed them about their child’s progress in school (91 percent) and that teachers were interested in their children and cooperative with their families (95 percent). Over 90 percent of parents were confident about 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).

The majority of PEG parents reported reading to their child regularly.

About one-third of parents reported reading to their child every day and another 50 percent of parents reported reading to their child a few times per week. Nearly all parents also reported engaging with their child every day or a few times per week in activities involving numbers and/or letters.

## Next Steps for PEG

In the second year of PEG (2016–17), a goal for the program is to increase the level of implementation of the key quality elements.

The focus includes:

* Continued community collaboration with strengthening of the relationships across early childhood systems and expanded joint planning and programming;
* Continued supports for teachers with more consistent implementation of professional development and coaching across all communities and centers;
* Continued engagement of families and building the connection of all families to the program; and
* Support for an increasing number of families with access to comprehensive services.

In the second year of PEG, another goal is to achieve positive outcomes for teachers, classrooms, families and children.

The outcomes include increasing or continuing:

* High levels of teacher satisfaction and retention;
* High levels of classroom instructional quality;
* High levels of parent connectedness to the program and home support for children’s development and learning; and
* Age-appropriate levels of skill development for children in all domains so that children enter kindergarten ready to learn.

In the second year of the PEG evaluation (2016–17), ongoing attention will be paid to the implementation of the different components of PEG, including the level of classroom quality. The evaluation will also generate evidence about the extent to which the PEG programs are providing high-quality environments relative to other Massachusetts programs, the progress of PEG children’s development over the course of their preschool year, and the impact of PEG on children’s school readiness and parent behaviors and supports.

# References

Allinder, R. M. (1994). The relationship between efficacy and the instructional practices of special education teachers and consultants. *Teacher Education and Special Education, 17*, 86-95.

Atkins-Burnett, S., Monahan, S., Akers, L., Carta, J., Wasik, B. A., & Boller, K. (2014). *Tailored teaching: Teachers’ use of ongoing child assessment to individualize instruction (Volume 1).* Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation.

Bierman, K. L., Domitrovich, C. E., Nix, R. L., Gest, S. D., Welsh, J. A., Greenberg, M. T., et al. (2008). Promoting academic and social-emotional school readiness: The Head Start REDI program. *Child Development, 79(6),* 1802–1817.

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.

Burchinal M., Howes, C., & Kontos, S. (2002). Structural predictors of child care quality in child care homes. *Early Childhood Research Quality, 17*(1), 87-105.

Burchinal, M., Xue, Y., Auger, A., Tien, H., Mashburn, A., Peisner-Feinberg, E., Cavadel, E., Zaslow, M. and Tarullo, L. (2016). Testing for quality thresholds and features in early care and education. In Eds Burchinal. M. Zaslow, M., and Tarullo, L. Quality Thresholds, Features, and Dosage in Early Care and Education: Secondary Data Analyses of Child Outcomes. *Monographs of the Society for Research in Child Development. v81 (2).*

Campbell, F. A, Ramey, C.T, Pungello, E.P., Sparling, J., & Miller-Johnson, S. (2002). Early childhood education: Young adult outcomes from the Abecdarian Project. *Applied Development Science,* *6*, 42-47.

Case Management Society of America (2010). *Standards of practice for case management, Revised*. Little Rock, Arkansas.

Clarke-Steward, K.A., Vandell, D.L., Burchinal, M., O’Brien, M. & McCartney, K. (2002). Do regulable features of child-care homes affect children’s development? *Early Childhood Research Quarterly, 17*(1), 52-86.

Clements, D. H., & Sarama, J. (2008). Experimental evaluation of the effects of a research-based preschool mathematics curriculum. *American Educational Research Journal, 45 (2),* 443-494.

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.

Duncan, S. E., & De Avila, E. A. (2000). *Preschool version of the Language Assessment for Early Learners* (*PreLAS)*. Monterey, CA: CTB/McGraw-Hill.

Fantuzzo, J.**,** Gadsden, V., & McDermott, P. (2011). An integrated curriculum to improve mathematics, language, and literacy for Head Start children. *American Educational Research Journal, 48,*763-793*.*

Fantuzzo, J., McWayne, C., Perry, M. A., & Childs, S. (2004). Multiple dimensions of family involvement and their relations to behavioral and learning competencies for urban low-income children. School Psychology Review, 33(4), 467-480.

Farver, J., Lonigan, C., Eppe, S. (2009). Effective early literacy skill development for young Spanish-speaking English language learners: an experimental study of two methods. *Child Development,* *80 (3),* 703-719.

Federal Interagency Forum on Child and Family Statistics. (2009). America’s Children: Key national indicators of well-being. Washington, DC: U.S. Government Printing Office.

Fuchs, L. S., Fuchs, D., & Bishop, N. (1992). Teacher planning for students with learning disabilities: Differences between general and special educators. *Learning* *Disabilities Research and Practice, 7,* 120-128.

Gilliam, W. S., & Zigler, E. F. (2001). A critical meta-analysis of all evaluations of state-funded pre-school from 1977 to 1998: Implications for policy, service delivery and program evaluation. *Early Childhood Research Quarterly, 15* (4): 441–72.

Gormley, W. T., Gayer, T., Phillips, D., & Dawson, B. (2005). The effects of universal pre-K on cognitive development. *Developmental psychology, 41*(6), 872-884.

Goodson, B. D., Layzer, C. J., Smith, W.C., & Rimdzius, T. (2006). *Observation measures of language and literacy.* Cambridge, MA: Abt Associates.

Guskey, T. R. (1988). Teacher efficacy, self-concept, and attitudes toward the implementation of instructional innovation. *Teaching and Teacher Education*, *4*, 63-69.

Halgunseth, L. (2009). Family engagement, diverse families, and early childhood education program: An integrate review of the literature. *Young Children 64*(5), 56-58.

Hamre, B. K., Justice, L., Pianta, R. C., Kilday, C. Sweeny, B., Downer, J, et al., (2010). [Implementation Fidelity of the My Teaching Partner Literacy and Language Activities: Associations with Preschoolers' Language and Literacy Growth](http://www.eric.ed.gov/ERICWebPortal/detail?accno=EJ884269). *Early Childhood Research Quarterly, 25*: 329–347.

Irish, K., Schumacher, R., & Lombardi, J. (2004). *Head Start comprehensive services: A key support for early learning for poor children*. Washington, DC: Center for Law and Social Policy.

Isner, T., Tout, K., Zaslow, M., Soli, M., Quinn, K., Rothenberg, L., & Burkhauser, M. (2011). *Coaching in early care and education programs and quality rating and improvement systems (QRIS) Identifying promising features.* Washington, DC: Child Trends.

Johnson, D., Walker, T. B., & Rodriguez, G.G. (1996). Teaching low-income mothers to teach their children. *Early Childhood Research Quarterly*, 11, 101-114.

Layzer, J. and Price, C. (2008). Closing the gap in the school readiness of low-income children. Working Paper prepared for *A Working Meeting on Recent School Readiness Research: Guiding the Synthesis of Early Childhood Research.* Washington, DC. October 21-22, 2008.

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.

Loeb, S., Rouse, C., & Shorris, A. (2007). Introducing the issue [Introduction to a special issue]. *The Future of Children*, *17*(1), 3-14.

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.

Martin, N.A., & Brownell, R. (2010). *Expressive One-Word Picture Vocabulary Test,* 4th edition (EOWPVT-4). Novato: Academic Therapy Publications.

Martin, N.A. (2012). *Expressive One-Word Picture Vocabulary Test, Version 4, Spanish-Bilingual Edition.* Novato: Academic Therapy Publications.

Massachusetts Child Care Resource & Referral Network, Inc. (2009). *Data report 2008*. Boston, Massachusetts.

Mattessich, P., Murray-Close, M., & Monsey, B. (2001). Wilder Collaboration Factors Inventory. St. Paul, MN: Wilder Research.

McWayne, C., Hampton, V., Fantuzzo, J., Cohen, H. L., & Sekino, Y. (2004). A multivariate examination of parent involvement and the social and academic competencies of urban kindergarten children. *Psychology in the Schools, 41*(3), 363-377.

Munoz-Savndoval, A.F., Woodcock, R.W., McGrew, K.S., & Mather, N. (2005). *Bateria III Woodcock Munoz.* Itasca, IL: Riverside Publishing.

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.

Neuman, S. and Cunningham, L., (2009) The impact of professional development and coaching on early language and literacy instructional practices. *American Educational Research Journal, 46(2),* 532-566.

Ou, S. & Reynolds, A. J. (2006). Early childhood intervention and educational attainment: Age 22 findings from the Chicago Longitudinal Study. *Journal of Education for Students Placed at Risk, 11*, 175-198.

Pajares, F. (1997). Current directions in self-efficacy research. In M. Maehr & P. R. Pintrich (Eds.), *Advances in motivation and achievement. 10*, 1-49. Greenwich, CT: JAI Press.

Pianta, R., Barnett, W. S., Burchinal, M. R., & Thornburg, K. R. (2009). The effects of preschool education: What we know, how public policy is or is not aligned with the evidence base, and what we need to know. *Psychological Science in the Public* *Interest, 10*(2), 49-88.

Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008). *Classroom Assessment Scoring System (CLASS).* Baltimore, MD: Paul H. Brookes Publishing Co.

Pianta, R. C., Mashburn, A. J., Downer, J. T., Hamre, B. K., Justice, L. (2008). Effects of web-mediated professional development resources on teacher-child interactions in pre-kindergarten classrooms. *Early Childhood Research Quarterly*, 23, 431-451.

Powell, D., Diamond, K., Burchinal, M., and Koehler, M. (2010). Effects of an early literacy professional development intervention on head start teachers and children*. Journal of Educational Psychology*, Vol 102(2), 299-312.

Reynolds, A.J. (2000). *Success in early intervention: The Chicago Child-Parent Centers*. Lincoln, NE: University of Nebraska Press.

Reynolds, A. J., Ou, S., & Topitzes, J. (2004). Paths of effects of early childhood intervention on educational attainment and juvenile arrest: A confirmatory analysis of the Chicago Child-Parent Centers. *Child Development, 75*, 1299-1328.

Reynolds, A. J., Temple, J. A., Roberson, D. L., & Mann, E. A. (2001). Long-term effects of an early childhood intervention on educational achievement and juvenile arrest: A 15-year follow-up of low-income children in public schools. *Journal of the American Medical Association*, 285, 2339-2346.

Reynolds, A. J., Temple, J. A., Roberson, D. L., & Mann, E. A. (2002). Age 21 cost benefit

analysis of the Title I Chicago Child-Parent Centers. *Educational Evaluation and Policy Analysis*, 24(4), 267-303.

Sarama, J. & Clements, D.H. (2007). *Manual for classroom observation: Classroom observation of early mathematics—environment and teaching*. Unpublished Instrument: State University of New York at Buffalo.

Schweinhart, L.J., Montie, J., Xiang, Z., Barnett, W.S., Belfield, C.R., Nores, M. (2005). *Lifetime effects: The High/Scope Perry preschool study through age 40.* Ypsilanti, MI: High/Scope Press.

Scott, M., Poopkin, S., McDaniel, M., Saxena, P. and Reed, J. (2013). Serving *HOST* families. The challenges to overcome. Washington, DC. Urban Institute.

Smith, M. W., Brady, J. P., & Anastasopoulos, L. (2008). *Early Language & Literacy Classroom Observation Tool, Pre-K, research edition* *(ELLCO Pre-K).* Baltimore, MD: Paul H. Brooks Publishing Co.

Heroman, C., Berke, K., and Bickart, T. (2010). *Teaching Strategies Gold® objectives for development & learning: Birth through kindergarten.* Washington DC: Teaching Strategies, Inc.

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 Publishing.

Tschannen-Moran, M., Woolfolk-Hoy, A., & Hoy, W. K. (1998). Teacher-efficacy: Its meaning and measure. *Review of Educational Research*, *68*, 202–248.

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>.

Walker, T. B., Rodriguez, G.G., Johnson, D.L., & Cortez, C.P. (1995). Avance Parent-Child Education Program. In: Smith, S., ed. Advances in applied developmental psychology, 9, 67-90. Two generation programs for families in poverty: A new intervention strategy. Westport, CT: Ablex Publishing.

Wasik, B. and Hindman, A. (2011). Improving vocabulary and pre-literacy skills of at-risk preschoolers through teacher professional development. *Journal of Educational Psychology*, 103 (2), 455-469.

Weikart, D. P., Bond, J. T., & McNeil, J. T. (1978). The Ypsilanti Perry Pre-School Project: Pre-school years and longitudinal results through fourth grade. Monographs of the High/Scope Educational Research Foundation. Ypsilanti, MI: High/Scope Press.

Weiland, C., Ulvestad, K., Sachs, J., & Yoshikawa, H. (2013). Associations between classroom quality and children’s vocabulary and executive function skills in an urban public prekindergarten program. *Early Childhood Research Quarterly, 28(2*), 199–209.

Weiland, C., & Yoshikawa, H. (2013). Impacts of a prekindergarten program on children’s mathematics, language, literacy, executive function, and emotional skills. *Child* *Development, 84*(6), 2112-2130.

Wilson, A.C., McClure, M., Phillips, S. (2016). Home visiting in Texas. Current and future directions. Dallas, TX, TexProtects, the Texas association for the protection of children.

Woodcock, R.W., McGrew, K.N., & Mather, N. (2001). *Woodcock-Johnson III Tests of Cognitive Abilities*. Rolling Meadows, IL: Riverside Publishing.

Woolfolk, A. E., Rosoff, B., & Hoy, W. K. (1990). Teachers’ sense of efficacy and their beliefs about managing students. *Teaching and Teacher Education, 6*, 137-148.

Wong, V. C., Cook, T. D., Barnett, W. S., & Jung, K. (2008). An effectiveness-based evaluation of five state pre-kindergarten programs. *Journal of Policy Analysis and Management,* *27*(1), 122-154.

Yoshikawa, H., Weiland, C., Brooks-Gunn, J., Burchinal, M. R., Espinosa, L. M., Gormley, W., . . . Zaslow, M. J. (2013). *Investing in our future: The evidence base on preschool education. New* York, NY: Foundation for Child Development, Society for Research in Child Development.

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>.