

# **Boston Quality Inventory 2013: Community Early Care and Education Programs**



Report Prepared for Boston EQUIP  
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# Boston Quality Inventory – 2013



## Preface

The Boston Quality Inventory 2013 was conducted by a team of researchers, led by Dr. Wendy Wagner Robeson, of the Work, Families and Children Research Group at the Wellesley Centers for Women. We wish to thank the program directors, providers, teachers and staff who welcomed us into their programs and classrooms, and the many families who participated in this study. We also wish to thank our research staff and colleagues who brought their skills and experience in early education and care programs to the Boston Quality Inventory 2013. The research team worked in collaboration with Boston EQUIP in the conduct of this study.<sup>1</sup> The study was funded by the Barr Foundation and Thrive in 5. However, the findings of this report and the views and opinions expressed herein do not necessarily reflect those of Associated Early Care and Education, Boston EQUIP, the Barr Foundation or Thrive in 5. Any errors are the sole responsibility of the authors.

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March 10, 2014

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<sup>1</sup> For more information about The Boston Early Education Quality Improvement Project (Boston EQUIP), a project of Associated Early Care and Education, please visit their website: <http://www.bostonequip.org/>. For more information about Thrive in 5, please visit their website: <http://thrivein5boston.org/>

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## Foreword

Dear friends and colleagues,

Boston Equip (Early Education Quality Improvement Project), a project of Associated Early Care and Education, was established to systematically evaluate, set goals for, and improve upon the quality of early care and education programs in Boston, working in collaboration with members of the Boston early childhood community. Over the years, Boston EQUIP has surveyed the field of early care and education providers and programs to document the capacity and quality of Boston's programs. Since 1994, this work has helped to support Boston's early care and education community with its planning and quality improvements, as well as to advocate for policy improvements and increased resources. Our Community Profiles provide a broad snapshot of almost every Boston community-based early care and education program's quality indicators every 2-3 years, while the *Boston Quality Inventory* (BQI) provides a picture of the quality of Boston's community and family-based early care and education programs, with a random and representative sample of classrooms across Boston. Since 2006, Boston EQUIP has partnered with a team of researchers, the Work, Families & Children Research Group at WCW, to do this critical work.

Together, these data have driven the conversation and planning around quality improvements in early care and education in Boston, supporting the implementation of the city-wide school readiness initiative, Thrive in 5 Ready Educators' strategies, advocacy and policymaking as well as resource development efforts. BQI findings have been featured in the Boston Globe and driven multiple community discussions and forums regarding the state of Early Care and Education in Boston.

Research evidence clearly establishes the importance of high quality early care and education programs to young children's brain development and school achievement. As the Nobel Prize winner James Heckman says, investment in early learning programs is the single best investment we can make in our future. This raises a compelling **call to action in Boston**. The **2013 Boston Quality Inventory** (BQI) is very clear: **substantial and targeted investments in high-quality early educators' higher education and high-quality professional development are urgently needed to close achievement gaps and to support early literacy and reading proficiency.**

The release of the 2013 BQI, along with the Ready Educators ad hoc committee work and the leadership and commitment from the city's education funders, offers a unique opportunity to **rise to the call to action and to meet our goals related to literacy and school readiness outcomes**. Policy makers and funders are challenged to make new investments in the quality of young children's early care and education programming so they can enter kindergarten well prepared to succeed in school and beyond.

Wayne Ysaguirre, President & CEO  
Associated Early Care and Education  
January 20, 2014



## Executive Summary

The research evidence is clear – the early years are essential to children’s school readiness. The existing research from multiple disciplines clearly indicates that early childhood is a critical time for children to develop the foundations that they need, so that all children enter formal schooling ready to learn.<sup>1</sup> While families play the most important role, early care and education programs have a significant effect on children’s growth and development. High quality early childhood programs are related to children’s cognitive and school outcomes, especially for children from low-income families.<sup>2,3,4</sup> High-quality early childhood education has been found to produce lasting gains on achievement tests, and reduced rates of grade retention or placement in special education services.<sup>5</sup>

The early years are also crucial years for the development of social skills – the ability to make friends, to get along well with others, to cooperate in group activities, to understand others’ perspectives – skills that are necessary to the development of self-esteem and social relationships, and to later school success. Research has found that higher quality early care and education is associated with young children’s social and emotional development.<sup>6</sup>

The No Child Left Behind Act (NCLB) brought national attention to the achievement gap that exists for children from economically disadvantaged families, different race and ethnic groups and linguistic minority families. The National Governors Association Program for Best Practices recommended that education policies address early childhood education as one way to close the achievement gap.<sup>7</sup>

Early care and education programs also provide important support to working families. Formal early childhood programs both keep children safe while parents are at work and provide the developmental supports that young children need to learn and grow. High quality early care and education programs have the potential to facilitate parents’ employment and prepare all children for formal schooling, by supporting their cognitive and social development.

Massachusetts has long been recognized as a leader in policy and practice to promote quality early care and education programs for working families. In 2008, the Massachusetts Department of Early Education and Care (EEC) began the process of developing its own Quality Rating and Improvement System (QRIS), which was described, in April 2013, as “a set of standards and criteria that Massachusetts stakeholders judged most pertinent to their interests. The QRIS system is relatively new and is still establishing the reliability of its rating processes and the utility of its standards.”<sup>8</sup> The QRIS does not replace accreditation, which EEC describes as “the ‘gold standard’ for quality in early care and education,” but provides a state-specific set of standards, with state-funding for technical assistance and professional development.<sup>9</sup>

**Boston’s Early Care and Education System.** Boston currently has a mixed delivery system of early education and care, including center-based programs and family child care homes in the community, as well as Boston Public Schools (BPS) Early Childhood programs. While BPS offers prekindergarten (K1) classrooms, early care and education centers still provide services for three-quarters of preschool-age children in Boston who are in prekindergarten or center-based early care and education.<sup>2</sup> Given the importance of preschool

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<sup>2</sup> As of 2011, Boston Public Schools had prekindergarten classrooms available for 2,300 children (<http://www.bostonpublicschools.org/early-childhood-education>). As of September 2012, EEC-licensed

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preparation to children's school readiness, the quality of community center-based programs is a key component of Boston's early care and education.

Nationally, more than half of all infants are in homes where either both parents work, or there is only one parent, and that parent is employed.<sup>10</sup> Among children of working families, 16% of infants, and 26% of toddlers, are in center-based care; 10% of infants and 7% of toddlers are in family child care homes.<sup>11</sup> Infants and toddlers are in non-parental care for an average of 25 hours per week, with 39% of infants/toddlers in care full-time.<sup>12</sup> For infants and toddlers of working parents, high quality early care and education programs, in centers and family child care homes, keep children safe while parents are at work and provide the developmental supports that young children need to learn and grow.

Launched in 2008 as a public-private partnership led by the City of Boston and United Way, *Thrive in 5* is the city's early childhood initiative, responsible for bringing partners together across sectors and neighborhoods towards the goal of universal school readiness. Thrive in 5's School Readiness Roadmap outlines several strategies to focus on the important issues of quality and access, including universal accreditation for all licensed programs/providers, professional development for early educators, and increased family engagement in programs. In 2012, given the State's focus on increasing quality in early education through the Quality Rating and Improvement System (QRIS), Thrive in 5 also shifted to a model of quality improvement that supports programs and providers moving up and into the QRIS, using data about the developmental needs of children and the specific strengths and areas for development of programs to provide the technical assistance focused on improving quality and child-level outcomes.

**The Boston Quality Inventory 2013.** The Boston Quality Inventory (BQI) compliments these city-wide and state-wide initiatives, providing a data-driven picture of the current quality of early care and education programs in Boston. This report is the third in a series of Boston Quality Inventories; previous reports are available from the BQI 2007 and BQI 2010. Each of the inventories has provided a picture of the quality of Boston's center-based programs and family child care homes at one point in time. Collectively, they provide a picture of areas of progress, as well as areas of continuing or new concern. In the BQI 2013 results, we include comparisons to the previous inventories. The BQI 2013 findings in this report will inform the work of Thrive in 5 and others as they strive to ensure that all Boston children arrive at school ready to succeed.

**Conducting the BQI 2013.** The Boston Quality Inventory 2013 (BQI 2013) provides an assessment of Boston's early education and care programs, with data collected from random samples of licensed programs (45 center-based programs serving infants and toddlers, 45 center-based programs serving preschoolers, and 45 family child care homes). The BQI 2013 included 45 preschool classrooms in centers with an average preschool capacity of 51 children, ranging from a capacity of 16 preschoolers to 269 preschoolers. The capacity of centers in the BQI 2013 is comparable to the capacity of all centers in Boston that serve preschoolers. Among the 45 preschool classrooms we observed, the average group size on the day we visited was 14.0 children, ranging from 6 children present, to 22 children present. The average ratio of children to educators was 5.84 children per educator, ranging from 1.94 children per educator to

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center-based programs had the capacity to serve 7,659 children (EEC lists of licensed programs), or 77% of the total capacity for preschool-age children in Boston.

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11 children per educator during the observation.

The BQI 2013 included 45 infant or toddler classrooms in centers with an average combined infant and toddler capacity of 30 children, ranging from a capacity of 4 to 124 children. The capacity of centers serving infants and toddlers in the BQI 2013 is comparable to the capacity of all centers in Boston that serve infants and toddlers. Among the 45 infant and toddler classrooms we observed, the average group size on the day we visited was 6.7 children, ranging from 3 children present, to 10 children present. The average ratio of children to educators was 2.92 children per educator, ranging from 1.5 children per educator to 4.5 children per educator during the observation.

The BQI 2013 included a random sample of 45 family child care providers. Providers have been caring for children in their home child care business from one to 38 years, with an average of 12.7 years. Providers offered child care year-round, for an average of 50.6 weeks, and a minimum of 44 weeks a year. Almost one-quarter (24%) of providers were licensed for Regular Family Child Care (up to 6 children); 18% were licensed as Family Child Care Plus (6 children under age 7, and 2 children over age 7), and 58% were licensed as Large Family Child Care (up to 10 children, with an EEC-approved Assistant). Three-quarters of all participating providers reported that they belonged to a family child care system.

The Boston Quality Inventory 2013 used a set of program assessment tools developed specifically for use in early care and education settings – the Early Childhood Environment Rating Scale-Revised (ECERS-R) for center-based preschool classrooms; the Infant-Toddler Environment Rating Scale-Revised (ITERS-R),<sup>13</sup> developed specifically for use in infant and toddler classrooms; and the Family Child Care Environment Rating Scale–Revised Edition (FCCERS–R), developed for family child care homes. The ECERS-R, ITERS-R and FCCERS-R provide benchmarks for different levels of quality, labeled Inadequate, Adequate, Good and Excellent. These measures are also incorporated into Massachusetts QRIS measures. However, because the QRIS is still establishing reliability and validity for its rating processes, the current BQI does not specifically align findings with the QRIS. Instead, the BQI 2013 reports detailed results using many of the same measures used in the QRIS. Programs that meet or exceed the Good benchmark are generally consistent with the National Association for the Education of Young Children (NAEYC) *Early Childhood Program Standards* and the National Association for Family Child Care (NAFCC) *Quality Standards*. Assessments of preschool classrooms were supplemented with the *Classroom Assessment Scoring System (CLASS)* and the *Early Language and Literacy Classroom Observation (ELLCO)*. Assessments of infant/toddler classrooms and family child care homes were supplemented with the *Global Caregiving Rating Scale*.<sup>14</sup> All measures are described in detail in the Appendix. In addition, the Boston Quality Inventory included surveys completed by family child care providers, and surveys completed by families with children in the selected programs.





## Findings and Recommendations

The Boston Quality Inventory 2013 is the third in a series of Boston Quality Inventories; previous inventories were conducted in 2007 and 2010. We place the findings for 2013 in the context of these earlier assessments. Collectively, they provide a picture of areas of progress, as well as areas of continuing or new concern.

## Findings

- **Boston’s community preschool classrooms have continued to maintain the improvements in quality seen in BQI 2010 over BQI 2007 on general curriculum practices and emotional and social support.** More than two-thirds of preschool classrooms met the Good benchmark on the ECERS Curriculum Index (69%) and 60% met the Good benchmark on the CLASS Emotional & Social Support Index.
- **The proportion of Boston’s community preschool classrooms with a teacher with a BA or more rose significantly from only 37% in 2010 to 62% of classrooms in 2013.** Among preschool classrooms with a teacher with a BA or more, 29% of classrooms met the Good benchmark on the CLASS Instructional Supports, a rate of achievement comparable to that of BPS K1 classrooms in the most recent assessment (33% of BPS K1 classrooms met the Good benchmark on the CLASS Instructional Supports in 2010<sup>15</sup>).
- **Boston’s community preschool classrooms showed significant improvements over the BQI 2007 on literacy,** rising from 11% of classrooms that met the Good benchmark on the SELA Literacy Index in 2007 to 29% of classrooms that met the Good benchmark on the ELLCO Literacy Index in 2013. However, there is still considerable room for improvement.
- Boston’s community early care and education programs provide important care for infants and toddlers while their parents are at work or in school. **Boston’s community infant and toddler classrooms improved significantly over BQI 2010 in the proportion of infant and toddler classrooms that meet the Good benchmark on the Caregiving Index,** a measure of the teacher-child relationship, increasing to 87% of classrooms, compared to only 44% in 2010.
- Nationally, infant and toddler classrooms are less likely to meet the Good benchmarks than are preschool classrooms;<sup>16</sup> the same is true in Boston, where **only 38% of infant and toddler classrooms met the Good benchmark on the ITERS Curriculum Index,** and health practices, particularly handwashing to reduce the spread of germs, while showing significant improvement over 2010, are still an area of concern.
- Boston’s family child care homes provide early care and education for smaller groups of children and offer working families an important option for their children. **Boston’s family child care homes showed significant improvement in curriculum quality; 49% of family child care homes met the Good benchmark on the FCCERS Curriculum Index, compared to 16% in the BQI 2010.**
- **Caregiving continues to be of high quality in family child care homes, with 87% of**



**family child care homes meeting the Good benchmark on the Caregiving Index.** While the BQI 2013 found improvements in some health practices, the FCCERS Health and Safety Index remains low, with only 13% of family child care homes meeting the Adequate benchmark. The national picture for family child care homes is even poorer, with studies reporting that fewer than 10% of family child care homes meet the Good benchmarks on some measures of quality.<sup>17</sup>

- **Family surveys with 394 families with children enrolled in these programs echoed these findings.** More than three-quarters of families rated their child's educator as always warm and affectionate, and happy to see their child, and rated the program as interesting, with many materials and activities for their child, and as a place where their child feels safe and secure. Families were less likely to rate infant and toddler classrooms as always having a lot of creative activities going on (compared to preschool classrooms and family child care homes), and more likely to report that family child care homes had too many children or needed more help with the children (compared to families of children in centers).

## Recommendations

Based on the results of the BQI 2013, we make the following recommendations:

**1. Increase the proportion of early childhood educators with BAs.** The professional development of educators is key to the quality of early care and education programs.<sup>18</sup> In the BQI 2013, we found that having an educator with a bachelors' degree or more was significantly associated with the quality of BQI 2013 infant, toddler and preschool classrooms. Among family child care homes, providers with a CDA (Child Development Associate certificate) or some college education provided higher quality early care and education than did providers with only a high school diploma or equivalent.

- NAEYC Standards require that, by 2020, at least 75% of classrooms in an early childhood program have a teacher with a minimum of a baccalaureate degree in early childhood education or a related field (this requirement is being phased in between 2006 and 2020).<sup>3</sup>
- In the BQI 2013, almost two-thirds (62%) of the primary educators in observed center preschool classrooms had a bachelor's degree or more, a significant increase over BQI 2010. However, only 40% of the primary educators in observed center infant and toddler classrooms had a bachelor's degree or more, indicating a need for greater support for professional development for infant and toddler educators.
- However, we found a significant decline in the proportion of family child care providers with some college or CDA, from 78% in BQI 2007 and 71% in BQI 2010, to only 54% in BQI 2013. Given the link between some college or CDA and the quality of family child care

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<sup>3</sup> NAEYC requires that 75% of teachers in larger programs – those with 4 or more classrooms - have a BA or higher by 2020; NAEYC defines a teacher as the adult with the primary responsibility for the classroom. Therefore, in the Massachusetts context, the NAEYC requirement for teacher education can best be understood as 75% of classrooms in larger programs must have at least one primary teacher with a BA or higher by 2020.



homes, this decline is cause for concern.

**2. Provide additional training and coaching for Boston early childhood educators.** The BQI 2013 found specific areas where educators would benefit from additional training or coaching. Some of this training may be available through formal education, but even when educators have a BA degree, additional training has been found to be associated with higher quality.<sup>19</sup>

Specific areas of needed training or coaching include:

#### *Preschool Classrooms*

- Strategies to promote children’s concept development and reasoning skills through effective instructional formats, including a variety of modalities and materials.
- Strategies to facilitate language and literacy development in the classroom, including the integration of writing into daily classroom experiences, individualized instruction in writing, and the development of phonological awareness

#### *Infant and Toddler Classrooms*

- Strategies to promote language development in infants and toddlers, through responses to children’s attempts to communicate, talking to children frequently throughout the day, and reading books to interested children.
- The provision of materials and activities that are age-appropriate for infants and toddlers, particularly fine motor materials and activities, musical materials and activities, nature and science materials and activities, and, for toddlers, blocks.

#### *Family Child Care Homes*

- The provision of a variety of materials and activities, particularly for active physical play both indoors and outdoors, sand and water play, and art materials and activities.
- Age-appropriate use of TV and other media, including monitoring the content of media, providing alternative activities when the TV is on, and setting limits on the amount of media exposure.

**3. Improve health and safety practices in centers and family child care homes.** Basic standards of health and safety are important to children’s learning environments. Because young children are still developing their own health and safety behaviors, early childhood classrooms face additional requirements when protecting the health and safety of young children. While educators in centers and family child care homes followed many of the recommended health and safety practices at meal times, nap/rest times and throughout the day, there were problems in key areas.

*Hand washing.* The NAEYC and NAFCC standards require routine cleaning and sanitizing of tables and food preparation areas, clean bedding for each child for naps, and hand-washing by children and adults after toileting, before meals or snacks, and after eating finger foods. Hand washing at meal time was inconsistent, with many adults failing to wash their hands while preparing meals or bottles and inconsistently ensuring that children washed their hands at meal times. In infant and toddler classrooms, and in family child care homes, hand washing after diaper changing was done either inconsistently or at inappropriate times to reduce the spread of contamination. These problems can be addressed through training and coaching.

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*Safety hazards.* One-third of family child care homes had four or more indoor safety hazards. The most common indoor hazards were infants sleeping on adult beds, cleaning supplies within reach, tripping hazards or unsafe stairs, and choking hazards from small toys or toys hung over cribs within reach of young children. All of these problems can be addressed through training and coaching.

*Outdoor play areas.* NAEYC Standards require specific safety practices outdoors, including fencing or natural barriers for outdoor space to prevent access to streets and to avoid other dangers. One-in-five preschool classrooms, more than half of infant and toddler classrooms, and most family child care homes, lacked easy access to safe, age-appropriate outdoor space and equipment that was used daily. Many of these programs did not have their own outdoor space and relied instead on public playgrounds, which often lacked adequate fencing or well-maintained equipment, or required young children to walk along busy city streets to reach them. Improving public playgrounds, and providing on-site outdoor space for programs not located near improved playgrounds, would improve the health and safety of these programs.

**4. Increase accreditation of programs by professional associations.** Accreditation is an important component of quality improvement. The process of preparing for accreditation supports increased knowledge of child development and of appropriate educational strategies with young children; accreditation is also associated with children's greater school readiness.<sup>20</sup>

About half (52%) of Boston's early care and education centers are accredited by NAEYC, the National Association for the Education of Young Children; in the BQI 2013, about half (53.3%) of centers in the preschool random sample were accredited. Accreditation rates for family child care providers in the BQI 2013 are low; 15% were currently accredited by NAFCC, the National Association for Family Child Care.

In the BQI 2013, centers that were accredited had significantly higher scores on the Literacy Index than did centers that were not accredited, although there were no differences on the other quality measures. As in BQI 2010, we found that programs that were not accredited were as likely as accredited programs to have teachers with BAs; given the importance of teachers' education to the quality of the program, it is not surprising that NAEYC accreditation did not add to the quality of the programs on most indices. However, the research is clear that NAEYC accreditation is important because it supports quality improvement efforts within programs, and is associated with school readiness; therefore, we argue that it should continue to be a part of a comprehensive strategy to improve program quality for all children.

## Conclusion

Boston's community early care and education programs provide important services to children and families. Massachusetts' longstanding commitment to young children's care and education has meant standards for group sizes and ratios of children to educators that support children's development and school readiness. The recent investment in raising the proportion of educators with higher education has contributed to improved quality in Boston. Continued investment in higher education, for educators in both centers and family child care homes, is necessary to meet children's needs, as well as working families' needs. In addition, Boston community programs need resources for training and coaching of educators, as well as improvements in facilities.



## Background

The research evidence is clear – the early years are essential to children’s school readiness. The existing research from multiple disciplines clearly indicates that early childhood is a critical time for children to develop the foundations that they need, so that all children enter first grade ready to learn.<sup>21</sup> While families play the most important role, early care and education programs have a significant effect on children’s growth and development. High quality early childhood programs are related to children’s cognitive and school outcomes, especially for children from low-income families.<sup>22,23,24</sup> High-quality early childhood education has been found to produce lasting gains on achievement tests, and reduced rates of grade retention or placement in special education services.<sup>25</sup>

The early years are also crucial years for the development of social skills – the ability to make friends, to get along well with others, to cooperate in group activities, to understand others’ perspectives – skills that are necessary to the development of self-esteem and social relationships, and to later school success. Research has found that higher quality early care and education is associated with young children’s social and emotional development.<sup>26</sup>

The No Child Left Behind Act (NCLB) brought national attention to the achievement gap that exists for children from economically disadvantaged families, different race and ethnic groups and linguistic minority families. The National Governors Association Program for Best Practices recommended that education policies address early childhood education as one way to close the achievement gap.<sup>27</sup>

Early care and education programs also provide important support to working families. Formal early childhood programs both keep children safe while parents are at work and provide the developmental supports that young children need to learn and grow. High quality early care and education programs have the potential to facilitate parents’ employment and prepare all children for formal schooling, by supporting their cognitive and social development.

Massachusetts has long been recognized as a leader in policy and practice to promote quality early care and education programs for working families. In 2008, the Massachusetts Department of Early Education and Care (EEC) began the process of developing its own Quality Rating and Improvement System (QRIS), which was described, in March 2013, as “a set of standards and criteria that Massachusetts stakeholders judged most pertinent to their interests. The QRIS system is relatively new and is still establishing the reliability of its rating processes and the utility of its standards.”<sup>28</sup> The QRIS does not replace accreditation, which EEC describes as “the ‘gold standard’ for quality in early care and education,” but provides a state-specific set of standards, with state-funding for technical assistance and professional development.<sup>29</sup>

### ***The Boston Quality Inventory 2013***

Boston currently has a mixed delivery system of early education and care, including center-based programs and family child care homes in the community, as well as BPS Early Childhood programs and private schools’ preschool classrooms. This report focuses on community early care and education in center-based programs, including Head Starts, and licensed family child care homes, located in the city of Boston.

*Thrive in 5* is the city’s early childhood initiative, launched in 2008 as a public-private partnership led by the City of Boston and United Way, and is responsible for bringing partners together across sectors and neighborhoods towards the goal of universal school readiness.



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Thrive in 5's School Readiness Roadmap outlines several strategies to focus on the important issues of quality and access, including universal accreditation for all licensed programs/providers, professional development for early educators, and increased family engagement in programs. In 2012 given the State's focus on increasing quality in early education through the Quality Rating and Improvement System (QRIS), Thrive in 5 also shifted to a model of quality improvement that supports programs and providers moving up and into the QRIS, using data about the developmental needs of children and the specific strengths and areas for development of programs to provide the technical assistance focused on improving quality and child-level outcomes.

The Boston Quality Inventory (BQI) compliments these city-wide and state-wide initiatives, providing a data-driven picture of the current quality of early care and education programs in Boston. This report is the third in a series of Boston Quality Inventories; previous reports are available from the BQI 2007 and BQI 2010. Each of the inventories has provided a picture of the quality of Boston's center-based programs and family child care homes at one point in time. Collectively, they provide a picture of areas of progress, as well as areas of continuing or new concern. In the BQI 2013 results, we include comparisons to the previous inventories. The BQI 2013 findings in this report will inform the work of Thrive in 5 and others as they strive to ensure that all Boston children arrive at school ready to succeed.

## Conducting the Boston Quality Inventory

The Boston Quality Inventory 2013 was designed by a team of researchers, led by Dr. Wendy Wagner Robeson, of the Work, Families and Children Research Group at the Wellesley Centers for Women.

**Sample.** This report is based on data collected from random samples of licensed programs (45 center-based programs serving infants, toddlers; 45 center-based programs serving preschoolers, and 45 family child care homes). The random samples were drawn from EEC lists of licensed providers. See Appendix A for more detail on sampling procedures and response rates. The samples are described in detail later in this report.

**Measures.** The Boston Quality Inventory included observations in center classrooms and in family child care homes, surveys completed by family child care providers, and surveys completed by families with children in the selected programs.

*FCC Provider Surveys.* Family child care providers were asked to complete a brief questionnaire about their program, including enrollment. Almost all (89%) of family child care providers completed the survey.

*Family Surveys.* Family surveys were sent home with children in observed programs and returned in sealed envelopes to a collection site at the program. The family survey offered families an opportunity to rate and comment on their child's current experiences and their reasons for choosing their child's program, as well as provide information about their families. Three hundred ninety four (394) families returned surveys; 305 surveys from centers (from 29 preschool classrooms and 16 infant or toddler classrooms), and 90 returned surveys from 19 family child care homes.

The *Scale for Measuring Quality of Child Care from a Parent's Point of View* was developed by Portland State University and the ACF-funded Oregon Child Care Research Partnership.<sup>30</sup> This scale measures multiple aspects of quality including: provider warmth and interest in the child,

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rich activities and environment, skilled caregiver, talk and share information, caregiver accepting and supportive, child feels safe and secure, child gets along socially, and high risk care. The measure is reliable with alpha coefficients of internal consistency of .93 for the total scale, and both face validity and predictive validity are reported by the developers. Each item was rated from 0 (never) to 4 (always); higher scores indicate greater quality. Cronbach's alpha for this scale in the BQI 2013 was .86.

*Observations.* The goal of the observations was to assess early care and education practices using standardized measures that would provide a picture of the strengths of each program, as well as areas needing improvement. We observed 45 preschool classrooms in centers, and 45 infant or toddler classrooms in centers, as well as 45 FCC homes.

The classroom observations used a set of assessment tools developed specifically for use in early care and education settings – the Early Childhood Environment Rating Scale-Revised (ECERS-R) for center-based preschool classrooms; the Infant-Toddler Environment Rating Scale-Revised (ITERS-R),<sup>31</sup> developed specifically for use in infant and toddler classrooms; and the Family Child Care Environment Rating Scale–Revised Edition (FCCERS–R), developed for family child care homes. The ECERS-R, ITERS-R and FCCERS-R provide benchmarks for different levels of quality, labeled Inadequate, Adequate, Good and Excellent. These measures are also incorporated into Massachusetts QRIS measures. However, because the QRIS is still establishing reliability and validity for its rating processes, the current BQI does not specifically align findings with the QRIS. Instead, the BQI 2013 reports detailed results using many of the same measures used in the QRIS. Programs that meet or exceed the Good benchmark are generally consistent with the National Association for the Education of Young Children (NAEYC) *Early Childhood Program Standards* and the National Association for Family Child Care (NAFCC) *Quality Standards*.

Assessments of preschool classrooms were supplemented with the *Classroom Assessment Scoring System (CLASS)* and the *Early Language and Literacy Classroom Observation (ELLCO)*. Assessments of infant/toddler classrooms, and family child care homes, were supplemented with the *Global Caregiving Rating Scale*. Together, these measures provide a comprehensive, in-depth assessment of the quality of classrooms. All measures are described in detail in the Appendix.

Classroom observers received extensive training on all measures. Visits were scheduled at times that were not disruptive and on days that were typical of the usual environment for that classroom (i.e., not on a day when a field trip was planned, nor when half the class, or the regular teacher, was out sick). Each observation took 3-4 hours and followed a standardized administration procedure designed to minimize disruption to students, teachers, and other program staff.

**Quality Indices.** We constructed quality indices for this report that summarize the extensive data collected. For all settings, we created a *Curriculum Index* that measures the availability of curriculum resources and the educator's use of these resources to support children's development and learning. We also created health and safety indices. For preschool classrooms, we created the *Health & Safety Index*, which measures health and safety practices during meals/snacks, naps and toileting, as well as general health and safety behaviors.

For infant and toddler classrooms and family child care homes, which have more frequent personal care routines (frequent diaper changes, feeding and naps on individual schedules), we created three separate indices, the *Health Index*, *Safety Index* and *Health Practices Index*. The

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*Health Index* includes items addressing practices to reduce the spread of germs through hand washing, sanitizing surfaces, and other means. The *Safety Index* is item 11 on the ITERS and item 12 on the FCCERS, and covers major safety hazards, supervision, and other safety practices. The *Health Practices Index* covers specific practices such as removing children with contagious illnesses, administering medications, changing wet or soiled clothes, and modeling good health practices.

We established benchmarks for each of these indices. In this report, classrooms or FCC homes are said to meet the Inadequate benchmark if they score below a “3” on any of the indices. Classrooms or FCC homes that meet the Adequate benchmark scored between a 3 and a 4.5, indicating classrooms that meet or exceed minimal standards on one or more of the components. Classrooms that meet the Good benchmark on the indices have earned an average score of 4.5 or higher, indicating classrooms or FCC homes that provide a curriculum that meets professional standards for promoting children’s growth and development, or that meet professional standards for protecting children’s health and safety.

For preschool classrooms, we created two additional learning environment indices – Emotional and Social Support and Instructional Support – from the *Classroom Assessment Scoring System (CLASS)*.<sup>32</sup> The *Emotional and Social Support Index* includes the CLASS dimensions of Positive Climate, Negative Climate, Teacher Sensitivity, Regard for the Student Perspective and Behavior Management. The *Instructional Support Index* includes CLASS dimensions of Productivity, Instructional Learning Formats, Concept Development, Quality of Feedback and Language Modeling. In this report, classrooms are rated as Inadequate on the CLASS composites if they score below a “3” on a CLASS Index, that is, there are few, if any, indicators in the classroom of a positive emotional climate or positive instructional supports. Classrooms that meet the Adequate benchmark have scored between a 3 and a 5, indicating there are some indicators of a positive emotional climate or positive instructional supports. Classrooms that meet the Good benchmark have earned an average score of 5 or higher on the CLASS, indicating that there are many indicators of a positive emotional climate or positive instructional supports.

We created a *Literacy Index* of the literacy environment in preschool classrooms, using the ELLCO subscale, *Language and Literacy*, which assesses the language environment, books and book reading, and print and early writing. The Language and Literacy subscale consists of 12 items that assess classroom practices on a scale from 1 = Deficient (minimal evidence), 3 = Basic (some evidence of meeting the standards) and 5 = Exemplary (strong evidence of meeting the standards). For this report, classrooms are rated as Inadequate on the *Literacy Index* if they score below a 2.5, indicating few, if any, indicators of basic language and literacy supports. Classrooms that meet the Adequate benchmark scored lower than a 3.5, indicating that the classroom met basic standards, and, on some indicators, exceeded basic standards. Classrooms that meet the Good benchmark scored at least a 3.5, indicating that there are multiple indicators that exceed the basic standards.

For infant and toddler classrooms in centers, and for family child care homes, we created a *Caregiving Index*, calculated as the average of the items on the Arnett *Global Caregiving Rating Scale*, with negative items reverse-scored. The *Global Caregiving Rating Scale* describes how teachers/providers interact with the children, how warm they are with the children, the amount and types of interactions that occur, and how sensitive they are to children’s needs.





## Characteristics of Early Care and Education Programs

The BQI 2013 included 45 preschool classrooms in centers, 45 infant or toddler classrooms in centers, and 45 family child care homes. This section provides an overview of those programs.

### **Centers**

The BQI 2013 included 45 preschool classrooms in centers; the BQI centers had an average preschool capacity of 51 children, ranging from a capacity of 16 preschoolers to 269 preschoolers. The capacity of centers in the BQI 2013 is comparable to the capacity of all centers in Boston that serve preschoolers, with an average preschool capacity of 46 children, ranging from a capacity of 14 preschoolers to 269 preschoolers.

Of the 45 centers participating in the BQI 2013 preschool observations, 7 were Head Start programs. Among the 45 preschool classrooms we observed, the average group size on the day we visited was 14.0 children, ranging from 6 children present, to 22 children present. Observed classrooms had between 1 and 5 educators present during part or all of the observation, with an average of 2.5 educators present. The average ratio of children to educators was 5.84 children per educator, ranging from 1.94 children per educator to 11 children per educator during the observation.

The BQI 2013 included 19 infant classrooms, 2 infant/toddler classrooms and 24 toddler classrooms in centers. The centers in the BQI infant and toddler sample had an average combined infant and toddler capacity of 30 children, ranging from a capacity of 4 to 124 children, which is comparable to the capacity of all centers in Boston that serve infants and toddlers, with an average combined infant and toddler capacity of 23 children, ranging from a capacity of 4 to 124 children.

Among the 45 infant and toddler classrooms we observed, the average group size on the day we visited was 6.7 children, ranging from 3 children present, to 10 children present. Observed classrooms had between 1 and 3 educators present during part or all of the observation, with an average of 2.3 educators present. The average ratio of children to educators was 2.92 children per educator, ranging from 1.5 children per educator to 4.5 children per educator during the observation.

**Center Educators.** In each classroom, observers identified the teacher with the most education (called the primary educator in this report). In preschool classrooms, 62% of the primary educators had completed a bachelor's degree or more; this is significantly higher than the 37% in BQI 2010. An additional 22% had completed an associate's degree and 4% held a CDA. Of the 45 primary educators, 40% were EEC-licensed as Directors, 53% were EEC-licensed as Lead Teachers, and 7% (N=3) were EEC-licensed as Teacher Assistants.

In observed infant and toddler classrooms, 40% of the primary educators had completed a bachelor's degree or more. An additional 38% had completed an associate's degree and 9% held a CDA. Of the 45 primary educators, 18% were EEC-licensed as Directors, 53% were EEC-licensed as Lead Teachers, and 29% were EEC-licensed as Teacher Assistants.



NAEYC Standards require that, by 2020, at least 75% of classrooms in an early childhood program have a teacher with a minimum of a baccalaureate degree in early childhood education or a related field (this requirement is being phased in between 2006 and 2020).<sup>4</sup> Almost two-thirds (62%) of the primary educators in observed preschool classrooms had a bachelor's degree or more in 2013, a considerable improvement over 2010, when only 37% held a bachelors' degree.<sup>5</sup> However, only 40% of primary educators in infant and toddler classrooms had a bachelor's degree in 2013; there has been no significant improvement since 2010 among infant and toddler educators.

## Family Child Care Homes

**Providers.** Providers have been caring for children in their home child care business from one to 38 years, with an average of 12.8 years. Providers offered child care year-round, for an average of 50.6 weeks, and a minimum of 44 weeks a year.

About one-quarter (26%) of providers were licensed for Regular Family Child Care (up to 6 children); 21% were licensed as Family Child Care Plus (6 children under age 7, and 2 children over age 7), and 54% were licensed as Large Family Child Care (up to 10 children, with an EEC-approved Assistant); the BQI 2013 sample over-represents Large Family Child Care homes, compared to the EEC licensing lists, where only 31% of providers were licensed as Large Family Child Care and 45% were licensed as Regular Family Child Care. Two-thirds of all participating providers (69%) belonged to a family child care system; this is comparable to EEC licensing lists.

**Table 2. Ages Served**

Age	Percent of homes with any enrolled full-time	Median number enrolled full-time <sup>1</sup> (range)	Percent of homes with any enrolled part-time	Median number enrolled part-time (range)
Infants	66%	1 (1-4)	15%	1 (1-5)
Toddlers	77%	1 (1-5)	17%	1 (1-5)
Preschoolers	90%	3 (1-7)	25%	1 (1-4)
School-Age	12%	4 (1-6)	25%	2 (1-3)

<sup>1</sup> Median number enrolled, among homes with any enrolled

**Children.** Only 5% of providers currently care for their own children under the age of 5 years. Almost all of the providers currently serve preschoolers full-time; more than three-quarters of

<sup>4</sup> NAEYC requires that 75% of teachers in larger programs – those with 4 or more classrooms - have a BA or higher by 2020; NAEYC defines a teacher as the adult with the primary responsibility for the classroom. Therefore, in the Massachusetts context, the NAEYC requirement for teacher education can best be understood as 75% of classrooms in larger programs must have at least one primary educator with a BA or higher by 2020.

<sup>5</sup> In this report, we describe differences between BQI 2013, and earlier BQIs (2007 and 2010) as significant when the confidence intervals, at 95% confidence level, do not overlap. For example, given the sample size and population of Boston centers in 2013, we can be 95% certain that the true percent of preschool classrooms with an educator with a bachelor's degree or more is between 50% and 74%. Given the sample size and population of Boston centers in 2010, we can be 95% certain that the true percent of preschool classrooms with an educator with a bachelor's degree or more was between 26% and 48%. Given the lack of overlap in the confidence intervals for the results on this Index in 2010 and 2013, we can be confident that, in 2013, more Boston preschool classrooms had an educator with a bachelor's degree or more than in 2010.

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homes serve infants and/or toddlers full-time. On the day of the observation, there were an average of 5.7 children present (ranging from 3 to 9 children present), with an average ratio of 3.9 children per educator, ranging from 1.33 to 7 children per adult.

**Family Child Care Provider Education.** Thrive in 5 School is committed to increasing the education and skills of early educators. For family child care providers, the Child Development Associate credential (CDA) is a particularly important route to professional development and improved quality; the Massachusetts Cost & Quality Study of Family Child Care Homes found that providers who held a CDA credential offered significantly higher quality programs than did providers who did not hold a CDA credential.<sup>33</sup>

In the BQI 2013, we found that 15 providers (38%) held a CDA, two providers (5%) had a bachelor's degree or more, 2 (5%) had an Associate's degree, and 4 (10%) had some college; 17 providers (43%) only had their high school diploma or GED. All told, 54% of providers had a CDA, some college or a college degree. This is a significant decline in the proportion of providers with some college or a CDA, from 78% in BQI 2007 and 71% in BQI 2010 to only 54% in BQI 2013. Accreditation remains low among family child care providers; only 15% of the providers were accredited by NAFCC, another 13% have been in the self-study process for less than two years.

**Assistants.** More than half of family child care homes (53%) had an assistant at least part of the time. About one third (35%) of homes had an unrelated paid assistant, 25% had an adult relative or adult child as an assistant, and 10% had their spouse or partner as their assistant. Of the assistants, 10% had a bachelors' degree, 20% held a CDA, and 20% had some college courses or an associates' degree.



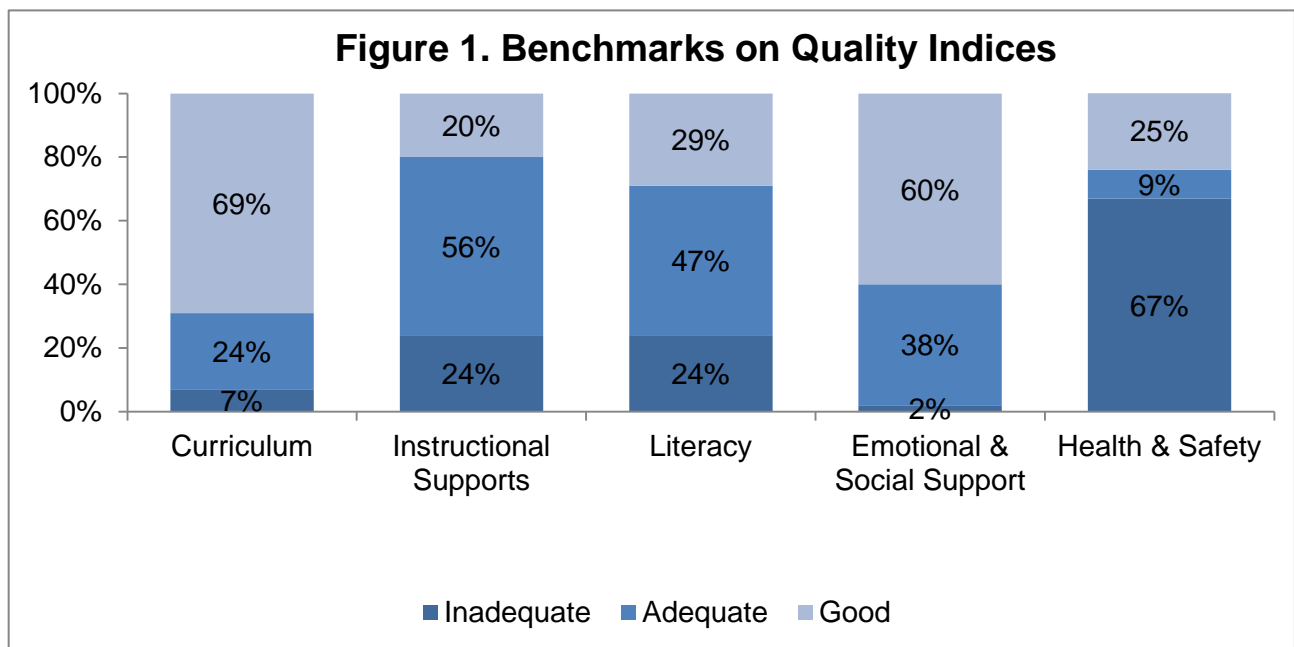
## Safe and Stimulating Learning Environments

The Boston Quality Inventory 2013 assessed the learning environments in center-based programs and family child care homes on Curriculum and Health & Safety Indices, as well as age- and setting-specific indices, described in detail above and in the Appendix.

### *The Quality of Preschool Classrooms*

Center-based preschool classrooms are an important part of Boston’s early care and education delivery system. While the Boston Public Schools offer prekindergarten classrooms, early care and education centers still provide services for three-quarters of preschool-age children in Boston who are in prekindergarten or center-based early care and education.<sup>6</sup> Given the importance of preschool preparation to children’s school readiness, the quality of community center-based programs is a key component of Boston’s early care and education.

In 2013, the BQI found that the improvements seen in BQI 2010 over BQI 2007 have continued in the proportion of preschool classrooms that meet the Good benchmark on the ECERS Curriculum Index, the CLASS Emotional & Social Support Index, and the ELLCO Literacy Index. We discuss the findings for each of the Indices in turn. Figure 1 provides an overview of the quality indices for preschool classrooms in BQI 2013.



<sup>6</sup> As of 2011, Boston Public Schools had prekindergarten classrooms available for 2,300 children (<http://www.bostonpublicschools.org/early-childhood-education>). As of September 2012, EEC-licensed center-based programs had the capacity to serve 7,659 children (EEC lists of licensed programs), or 77% of the total capacity for preschool-age children in Boston.



## ECERS Curriculum Index

The ECERS Curriculum Index is a comprehensive assessment of the curriculum materials, furnishings and space available to each classroom, and of the teacher's ability to use these resources to meet the developmental and educational needs of young children. More than two-thirds (69%) of preschool classrooms observed in 2013 met the Good benchmark on the ECERS Curriculum. This is a significant improvement over the BQI 2007, when only 48% of preschool classrooms met the Good benchmark.<sup>7</sup>

The ECERS Curriculum Index incorporates subscales on Space and Furnishings, Language and Reasoning, Curriculum Activities, Interactions and Program Structure. Classrooms were most likely to meet the Good benchmark on Space and Furnishings (71%), Program Structure (80%) and Interactions (67%). A majority of programs met the Good benchmark on Language and Reasoning (67%), and half of the programs (54%) met the Good benchmark on Activities.

**Activities.** Young children learn about the natural, material and social world through direct exploration. To support this learning, the NAEYC Standards require the availability of materials such as sand, water, art materials, play dough and blocks, which allow children to experiment with quantity, size and shape, measurement, comparing, the use of simple tools, and other key concepts in the natural and material world. Dramatic play materials and activities allow children to explore their social world, acting out family and community roles.

The majority of observed classrooms gave children access to some fine motor materials (91%), dramatic play materials (82%), blocks (96%), math/number materials (73%), nature and science activities and materials (73%), and art materials (93%) for at least one hour daily<sup>8</sup>, and made sand or water play available each week (92%).

Many of the observed classrooms either did not use TV, video and/or computers (38%), or they limited use to materials that were educational, with staff actively involved with the children's use of these materials (20%); an additional 36% of classrooms limited TV, video and/or computers to material that was nonviolent and culturally sensitive, limited the amount of time children were allowed to use these materials, and offered alternative activities at the same time.

Although classrooms gave children access to curriculum materials, materials tended to lack variety or were of limited quantity. Classrooms did not offer children many and varied materials, for a substantial portion of the day, for nature and science (64% did not), math and number

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<sup>7</sup> In this report, we describe differences between BQI 2013, and earlier BQIs (2007 and 2010) as significant when the confidence intervals, at 95% confidence level, do not overlap. For example, given the sample size and population of Boston centers in 2013, we can be 95% certain that the true percent of all centers that were rated as Good on the ECERS Curriculum Index is between 57% and 81%. Given the sample size and population of Boston centers in 2007, we can be 95% certain that the true percent of all centers rated as Good on the ECERS Curriculum Index was between 40% and 56%. Given the lack of overlap in the confidence intervals for the results on this Index in 2007 and 2013, we can be confident that more Boston preschool classrooms in 2013 met the Good benchmark on the ECERS Curriculum Index than in 2007.

<sup>8</sup> In programs that operate at least 8 hours/day. This standard is pro-rated for programs open fewer hours, based on the 1:8 ratio.



activities (64% did not), dramatic play (48% did not), or art (64% did not).

Gross-motor activities are important to young children's development of specific gross-motor skills, as well as sensory-motor integration and controlled movement (balance, strength, coordination). The NAEYC Standards require that children have varied opportunities for gross-motor activities and access to gross-motor equipment for activities such as "pulling up, walking, climbing in, on, and over, moving through, around, and under, pushing, pulling and riding."

Some programs had little age-appropriate gross motor play equipment or the equipment did not meet safety requirements in the ECERS (20%). Almost one-third (31%) of programs had gross motor space that was rated as very dangerous, because their own outdoor space was unfenced or used for both play and as a parking lot, or because they relied on public playgrounds which often lacked adequate fencing, well-maintained equipment or required children to walk along busy city streets. Only 20% of the programs had adequate space both outdoors and indoors for gross motor play that was easily accessible (e.g., on the same level as the classroom) and well-organized for children's play.

## **CLASS Instructional Supports Index**

The NAEYC Standards require that teachers use a variety of teaching strategies, ask questions that stimulate children's thinking, join children in learning to extend and deepen children's learning, and promote children's engagement and learning by responding to their need for and interest in practicing emerging skills, by guiding them in acquiring specific skills and by explicitly teaching those skills. The CLASS Instructional Supports Index assesses these teaching strategies. Only one-in-five (20%) of preschool classrooms observed in 2013 met the Good benchmark on the CLASS Instructional Supports Index; another 56% met the Adequate benchmark.

The CLASS Instructional Supports Index assesses the effectiveness of teachers' instructional formats (facilitation, variety of modalities and materials, clarity of learning objectives and engagement of student interest), concept development (the strategies teachers use to promote reasoning skills and creativity through problem-solving and classroom instruction), the quality of verbal feedback teachers offer to children regarding their interactions, comments and ideas, and the quality of language modeling. While 42% of observed classrooms met the Good benchmark on instructional formats, only 16% of the observed classrooms met the Good benchmark on concept development, 20% met the Good benchmark on verbal feedback to the children, and 24% met the Good benchmark on language modeling.

## **ELLCO Literacy Index**

During the first five years of life, children's experiences with language and literacy form the foundation for later reading success. Diverse experiences with printed and spoken language, beginning in infancy, strongly affect children's future reading and school success.<sup>34,35</sup> Children who are at risk for reading difficulties are those who begin elementary school with fewer verbal skills, less phonological awareness, less letter knowledge, and less familiarity with the basic purposes and mechanisms of reading.<sup>36</sup> Research has identified strategies for structuring environments and interactions with adults and peers that are effective in promoting children's learning and development in that early childhood settings can do much to prevent future reading





difficulties through the provision of literacy-enriched environments.<sup>37,38</sup> Optimum occasions for language and cognitive development occur when adults' interactions are responsive to children's interests, sensitive to children's signals, and rich in verbal content.<sup>39, 40,41,42</sup>

The ELLCO Literacy Index assesses the extent to which classrooms provide experiences that support children's language and literacy development. Most observed classrooms met or exceeded the Adequate benchmark, with 29% of classrooms met the Good benchmark and 47% met the Adequate benchmark. While the BQI 2013 showed a significant improvement over the BQI 2007 with respect the proportion of classrooms that met the Good benchmark (29% compared to only 11% in 2007), there is still much room for improvement.

**Reading and Writing.** Classrooms that met the Good benchmark had a book area that is distinct from the rest of the classroom, physically attractive and comfortable for children, well-organized to support children's independent engagement with books, and accessible to children for much of the day. The books in the classroom are on a range of topics salient to young children, from multiple genres and with diverse representation of characters and family structures, and with a wide range of reading difficulty. Books are consistently used by children and teachers for meaningful purposes, including enjoyment, learning to read, and in interest areas in the classroom. Book reading is an integral part of children's daily experience, occurring in a variety of settings and groupings, with at least one book-reading session with a small or full group of children who appear to be actively engaged in the book reading and discussion. Teachers' reading is characterized by expressiveness and fluency, which support children's understanding of the book. Teachers in classrooms that met the Good benchmark also provided support for children's writing through a variety of strategies, including modeling writing, incorporating environmental print (labels, signs, charts for routines) into the classroom, taking dictation from the children, providing curriculum materials to support children's spontaneous writing during play, and providing individualized instruction to help children form letters, and read and write their names and common words.

Classrooms that did not meet the Good benchmark sometimes met the above standards, but did not do so as extensively or as consistently with all children as did classrooms that met the Good benchmark. A greater proportion of classrooms could improve in the area of support for children's writing (only 20% of classrooms integrated writing into daily classroom experiences in ways that are both planned and spontaneous, and include individualized instruction).

**Language and Concept Development.** In classrooms that met the Good benchmark, teachers actively engage children in conversations, listen attentively to children and encourage them to listen and respond to one another; and teachers employ strategies that engage children in conversations about ideas, experiences and curriculum activities in ways that extend content knowledge or build specific oral language skills. Teachers use appropriate strategies to expand children's spoken vocabulary, including introducing new and challenging words across multiple classroom settings, relating new words to children's own experiences, and encouraging children to experiment with words, and use formal and informal opportunities to build children's phonological awareness. In classrooms that met the Good benchmark, there is an ongoing curriculum that integrates concepts and skills; the design of the classroom environment, schedule and experiences encourage child choice and initiative to facilitate their engagement in learning; teachers are knowledgeable about children's homes and communities and incorporate this diversity into ongoing curricular activities.



Classrooms that did not meet the Good benchmark sometimes met the above standards, but did not do so as extensively or as consistently with all children as did classrooms that met the Good benchmark. A greater proportion of classrooms could improve in the area of support for phonological awareness (only 7% of classrooms engaged children in varied interactions with clearly articulated instructional goals, and designed to build children's awareness of sounds in language through planned and playful activities, such as rhyming, breaking words into syllables or alliteration).

## **CLASS Emotional and Social Support Index**

Social interaction is necessary for children's linguistic and cognitive development, and social development is a key to children's success in learning both in school and in later life.<sup>43,44</sup> Positive warm and nurturing relationships with teachers are associated with a desire to learn to read and provide the foundation for school success.<sup>45,46</sup>

Interactions with adults in early childhood programs can also foster the development of social skills.<sup>47,48</sup> The social development of young children can be supported through warm and positive interactions; the quality and stability of children's relationships with adults in early childhood programs appears to be particularly important to children's social and emotional growth.<sup>49,50</sup> Emotion regulation in children is also fostered by the support of adults in early childhood programs.<sup>51</sup>

The CLASS Emotional and Social Support Index assesses the extent to which teachers provide the emotional and social support that is essential to children's school success. More than half (60%) of preschool classrooms observed in 2013 met the Good benchmark on the CLASS Emotional and Social Support Index, compared to only 14% of classrooms observed in 2007.

## **Health and Safety Index**

Basic standards of health and safety are important to children's learning environments. Because young children are still developing their own health and safety behaviors, early childhood classrooms face additional requirements when protecting the health and safety of young children. The NAEYC Early Childhood Program Standards require that the program protect children and staff from illness and injury. In addition, the NAEYC Standards require specific health practices to protect the health of children, including nutritional meals, hand-washing by children and adults after toileting, before meals or snacks and after eating finger foods, routine cleaning and sanitizing of tables and food preparation areas, and clean bedding for each child for naps. In addition, NAEYC Standards require that nap mats be spaced at least three-feet apart or be separated by a solid barrier, such as shelving.

While there were many areas of good health and safety practices in the observed classrooms, a few key problem areas meant that the majority of classrooms (67%) were rated as Inadequate on the ECERS Health & Safety Index.

The majority of programs met most health indicators, such as well-balanced meals and snacks (91%), allergies posted and food/beverage substitutions made (67%), and appropriate nap or rest times (87%) that were supervised by at least one alert staff member in the room (84%).



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However, in the majority of classrooms, sanitary conditions were not usually maintained around meals and snacks, including handwashing and the sanitizing of tables (62%). Over half of classrooms (51%) did not meet ECERS standards for placement of cots or mats (18 inches apart, unless separated by a solid barrier), and 67% did not meet the NAEYC three-foot apart standard. Over half (53%) of the classrooms did not maintain sanitary conditions around diapering or toileting.

NAEYC Standards require specific health practices to reduce the spread of germs, such as handwashing at key times. In 33% of programs, staff did not usually act to cut down on the spread of germs, and, in 67% of programs, adequate handwashing by staff and children (at least 75% of the time) after potential exposure to germs, such as after wiping noses, or handling animals, was not observed.

NAEYC Standards require specific safety practices, including adult supervision of children for children's safety in the classroom and outdoors. We observed two or more major safety hazards indoors in 18% of classrooms and outdoors in 29% of classrooms, and found that there was inadequate supervision, both indoors and outdoors, in 22% of classrooms.



## *The Quality of Infant and Toddler Classrooms*

More than half of all infants are in homes where either both parents work, or there is only one parent, and that parent is employed.<sup>52</sup> Nationally, among children in homes where all parents are employed, 16% of infants, and 26% of toddlers, are in center-based care; 10% of infants and 7% of toddlers are in family child care homes.<sup>53</sup> Infants and toddlers are in non-parental care for an average of 25 hours per week, with 39% of infants/toddlers in care full-time.<sup>54</sup> For infants and toddlers of working parents, high quality early care and education programs keep children safe while parents are at work and provide the developmental supports that young children need to learn and grow.

The BQI 2013 found significant improvements over the BQI 2010 in the proportion of infant and toddler classrooms that meet the Good benchmark on the Global Caregiving Index, and a significant reduction in the proportion of classrooms rated as Inadequate on the ITERS Health Index. Figure 2 provides an overview of the infant and toddler classrooms in centers. We discuss the findings for each of the Indices in turn.

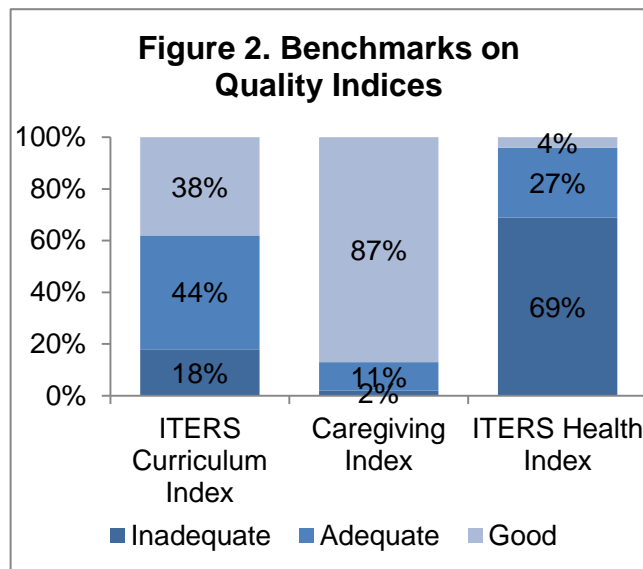
### **ITERS Curriculum Index**

The ITERS Curriculum Index is a comprehensive assessment of the curriculum materials, furnishings and space available to each classroom, and of the teacher's ability to use these resources to meet the developmental needs of infants and toddlers. More than one-third (38%) of infant and toddler classrooms observed in 2013 met the Good benchmark on the ITERS Curriculum.

The ITERS Curriculum Index incorporates subscales on Space and Furnishings, Listening and Talking, Activities, Interactions and Program Structure.

Classrooms were most likely to meet the Good benchmark on Interactions (71%) and Listening and Talking (44%). Programs were less likely to meet the Good benchmark on Space and Furnishings (27%), Program Structure (38%), and Activities (27%).

**Interactions.** In classrooms that met the Good benchmark on Interactions, teachers interacted frequently with children and gave them help and encouragement. Peer interactions were encouraged and facilitated. Interactions among staff and children were largely positive in nature and positive discipline methods were used effectively. More than two-thirds of the observed classrooms met the Good benchmark on Interactions. In more than half (58%) of classrooms, teachers facilitated positive peer interactions and modeled positive social interaction. In 60% of classrooms, teachers met the Good benchmark for supervising play and learning, maintaining an awareness of the whole group even when working with one child or a small group, and reacting quickly to solve problems. In 58% of classrooms teachers used positive methods of



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discipline effectively (re-directing children from a negative situation to another activity, attending to children who are behaving well by communicating enjoyment or interest in what children do).

**Listening and Talking.** The Listening and Talking subscale assesses the informal use of language, support of children's use of language, and the presence and use of infant/toddler books; 44% of infant and toddler classrooms met the Good benchmark on Listening and Talking. In 58% of Boston infant and toddler classrooms, teachers talked to children frequently throughout the day in ways that supported children's understanding of language, and in 42% of classrooms, teachers helped children learn to use language, through their responses to children's attempts to communicate. In almost three-quarters (65%) of the classrooms, teachers read books to interested children, but only 9% of classrooms made a wide selection of age-appropriate books available for much of the day.

**Space and Furnishings.** The Space and Furnishings subscale assesses the availability of well-designed indoor space, the room arrangement, and appropriate furnishings and displays, such as colorful pictures and mobiles. Most (76%) infant and toddler classrooms met the Adequate benchmark on indoor space, with classrooms in good repair and well-maintained, with good ventilation and some natural lighting, temperature control and sound-absorbing materials, and with floors, walls and other built-in surfaces made of easy-to-clean materials, and *enough* indoor space for staff to move around to meet children's routine care needs. However, only 31% of infant and toddler classrooms provided *ample* indoor space for children, adults and furnishings, so that furnishings, such as high chairs, baby swings and cribs, did not crowd the room, and children had a spacious open area to play. Those classrooms that failed to meet the Good benchmark were not out of compliance with state regulations for space for infants and toddlers; however, the equipment in infant and toddler classrooms is in use most of the day and can limit the amount of open space for children's play.

**Activities.** As noted in the section on preschool classrooms, young children learn about the natural, material and social world through direct exploration. Only 27% of infant and toddler classrooms met the Good benchmark on Activities. In fact, over one-third (37%) of classrooms scored in the Inadequate range. These programs offered children little variety in materials and had a limited amount of activities available. In particular, infants and toddlers lacked easy access to outdoor physical space separated from older children, as well as access to fine motor materials, musical materials, blocks (for children 12 months and older), nature and science materials and materials that exhibited racial and cultural diversity.

**Program Structure.** The Program Structure scale assesses the appropriateness of the schedule, the availability of free play, the balance of group and individual activities, and of indoor and outdoor activities, and the provisions for children with disabilities. Almost half (49%) of the classrooms provided group play activities that were flexible and accommodated children joining and leaving the group, in group sizes appropriate to the age and ability of the children. Only 29% of classrooms offered a schedule that was flexible and individualized to meet each child's needs, with a balance of indoor and (weather-appropriate) outdoor activities, active and quiet play, and no long waits during transitions between daily activities.

## Caregiving Index

The Caregiving Index rates the caregiver's relationship with the child in terms of overall positive



relationship, punitiveness, detachment and permissiveness. The scale consists of 26 items, rated on a scale from 1=never meets the standard to 4=consistently meets the standard. Most of the teachers (87%) in infant and toddler classrooms usually or consistently met the standards on the Caregiving Index (see Figure 2); these providers were rated as “Never or rarely critical of the children;” “Usually or consistently seem to enjoy the children;” “Usually or consistently supervise the children appropriately;” and “Usually or consistently talk to children on a level they can understand.” This is a significant improvement over BQI 2010 when only 44% of classrooms met the Good benchmark on the Caregiving Index.

## **ITERS Health and Safety Index**

The ITERS Health and Safety Index provide a comprehensive assessment of health and safety practices during meals, naps, and diapering/toileting, as well as health and safety policies. The majority of infant and toddler classrooms (69%) were rated as Inadequate; however, this is a significant improvement over the BQI 2010, when 88% of infant and toddler classrooms were rated as Inadequate.

The NAEYC Standards require routine cleaning and sanitizing of tables and food preparation areas, clean bedding for each child for naps, and hand-washing by children and adults after toileting, before meals or snacks, after eating finger foods. In BQI 2010, we found that, in 58% of classrooms, teachers did not usually follow practices that would cut down on the spread of germs, often neglecting handwashing, and improperly cleaning toys and table tops; in contrast, in BQI 2013, only 18% of classrooms did not pass this item. However, in almost all classrooms hands were not washed at least 75% of the time (when necessary to protect health: after coming in from outside, before and after shared water play, after messy play, after dealing with bodily fluids, and after touching contaminated surfaces such as trash cans or pets).

Other problematic areas of health and safety include: 20% of programs used inappropriate feeding practices, such as not holding infants for bottle feeding, or allowing children to eat or take bottles while lying down or playing; 49% of programs' provisions for naps were rated as inappropriate for infants and toddlers and 18% of programs did not provide adequate supervision during naps; in 40% of programs, handwashing was often neglected for staff or children after diapering or toileting, and in 36% of programs sanitary conditions were not maintained in the diapering or toileting areas. Finally, 71% of programs failed to meet the Good benchmark on program safety; to meet the Good benchmark on this item, there could be no serious hazards indoors or outdoors, and staff must usually anticipate and take action to prevent safety problems.



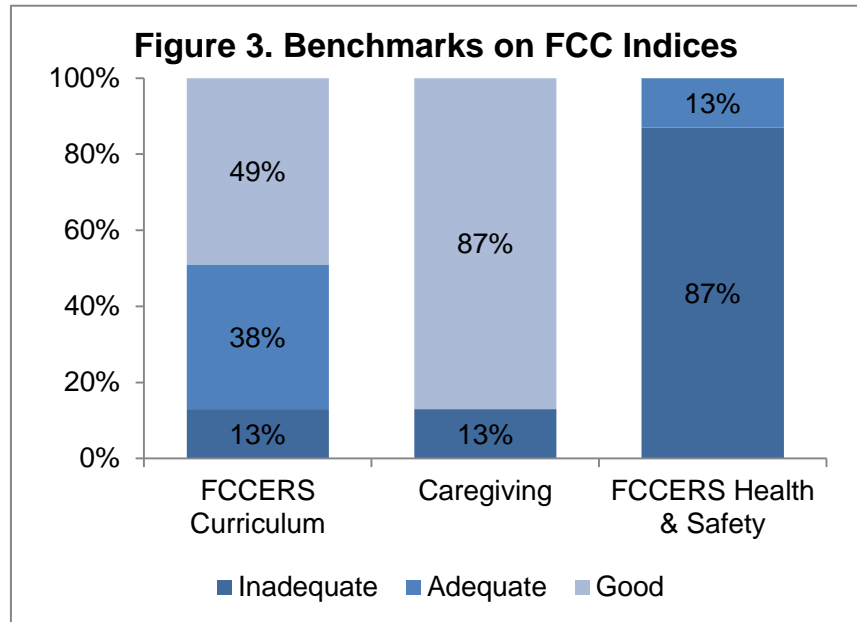
## The Quality of Family Child Care Homes

A recent review of existing research on the quality of family child care homes found that much of family child care provides mediocre or low quality. National, multi-site studies have reported that fewer than 10% of family child care homes meet the Good benchmarks on the FCCERS and other measures of quality.<sup>55</sup>

However, quality varies widely at the local level, reflecting variations in state regulations, state and local quality initiatives and reimbursement rates, and local market conditions, such as the neighborhoods in which family child care homes are located, provider qualifications, and the price families are able to pay.<sup>56</sup>

The BQI 2013 found significant improvements over the BQI 2010 in the proportion of family child care homes that meet the Good benchmark on the FCCERS Curriculum Index.

Figure 3 provides an overview of the scores on the FCCERS components of quality. We discuss the findings for each of the scales in turn.



### FCCERS Curriculum Index

The FCCERS Curriculum Index is a comprehensive assessment of the curriculum materials, furnishings and space available, and of the provider's ability to use these resources to meet the developmental and educational needs of children. Almost half (49%) of family child care homes met the Good benchmark on the FCCERS Curriculum Index, compared to only 16% in BQI 2010.

The NAFCC Standards offer guidelines on developmental learning activities in art, music, movement, and dramatic play, math and science, outdoor play, and for appropriate use of television and computers. The NAFCC Standards also provide guidelines for cognitive development and literacy development, including encouraging children's learning of concepts, development of problem-solving skills, and the ability to represent their knowledge and understanding, and using meaningful activities to build on children's emerging interest in print and writing.

Almost half of FCC homes met the Good benchmark on the FCCERS Curriculum Index. The FCCERS Curriculum Index consists of assessments of Space and Furnishings, Listening and Talking, Activities, and Program Structure. The majority of FCC homes met the Good benchmark on listening and talking with children (64%), and almost half of homes (44%) met the

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Good benchmark on space and furnishings; however, 24% of homes were rated inadequate on space and furnishings. Another problem area on the Curriculum Index is activities; only 29% met the Good benchmark, and 33% of homes were rated as Inadequate.

**Listening and Talking.** The Listening and Talking subscale assesses the informal use of language, support of children's use of language, and the presence and use of infant/toddler books; 64% of family child care homes met the Good benchmark on Listening and Talking. In 73% of Boston family child care homes, providers talked to children frequently throughout the day in ways that supported children's understanding of language, and in 58% of homes, providers helped children learn to use language, through their responses to children's attempts to communicate. In 47% of homes, providers offered a wide selection of age-appropriate books.

**Space and Furnishings.** The Space and Furnishings subscale assesses the availability of well-designed indoor space, the room arrangement, and appropriate furnishings and displays, such as colorful pictures and mobiles. Most family child care homes (88%) have enough indoor space, in good repair and well-maintained, with adequate lighting, ventilation, temperature control and sound-absorbing materials. More than one-third (40%) of family child care homes had ample indoor space for children, adults and furnishings, so that furnishings, such as high chairs, baby swings and cribs, did not crowd the home, and children had a spacious open area to play.

**Activities.** Young children learn about the natural, material and social world through direct exploration. Almost one-third (29%) of family child care homes met the Good benchmark on Activities. However, one-third (33%) of homes scored in the Inadequate range. These programs offered children little variety in materials and had a limited amount of activities available. In particular, children in the majority of family child care homes lacked access to art materials (69% rated inadequate), sand and water play (50% rated inadequate), and active physical play (89% rated inadequate).

In addition, 63% of family child care homes were rated Inadequate on the use of TV, video, and/or computer, because they did not limit materials to those considered "good for children" (such as educational stories, music, dance or exercise or computer games and videos that promote learning), they did not provide a variety of alternative activities at the same time that media were available, and/or were not actively involved with the children in the use of media.

Finally, 89% of family child homes were rated Inadequate on active physical play, because they did not provide at least one hour a day of active physical play in some uncrowded space (outdoors or indoors), or because the space was not safe or did not provide age-appropriate materials or equipment in good repair.

**Program Structure.** The Program Structure scale assesses the appropriateness of the schedule, the availability of free play, the balance of group and individual activities, and of indoor and outdoor activities, and the provisions for children with disabilities. Almost half of homes (40%) offered a schedule that was flexible and individualized to meet the needs of most of the children, with a variety of play activities, 52% offered free play daily for much of the day, with ample and varied toys, materials and equipment. However, 40% of homes were rated Inadequate on the daily schedule, because the schedule did not meet the needs of young children, including a balance between structure and flexibility, with adequate supervision.





## Caregiving Index

The Caregiving Index rates the caregiver's relationship with the child in terms of overall positive relationship, punitiveness, detachment and permissiveness, and describes how teachers/providers interact with the children, how warm they are to the children, the amount and types of interactions that occur, and how sensitive they are to children's needs. Most of the family child care providers (87%) met the Good benchmark on the Caregiving Index; these providers were rated as "Never or rarely critical of the children;" "Usually or consistently listen attentively to the children;" "Usually or consistently seem to enjoy the children;" "Usually or consistently supervise the children appropriately;" and "Usually or consistently talk to children on a level they can understand."

## FCCERS Health and Safety Index

The FCCERS Health and Safety Index provide a comprehensive assessment of health and safety practices during meals, naps, and diapering/toileting, as well as health and safety policies that are consistent with NAFCC standards. None of the family child care homes met the Good benchmark on the Health Index, and only 13% met the Adequate benchmark.

Programs met many of the recommended health practices, such as providing meals and snacks on an age-appropriate schedule, when children are hungry (89%), and serving food that meets nutritional guidelines and is age-appropriate (e.g., is not a choking hazard) (82%), appropriate nap or rest times (89%). More than three-quarters (84%) of homes met the healthful provisions for nap/rest times (cribs/mats not crowded; clean bedding for each child).

The NAEYC Standards require routine cleaning and sanitizing of tables and food preparation areas, clean bedding for each child for naps, and hand-washing by children and adults after toileting, before meals or snacks, after eating finger foods. The NAFCC *Quality Standards* outlines specific procedures for providers during personal care routines to protect the health of young children, such as sanitary diaper changing and toileting routines, naptime and mealtime routines, and hand washing to reduce the spread of germs. Only about one-quarter (29%) of family child care homes were rated Inadequate on general health practices; this is a significant improvement over BQI 2010. In the majority of homes (89%), providers usually followed practices that would cut down on the spread of germs, such as wiping runny noses, handwashing after exposure to germs (outside of meal times and diaper/toileting times), cleaning toys appropriately.

However, providers did not meet standards in several other areas, which led to a rating of Inadequate on the FCCERS Health and Safety Index. Hand washing after diaper changing was done either inconsistently or at inappropriate times to reduce the spread of contamination in 80% of homes. Hand washing and sanitizing of meal surfaces at meal time was also inconsistent, with many providers (71%) failing to wash their hands while preparing meals and bottles, failing to sanitize tables before meals or inconsistently washing children's hands before and after meals. In most homes (95%), sanitary conditions of the diapering/toileting area were not usually maintained (potty chairs and diapering surfaces sanitized after each use, diapers disposed of properly).



The safety practices item covers major safety hazards, supervision, and other safety practices. Most of the family child care homes (91%) were rated as Inadequate on safety practices. While most homes (80%) met the Good benchmark on supervision, almost every home (91%) had four or more hazards outdoors. The most common outdoor hazards were unfenced yards, or yards that were not well-kept, and walks on busy city streets to public playgrounds. One-third of homes had four or more hazards indoors. The most common indoor hazards were infants sleeping on adult beds, cleaning supplies within reach, tripping hazards or unsafe stairs, and choking hazards from small toys or toys hung over cribs within reach of young children. All of these problems can be addressed by the programs through provider training.

## Factors Related to the Quality of Programs

Given the variation in quality among community programs, can we identify factors that are related to quality? Research on program quality and children’s school readiness has identified some factors that are important, including accreditation, level of education of teachers and providers, and the ratio of children to educators.<sup>57</sup> To answer this question, we conducted a series of analyses to examine the connections between program quality and these factors.

### *Preschool Classrooms*

About half (52%) of Boston centers have been accredited by NAEYC. In the BQI preschool sample, 53% of centers are accredited. In observed preschool classrooms, the average ratio of children to educators was 5.84 children per educator, ranging from 1.94 children per educator to 11 children per educator during the observation. In preschool classrooms, the educator with the most education had completed a bachelor’s degree or more in 62% of classrooms.

**Table 3. Regression Results for Preschool Classrooms** (standardized parameter estimates)

	Curriculum Index	Instructional Support	Literacy Index	Emotional Support	Health & Safety Index
NAEYC accreditation	0.01	0.01	-0.14	0.01	-0.04
Teacher has BA or more	0.40 **	0.29 *	0.25 *	0.36 *	-0.06
Ratio of students to educators	-0.14	-0.37 *	-0.14	-0.29 *	-0.23
N	45	45	45	45	45
R <sup>2</sup>	0.197 *	0.261 **	0.127	0.248 **	0.052

+  $p < .10$ ; \*  $p < .05$ , \*\*  $p < .01$ ; \*\*\*  $p < .001$

Table 3 summarizes the results of regression analyses of the relation between NAEYC accreditation, teacher education and ratios, and the quality indicators. Among preschool classrooms, classrooms with teachers with a BA or more were rated as higher quality on the Curriculum Index, the Instructional Support Index, the Literacy Index and the CLASS Emotional Support Index. Classrooms with fewer students per teacher scored higher on the Instructional Support and Emotional Support Indices.

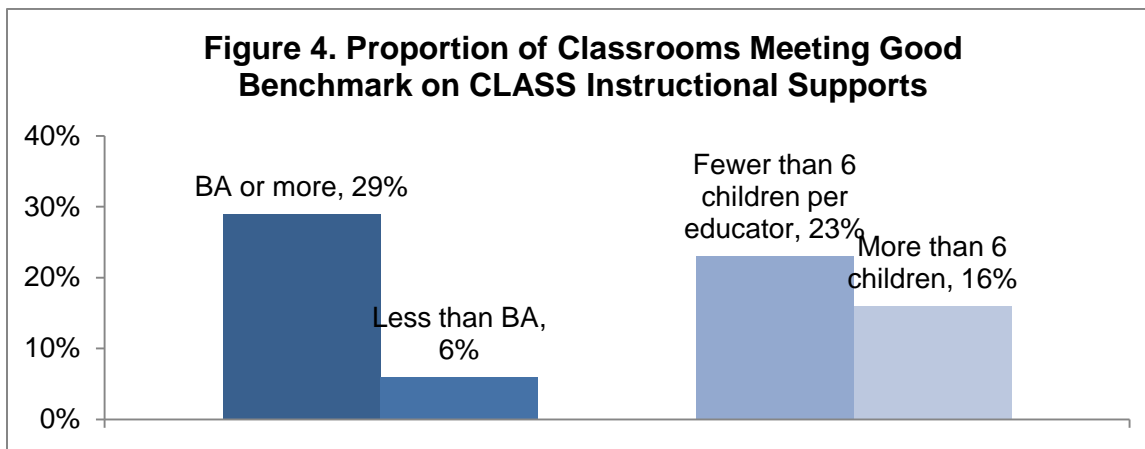
NAEYC accreditation was not a predictor of higher scores on quality measures, after controlling





for teacher education and for ratio. As in BQI 2010, we found that programs that were not accredited were as likely as accredited programs to have teachers with BAs; given the importance of teachers' education to the quality of the program, it is not surprising that NAEYC accreditation did not add to the quality of the programs on most indices. However, the research is clear that NAEYC accreditation is important because it supports quality improvement efforts within programs, and is associated with school readiness, and should continue to be a part of a comprehensive strategy to improve program quality for all children.

Figure 4 illustrates the differences in quality associated with teacher education and ratio of children per educator in the classroom. Classrooms with a teacher with a BA were 4.8 times more likely to meet the Good benchmark on the CLASS Instructional Supports Index than were classrooms without a teacher with a BA; classrooms with fewer than six children per educator were 1.4 times more likely to meet the Good benchmark than were classrooms with more children per educator.



## ***Infant and Toddler Classrooms***

About half (53%) of centers in the BQI infant and toddler sample are accredited. Among the 45 infant and toddler classrooms we observed, the average ratio of children to educators was 2.92 children per educator, ranging from 1.5 children per educator to 4.5 children per educator during the observation. Educators in infant and toddler classrooms were less likely to hold a BA than were educators in preschool classrooms. In observed infant and toddler classrooms, 40% of the primary educators had completed a bachelor's degree or more. An additional 38% had completed an associate's degree and 9% held a CDA.

Table 4 summarizes the results of regression analyses of the relation between NAEYC accreditation, teacher education and ratios, and the quality indicators. Given that the proportion of educators with associate's degrees is almost as high as the proportion with bachelor's degrees, we included educators with associate's degrees in the analyses as well; the reference group (the education group not included in the model) is educators with some college.

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**Table 4. Regression Results for Infant and Toddler Classrooms**  
(standardized parameter estimates)

	Curriculum Index	Health & Safety Index	Caregiving Index
NAEYC accreditation	0.08	-0.06	0.27
Teacher has a BA or more	0.47 *	0.23	0.03
Teacher has an AA	0.37 *	0.02	-0.09
Ratio of students to educators	-0.25 +	-0.18	-0.20
N	45	45	45
R <sup>2</sup>	0.223 *	0.079	0.114

+  $p < .10$ ; \*  $p < .05$ , \*\*  $p < .01$ ; \*\*\*  $p < .001$

Among infant and toddler classrooms, classrooms with teachers with a BA or more or with an Associate's degree were rated as higher quality on the Curriculum Index. In addition, classrooms with fewer students per teacher scored higher on the Curriculum Index. NAEYC accreditation was not a predictor of higher scores, after controlling for teacher education and for ratio.

## Family Child Care Homes

In the BQI 2013, we found that 33% of providers held a CDA, only 5% had a bachelor's degree or more, 5% had an Associate's degree, and 10% had some college; almost half of the providers (46%) only had their high school diploma or GED. Therefore, we compared providers with a CDA or some college or more, versus providers with a high school diploma or equivalent. On the day of the observation, there were an average of 5.8 children present (ranging from 3 to 9 children present), with an average ratio of 3.9 children per educator, ranging from 1.33 to 7 children per adult. Table 5 summarizes the results of regression analyses of the relation between provider education and ratios, and the quality indicators. In separate analyses, we compared providers in systems with independent providers, and compared programs licensed as a Large Family Child Care (10 children, with a paid assistant) with others, providers with NAFCC accreditation and those without, and found no significant differences in quality ratings.

**Table 5. Regression Results for Family Child Care Homes**  
(standardized parameter estimates)

	Curriculum Index	Health & Safety Index	Caregiving Index
Some college education or a CDA	0.33 *	0.30 *	0.23
ratio	-0.39 **	-0.30 *	-0.21
N	40	40	40
R <sup>2</sup>	0.303 **	0.213 *	0.115

+  $p < .10$ ; \*  $p < .05$ , \*\*  $p < .01$ ; \*\*\*  $p < .001$

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Almost one-third of the variation ( $R^2 = 0.303$ ) in the quality of family child care homes, as measured by the FCCERS Curriculum Index, is explained by whether or not the provider has some college education or a CDA, and by the actual ratios of children to adults. Provider education, as well as ratio, were also significant predictors of family child care home scores on the Health and Safety Index; the analyses for the Caregiving Index were in the same direction, but did not reach statistical significance. These findings do not mean that it is sufficient for providers to have some college or a CDA to

ensure that children receive quality early care and education, only that having some college or a CDA is significantly associated with higher quality, relative to providers with only a high school diploma, and therefore an important first step in supporting quality family child care homes.

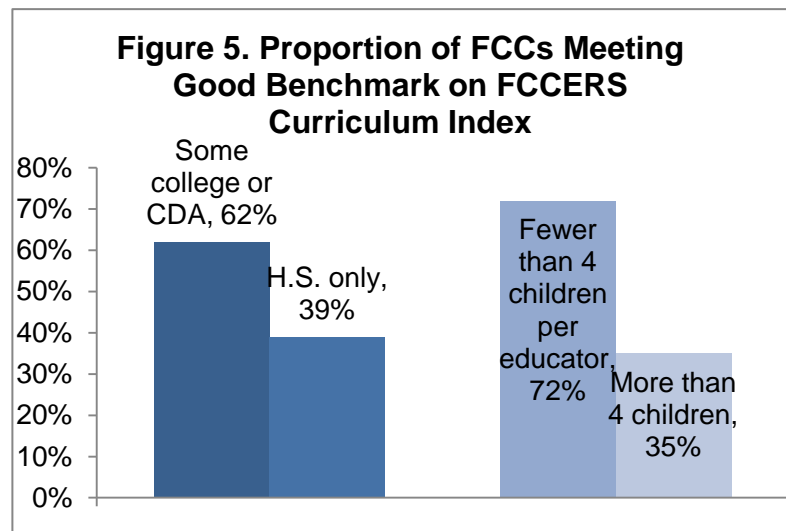


Figure 5 illustrates the differences in quality associated with teacher education and ratio of children per educator in the family child care home. Family child care homes with a provider with some college were 1.6 times more likely to meet the Good benchmark on the FCCERS Curriculum Index than were classrooms without a provider with some college; homes with fewer than four children per educator were 2.1 times more likely to meet the Good benchmark on the FCCERS Curriculum Index than were classrooms with more children per educator.



## The Family Survey

The family survey offered families an opportunity to rate and comment on their child’s current experiences and their reasons for choosing their child’s program. Three hundred ninety four (394) families returned surveys; 305 surveys from centers (from 29 preschool classrooms and 16 infant or toddler classrooms), and 90 returned surveys from 19 family child care homes.

### *Characteristics of Families*

As Table 6 shows, of the 394 families who participated in the survey, 42% of survey respondents are White, 28% are Latino, 23% are Black, 11% are Asian or Pacific Islander, and 2% are Native American or Alaska Native (percents total to 106% because respondents could select more than one category). A greater proportion of the respondents with infants or toddlers are White, and a greater proportion of respondents with children in family child care are Latino, than would be expected given the total sample demographics.

**Table 6. Family Characteristics**

Characteristics	Centers			Total
	Preschool Families	Infant & Toddler Families	FCC Families	
Number of surveys	233	72	90	394
Race/Ethnicity (Respondents could answer more than one)				
African American or Black	21%	16%	34%	23%
Asian or Pacific Islander	16%	10%	24%	11%
White or Caucasian	44%	60%	23%	42%
Latino, Hispanic or Spanish	25%	21%	41%	28%
Native American or Alaska Native	3%	3%	-	2%
Primary Language Spoken in Home				
English	71%	80%	73%	73%
Spanish				16%
Hmong				4%
Haitian				2%
Other				5%
Age of Child in Observed Program				
Infant (0 – 23 months)	2%	42%	20%	13%
Two-years old (24-35 months)	4%	43%	30%	17%
Three-years old (36-47 months)	30%	15%	27%	27%
Four-years old (48-59 months)	43%		17%	30%
Five- years old (60-71 months)	20%		6%	13%
Child has special needs	11%	2%	4%	8%

English is the most common language spoken at home (71% of families with a child in a preschool classroom, 80% of families with a child in an infant or toddler classroom, and 73% of families with a child in a family child care home); Spanish is the second most common

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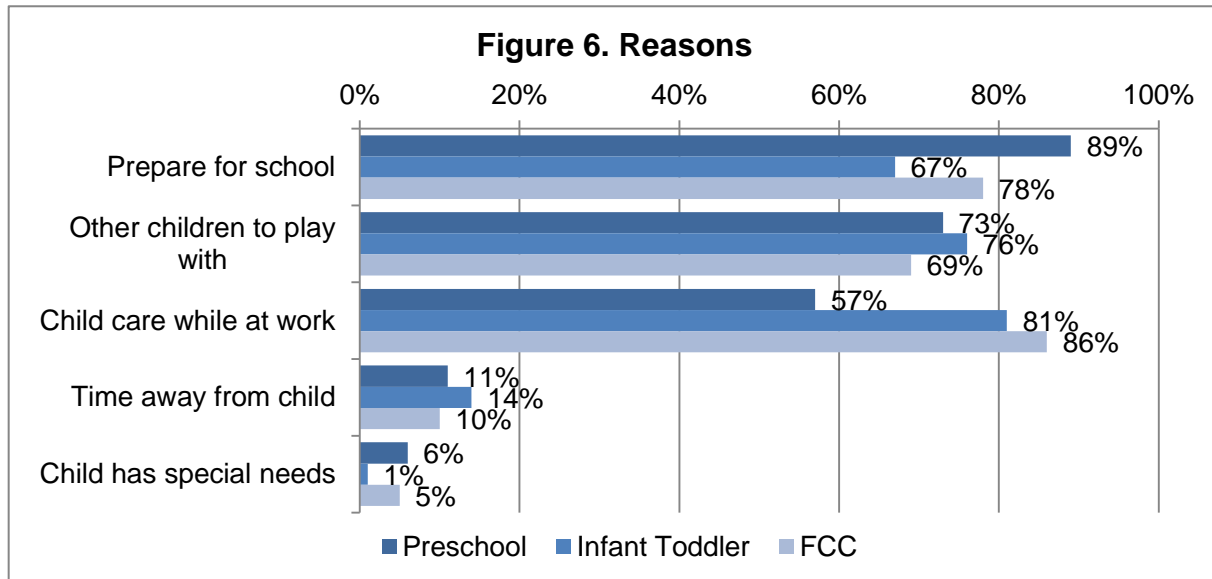


language, spoken by 16% of the sample.

Among the 233 families with children enrolled in the observed preschool classrooms, 30% of the children were three years old at the time of the survey, 43% were four years old, and 20% were five years old; the 6% of children under the age of three were either young preschoolers (preschool starts at 33 months), or in mixed-age classrooms. Among the 72 families with children in observed infant or toddler classrooms, 42% of the children were under the age of two, 43% were two-year olds, and 15% were three year olds. Among the 90 families with children in family child care homes, half of the children were under the age of three years (20% were under 2, and 30% were two-year olds), 27% were three years old at the time of the survey, and 23% were four or five years old. Eight percent (8%) of families reported that their child enrolled in the observed program has special needs. Children with special needs are more likely to be attending preschool in a center ( $\chi^2 = 7.24, p < .05$ ); 89% of families with a child with special needs report that their child's current program is the best place for their child.

## Reasons for Using Early Care and Education

Families were asked why they wanted a program for their child. Three-quarters of families wanted their child to have the opportunity to play with other children (see Figure 6). For families using family child care homes, or with children in infant or toddler classrooms, the major reason was their need for child care while they were at work. For families with children in preschool classrooms, the major reason was to prepare their child for school.



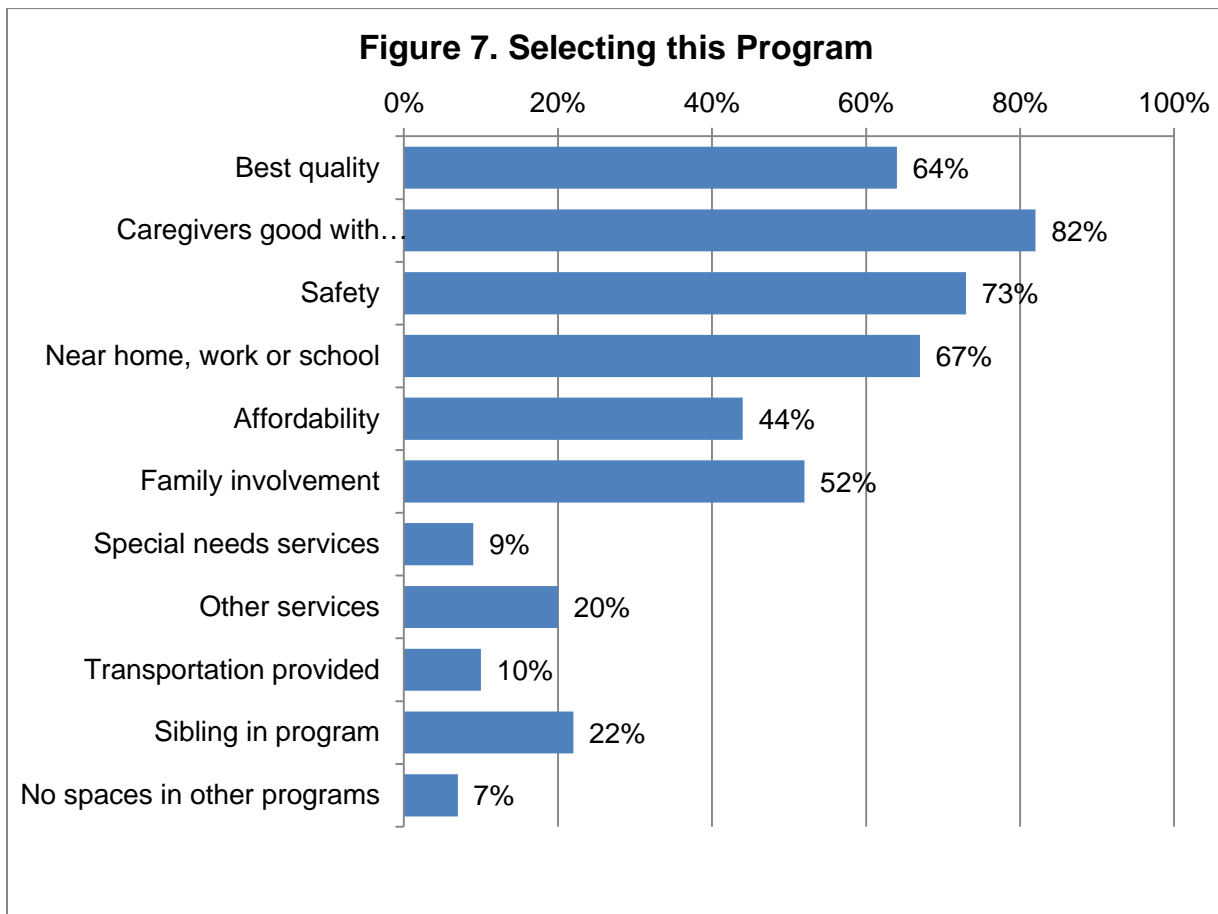
## Reasons for Using This Program

Families were asked what factors led them to use this program over other programs or providers. There were no differences by type of care; therefore, we present the combined results. Three of the top-rated reasons were related to program quality: the caregivers were good with the children (82% of families), their program was the best quality (64%), and the

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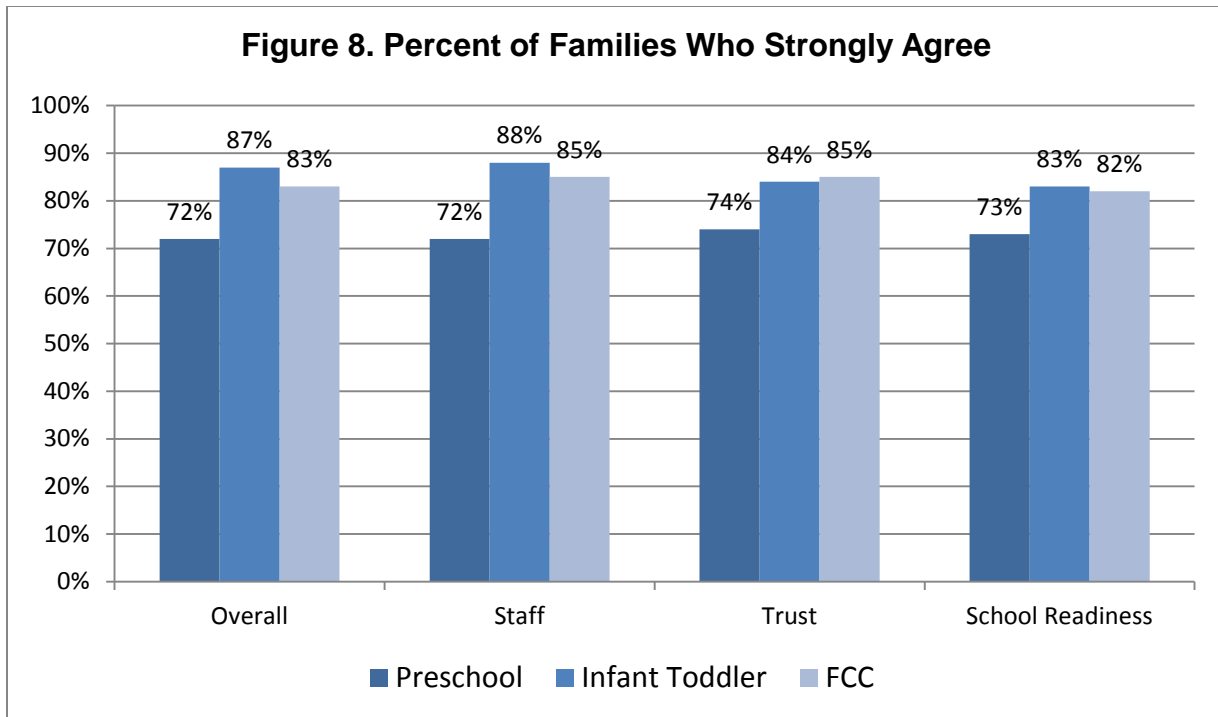


program was safe (73%). Location near home, work or school mattered to two-thirds of families (67%). Affordability was a factor for almost half of families (44%). Over half (52%) of families said the fact that the program involved families was one of their reasons for selecting this program. Finally, specific services were a factor for some families. Nine percent of families said special needs services were important; 20% said other services were important. Ten percent of families said that transportation was important.



## ***Family Ratings of Quality***

Families were asked to rate their child's program on four factors: overall quality (your child's program is a good place for your child to be), staff (the staff at your child's program do good things for your child), trustworthiness (you have confidence in the people at your child's program), and school readiness (your child's program is doing a good job of preparing children for the future). The majority of families strongly agreed with each of these statements. However, families with children in a preschool classroom were significantly less likely to strongly endorse their child's program.



Families also rated their child’s program on the *Scale for Measuring Quality of Child Care from a Parent’s Point of View*, a scale that asks how often each of 14 items is true about their child’s program. More than three-quarters of the families rated their child’s caregiver as always warm and affectionate and happy to see their child, and rated the program as interesting, with many materials and activities for their child, and as a place where their child feels safe and secure.

However, more than one-third of families reported that their child did not always receive individual attention, and that there were sometimes too many children in the program and that they felt the educators needed more help with the children.

We compared family ratings of preschool classrooms (Prek), infant and toddler classrooms (IT), and family child care homes (FCC) (see Table 7). Families were less likely to rate educators in preschool classrooms, compared to educators in infant and toddler classrooms or family child care homes, as always warm and affectionate, and less likely to report that their child always gets a lot of individual attention in preschool classrooms. Families were less likely to rate infant and toddler classrooms as always having a lot of creative activities going on, than they were to rate preschool classrooms or family child care homes as always having creative activities. Finally, families were more likely to rate family child care homes as having too many children, and to report that the caregiver needed more help with the children, than were families with children in centers.

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**Table 7. Family Ratings of Quality**

	Never, rarely, sometimes	Often	Always	Differences
<b>Positive Ratings</b>				
The caregiver is warm and affectionate toward my child	3%	14%	83%	Prek < IT, FCC
My caregiver is happy to see my child	3%	9%	88%	
There are lots of creative activities going on	4%	23%	73%	IT < Prek, FCC
My child gets a lot of individual attention	13%	30%	57%	Prek < IT, FCC
The caregiver provides activities that are just right for my child	4%	19%	77%	
My caregiver shows she/he knows a lot about children and their needs	3%	14%	84%	
My caregiver is open to new information and learning	6%	14%	81%	
The caregiver is skilled with children in a group	2%	10%	88%	
It's an interesting place for my child	4%	11%	85%	
There are plenty of toys, books, pictures and music for my child	2%	23%	74%	
My child feels safe and secure in care	1%	8%	91%	
<b>Negative Ratings</b>				
	Never	Rarely	Sometimes	Differences
The caregiver needs more help with the children	38%	26%	36%	FCC > Prek, IT
There are too many children being cared for at the same time	29%	22%	49%	FCC > Prek
The caregiver seems impatient with the children	14%	18%	68%	





## Appendix A: Methods

### Response Rates

We drew random samples of programs from the EEC lists of all licensed programs as of September 28, 2012. Of the 73 centers contacted for the preschool sample, 67 were currently licensed and providing services to at least 4 preschool-age children. Of those 67 programs, 67% (45 programs) agreed to participate. Of the 74 centers contacted for the infant toddler sample, 70 were currently licensed and providing services to at least 4 infant or toddler-age children. Of those 70 programs, 61% (45 programs) agreed to participate. Of the 100 family child care homes contacted for the BQI, 73 were currently providing services to at least 2 children. Of those 73 family child care homes, 62% (45 FCCs) agreed to participate.

### Early Childhood Environment Rating Scale-Revised (ECERS-R)

The ECERS<sup>58</sup> has been widely used for a number of years in the assessment of early childhood education environments. This 37-item scale is a rating of the resources available in an early childhood program, the teachers' use of these resources, and the teachers' interactions with the children. It is comprised of seven sub-scales that include Space & Furnishings, Personal Care Routines, Language-Reasoning, Activities, Interaction, Program Structure and Parents & Staff. Each scale consists of multiple items that must be passed to receive a given score. Each scale is scored on a seven-point scale, with benchmarks established for 1 = "Inadequate", 3 = "Minimal", 5 = "Good", and 7 = "Excellent". Programs that pass some of the items that are part of the benchmark for a "3", but not all of them, are scored a "2" on that scale. Similarly, programs that fall between "Minimal" and "Good" are scored a "4", and programs that fall between "Good" and "Excellent" are scored a "6".

*ECERS Curriculum and ECERS Health & Safety Indices.* For this report, the ECERS sub-scales were grouped into two overall measures, based on exploratory factor analysis. The ECERS Curriculum Index includes measures of the availability of resources as well as the teacher's behavior. ECERS Curriculum is an average of the subscale scores for Space & Furnishings, Language-Reasoning, Program Structure and Activities, as well as the Interaction scale. The ECERS Health & Safety Index is an average of the health items from the ECERS Personal Care Routines scale (meals/snacks, naps, toileting, health and safety practices).

*Benchmarks.* The findings on the ECERS Curriculum and ECERS Health & Safety Indices are reported in terms of benchmarks. In this report, classrooms are said to meet the Inadequate benchmark if they score below a "3" on an ECERS Index, that is, the classrooms were judged to be inadequate on one or more of the ECERS components. Classrooms that meet the Adequate benchmark have scored between a 3 and a 4.5, indicating classrooms that meet or exceed minimal standards on one or more of the ECERS components. Classrooms that meet the Good benchmark on the ECERS Curriculum Index have earned an average score of 4.5 or higher on the ECERS domains, indicating classrooms that provide a curriculum that meets professional standards for children's growth and development. Classrooms that meet the Good benchmark on the Health & Safety Index have earned an average score of 4.5 or higher on the ECERS items, indicating classrooms that meet professional standards for protecting children's health and safety.



## The Infant/Toddler Environment Rating Scale-Revised (ITERS-R)

The ITERS-R<sup>59</sup> is a 35-item scale designed to be used to assess center-based infant and toddler care, and is similar to the ECERS in format. The ITERS-R is organized into seven scales: Space and Furnishings, Personal Care Routines, Listening and Talking, Activities, Interactions, Program Structure, and Parents and Staff.

*ITERS Curriculum and Health and Safety Indices.* For this report, the ITERS-R sub-scales were grouped into four indices. The ITERS Curriculum Index includes measures of the availability of resources as well as the teacher's behavior. ITERS Curriculum is an average of the subscale scores for Space & Furnishings, Listening & Talking, Program Structure and Activities, as well as the Interactions scale. The *Health and Safety Index* includes items addressing general health and safety practices, as well as practices specific to meals and snacks, diapering and toileting, and other areas of personal care.

*Benchmarks.* The findings on the ITERS Indices are reported using the same benchmarks as the ECERS indices.

## The Family Child Care Environment Rating Scale-Revised (FCCERS-R)

The FCCERS-R,<sup>60</sup> formerly known as the Family Day Care Rating Scale (FDCRS, 1989), was revised in 2007, based on current research, a content comparison of the original FDCRS with other assessments designed for similar age groups and settings, and additional tools describing family child care quality, and feedback from FDCRS users.

The FCCERS-R maintains basic similarities in format and content with the FDCRS but several notable changes were made to update the scale. The name was changed to the more current term of family child care, as opposed to family day care. The notes for clarification were expanded to improve reliability and items were rewritten to be more culturally sensitive as well as to meet the needs of children up to the age of 12. Additional changes include rewriting the items pertaining to language and talking, adding math/number and science items, rewriting and restructuring items pertaining to interactions between the provider and children and among children, adding a program structures subscale to reflect daily schedules and routines. Changes were also made to the content of individual items.

The FCCERS-R is a 38-item scale designed to be used to assess family child care homes, and is similar to the ECERS and ITERS in format. The FCCERS-R is organized into seven subscales: Space and Furnishings, Personal Care Routines, Listening and Talking, Activities, Interaction, Program Structure, and Parents and Provider. Since many family child care homes enroll children of multiple ages, the scale assesses programs serving children from birth through school-agers, up to 12 years of age, to determine the quality of care provided to each child's health and safety, cognitive and social emotional needs.

*FCCERS Curriculum and Health and Safety Indices.* For this report, the FCCERS-R sub-scales were grouped into four indices. The FCCERS Curriculum Index includes measures of the



availability of resources as well as the teacher's behavior. FCCERS Curriculum is an average of the subscale scores for Space & Furnishings, Listening & Talking, Program Structure and Activities, as well as the Interaction scale. The *Health and Safety Index* includes items addressing general health and safety practices, as well as practices specific to meals and snacks, diapering and toileting, and other areas of personal care.

*Benchmarks.* The findings on the FCCERS Indices are reported using the same benchmarks as the ECERS and ITERS indices.

## The Classroom Assessment Scoring System (CLASS)

The CLASS<sup>61</sup> is an observational instrument developed to assess classroom quality in preschool through third grade classrooms. The CLASS scores are based solely on *interactions* between teachers and children. The physical environment, including the quantities of materials, are not considered in scoring. The CLASS looks specifically at the emotional and instructional tone of the classroom using ten dimensions – Positive Climate (reflects enthusiasm, enjoyment and respect between teachers and children); Negative Climate (degree to which the classroom has a negative emotional tone as indicated by anger or harshness); Teacher Sensitivity (the degree to which teachers offer support and comfort to children); Regard for the Student Perspective (the degree to which teachers' interactions and classroom activities consider students' interests, motivations, and points of view); Behavior Management (considers teachers' abilities to prevent and redirect negative behavior); Productivity (examines teachers' abilities to use instructional time and routines as learning opportunities); Concept Development (explores the strategies used to promote reasoning skills and creativity through problem-solving and classroom instruction); Instructional Learning Format (extent to which available activities, presentations, groupings and range of materials encourages children's engagement); Language Modeling (the quality and amount of teacher's use of language-stimulation and language-facilitation techniques) and Quality Of Feedback (focuses on the quality of verbal feedback offered to children regarding their interactions, comment and ideas).

*CLASS Emotional and Social Support and Instructional Support Indices.* Based on the guidelines of the developers of the CLASS, we created two indices: Emotional and Social Support and Instructional Support. CLASS dimensions included in the Emotional and Social Support Index are Positive Climate, Negative Climate, Teacher Sensitivity, Regard For The Student Perspective And Behavior Management. CLASS dimensions included in the Instructional Support Index are Productivity, Instructional Learning Formats, Concept Development, Quality Of Feedback And Language Modeling. While newer versions of the CLASS employ three dimensions (with a separate dimension for Classroom Management), the BQI 2013 continues to use the two indices, so that results may be compared with previous BQIs. The Student Engagement dimension is considered to be a student outcome measure.<sup>62</sup>

*Benchmarks.* The findings on the CLASS Emotional and Social Support and Instructional Support Indices are also reported in benchmarks. In this report, classrooms are said to meet the Inadequate benchmark on the CLASS composites if they score below a "3" on a CLASS Index, that is, there are few, if any, indicators in the classroom of a positive emotional climate or positive instructional supports. Classrooms that meet the Adequate benchmark have scored between a 3 and a 5, indicating there are some indicators of a positive emotional climate or



positive instructional supports. Classrooms that meet the Good benchmark have earned an average score of 5 or higher on the CLASS, indicating that there are many indicators of a positive emotional climate or positive instructional supports.

In the best classrooms, teachers consistently and effectively use multiple methods, materials and modalities to promote children's learning. Teachers focus children's attention on the process of learning rather than emphasizing getting the right answer. Activities focus on developing concepts and teachers use strategies to encourage analysis, reasoning, sequencing and problem solving. Teachers consistently connect concepts to the real world and classroom activities. Teachers also promote children's prediction, experimentation and brainstorming. Teachers frequently engage in feedback loops and conversations with children; praise offers specific information and hints for students struggling with an answer. Teachers have many extended conversations with children, asking many open-ended questions and using rich language with children. Teachers repeat and extend children's responses and encourage children to have extended conversations with one another.

## ***Early Language and Literacy Classroom Observation (ELLCO)***

The ELLCO builds on language and literacy research in the field to describe the extent to which classrooms provide optimal supports for children's language and literacy development. The ELLCO pre-k observation includes 19 independent dimensions of literacy practice that form 2 subscales: General Classroom Environment and Language and Literacy. The General Classroom Environment subscale includes classroom structure and general curriculum approaches.

We created a *Literacy Index* of the literacy environment in preschool classrooms, using the ELLCO subscale, *Language and Literacy*. The Language and Literacy subscale consists of 12 items that assess classroom practices on a scale from 1 = Deficient (minimal evidence), 3 = Basic (some evidence of meeting the standards) and 5 = Exemplary (strong evidence of meeting the standards). For this report, classrooms are rated as Inadequate on the *Literacy Index* if they score below a 2.5, indicating few, if any, indicators of basic language and literacy supports. Classrooms that meet the Adequate benchmark scored lower than a 3.5, indicating that the classroom met basic standards, and, on some indicators, exceeded basic standards. Classrooms that meet the Good benchmark scored at least a 3.5, indicating that there are multiple indicators that exceed the basic standards.

## **Global Caregiving Rating Scale**

*The Global Caregiving Rating Scale*<sup>63</sup> rates the caregiver's relationship with the child in terms of overall positive relationship, punitiveness, detachment and permissiveness. The scale consists of 26 items, rated on a scale from 1=never meets the standard to 4=consistently meets the standard. Almost half of the teachers (44%) in infant/toddler classrooms usually or consistently met the standards on the Global Caregiving Rating Scale (see Figure 4); these providers were rated as "Never or rarely critical of the children;" "Usually or consistently listen attentively to the children;" "Usually or consistently seem to enjoy the children;" "Usually or consistently supervise the children appropriately;" and "Usually or consistently talk to children on a level they can understand."



For infant and toddler classrooms in centers, and for family child care homes, we created a Caregiving Index, calculated as the average of the four subscales on the *Global Caregiving Rating Scale* – positive relationships, permissiveness, punitiveness and detachment (the last two reverse-scored). The *Global Caregiving Rating Scale* describes how teachers/providers interact with the children, how warm they are to the children, the amount and types of interactions that occur, and how sensitive they are to children's needs.

## Family Quality Rating Scale

The *Scale for Measuring Quality of Child Care from a Parent's Point of View* was developed by Portland State University and the ACF-funded Oregon Child Care Research Partnership.<sup>64</sup> This scale measures multiple aspects of quality including: provider warmth and interest in the child, rich activities and environment, skilled caregiver, talk and share information, caregiver accepting and supportive, child feels safe and secure, child gets along socially, and high risk care. The measure is reliable with alpha coefficients of internal consistency of .93 for the total scale, and both face validity and predictive validity are reported by the developers. Each item was rated from 0 (never) to 4 (always); higher scores indicate greater quality. Cronbach's alpha for this scale in the BQI 2013 was .86.

We compared the average family quality ratings in each classroom or family child care home with the ratings by the research team observers. For the 29 preschool classrooms with family ratings, we found that family ratings were significantly correlated with the ECERS Curriculum Index ( $r=0.33$ ,  $p < .10$ ), the CLASS Emotional and Social Support Index ( $r=0.32$ ,  $p < .10$ ), the CLASS Instructional Supports Index ( $r=0.37$ ,  $p < .05$ ) and the ELLCO Literacy Index ( $r=0.41$ ,  $p < .05$ ). For the 15 infant and toddler classrooms, the associations were smaller ( $r=0.18$  for the ITERS Curriculum Index) and not statistically significant. However, for the family child care homes, the associations were of the same magnitude as for the preschool classrooms ( $r=0.31$  for the FCCERS Curriculum Index and  $r=0.35$  for the Arnett Caregiving Index), but did not reach statistical significance because of the small sample size.





## References

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- <sup>1</sup> National Research Council and Institute of Medicine. (2000). *From Neurons to Neighborhoods: The Science of Early Childhood Development*. Shonkoff & Phillips, eds. Board of Children, Youth, and Families, Commission on Behavioral and Social Sciences and Education. Washington, D.C.: National Academy Press.
- <sup>2</sup> Barnett, W.S. (2002). Early childhood education. In A. Molnar (Ed.), *School reform proposals: The research evidence* (pp.1-26). Greenwich, CT: Information Age Publishing.
- <sup>3</sup> Bowman, B., Donovan, M., & Burns, M. (Eds.) (2001). *Eager to Learn: Educating our preschoolers*. Washington, DC: National Academy Press.
- <sup>4</sup> Love, M., Schochet, P., & Meckstroth, A. (1996). *Are they in any real danger: What research does – and doesn't -- tell us about child care quality and children's well being*. Princeton, NJ: Mathematica Policy Research.
- <sup>5</sup> Barnett, W.S., & Camilli, G. (2002). Compensatory preschool education, cognitive development and "race." In J.M. Fish (Ed.), *Race and intelligence: Separating science from myth* (pp. 369-406). Mahwah, NJ: Erlbaum.
- <sup>6</sup> National Research Council and Institute of Medicine. (2000). Op cit.
- <sup>7</sup> Closing the Achievement Gap. NGA Program for Best Practices. <<http://www.subnet.nga.org/educlear/achievement/>>
- <sup>8</sup> Department of Early Education and Care, and NAEYC. *Questions and Answers from NAEYC/EEC QRIS Webinar 30 April 2013*. <http://www.mass.gov/edu/docs/eec/2013/20130430-eec-naeyc-webinar-qa.pdf>
- <sup>9</sup> Department of Early Education and Care, and NAEYC. *Questions and Answers from NAEYC/EEC QRIS Webinar 30 April 2013*. Op cit.
- <sup>10</sup> Laughlin, L. (2013). *Who's Minding the Kids? Child Care Arrangements: Spring 2011*. P70-135. <http://www.census.gov/prod/2013pubs/p70-135.pdf>
- <sup>11</sup> Laughlin, L. (2013). Op cit.
- <sup>12</sup> Ehrle, J., G. Adams, and K. Tout. (2001). *Who's Caring for Our Youngest Children? Child Care Patterns of Infants and Toddlers*. The Urban Institute.
- <sup>13</sup> Harms, T., Clifford, R.M., & Cryer, D. (1998). *Early childhood environment rating scale - Revised edition (ECERS-R)*. New York: Teachers College Press.
- <sup>14</sup> Arnett, J. (1989). Caregivers in day-care centers: Does training matter? *Journal of Applied Developmental Psychology*, 10(4), 541-552.
- <sup>15</sup> Marshall, NL & Roberts, J. (2010). *Boston Public Schools Early Childhood Quality Study: 2010*. Wellesley Centers for Women, Wellesley College. Internal Report to the Department of Early Childhood, Boston Public Schools.
- <sup>16</sup> Cost, Quality, and Child Outcomes Study Team. (1995). *Cost, quality, and child outcomes in child care centers public report*. Denver: Economics Department, University of Colorado-Denver.; NICHD Early Child Care Research Network. (2000). Characteristics and Quality of Child Care for Toddlers and Preschoolers. *Applied Developmental Science*, 4(3), 116-135.
- <sup>17</sup> Helburn, SW & Howes, C. (1996). Child care cost and quality. *The Future of Children*, 6(2), 62-82; Kontos, S., Howes, C, Shinn, M & Galinsky, E, 1995. *Quality in family child care and relative care*. New York: Teachers College Press.
- <sup>18</sup> National Research Council (2000). Op cit.
- <sup>19</sup> National Research Council (2000). Op cit.; Marshall, NL, Creps, CL, Burstein, NR, Glantz, FB, Robeson, WW, Barnett, S, Schimmenti, J & Keefe, N. (2002). *Early Care and Education in*





- Massachusetts Public School Preschool Classrooms*. Wellesley Centers for Women and Abt Associates Inc.
- <sup>20</sup> Zellman, G.L. & Johansen, A. (1998). *Examining the implementation and outcomes of the military child care act of 1989*. RAND.  
[http://www.rand.org/pubs/monograph\\_reports/MR665.html](http://www.rand.org/pubs/monograph_reports/MR665.html); Karoly, L.A., Kilburn, M.R. & Cannon, J.S. 2006. *Early childhood interventions: Proven results, future promise*.  
[http://www.rand.org/content/dam/rand/pubs/monographs/2005/RAND\\_MG341.pdf](http://www.rand.org/content/dam/rand/pubs/monographs/2005/RAND_MG341.pdf)
- <sup>21</sup> National Research Council (2000, 2001). Op. cit.
- <sup>22</sup> Barnett, W.S. (2002). Early childhood education. In A. Molnar (Ed.), *School reform proposals: The research evidence* (pp.1-26). Greenwich, CT: Information Age Publishing.
- <sup>23</sup> Bowman, B., Donovan, M., & Burns, M. (Eds.). (2001). *Eager to Learn: Educating our preschoolers*. Washington, DC: National Academy Press.
- <sup>24</sup> Love, M., Schochet, P., & Meckstroth, A. (1996). Op cit.
- <sup>25</sup> Barnett, W.S., & Camilli, G. (2002). Op Cit.
- <sup>26</sup> National Research Council and Institute of Medicine. (2000). Op cit.
- <sup>27</sup> Closing the Achievement Gap. NGA Program for Best Practices. Op cit.
- <sup>28</sup> Department of Early Education and Care, and NAEYC. (2013). Op cit.
- <sup>29</sup> Department of Early Education and Care, and NAEYC. (2013). Op cit.
- <sup>30</sup> Emlen, A.C., Koren, P.E., & Schultze, K.H. (1999). *From a parent's point of view: Measuring the quality of child care*. Portland, OR: Regional Research Institute for Human Services, Portland State University. Retrieved from  
[http://www.rri.pdx.edu/emlen/documents/Final%20report\\_pdf.PDF](http://www.rri.pdx.edu/emlen/documents/Final%20report_pdf.PDF)
- <sup>31</sup> Harms, T., Clifford, R.M., & Cryer, D. (1998). Op cit.
- <sup>32</sup> Pianta, La Paro, & Hamre. (2004). Classroom Assessment Scoring System (CLASS).  
<[www.fpg.unc.edu/~ncedl/pages/measures\\_0103.cfm](http://www.fpg.unc.edu/~ncedl/pages/measures_0103.cfm)>
- <sup>33</sup> Marshall, NL, Dennehy, J, Starr, E. & Robeson, WW. (2005). *Preparing the Early Education and Care Workforce: The Capacity of Massachusetts' Institutions of Higher Education*. Wellesley Centers for Women.
- <sup>34</sup> Tabors, P., Roach, K., & Snow, C. (2001). Home language and literacy environment: Final results (pp. 111-138). In D. Dickinson, & P. Tabors (Eds.), *Beginning literacy with language: Young children learning at home and school*. Baltimore, MD: Paul H. Brookes Publishing.
- <sup>35</sup> Snow, C. E. (1984). Enhancing literacy development: Program and research perspectives. In D. K. Dickinson (Ed). *Bridges to Literacy: Children, families and schools* (267-272). Malden, MA: Blackwell.
- <sup>36</sup> National Research Council (1999). *Starting out right*. M.S. Burns, P. Griffin, & C.E. Snow (Eds.). Washington D.C.: National Academy Press.
- <sup>37</sup> Dunn, L., Beach, S. A., & Kontos, S. (2000). Supporting literacy in early childhood programs: A challenge for the future. In K. A. Roskos (Ed.). *Play and literacy in early childhood: Research from multiple perspectives* (91-105). Mahwah, NJ: Lawrence Erlbaum.
- <sup>38</sup> Bredekamp. S. (1987). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8*. Washington, DC: National Association for the Education of Young Children.
- <sup>39</sup> Bloom, L. (1998). Language acquisition in its developmental context. In D. Kuhn & R. S. Sielger (Eds.), *Handbook of psychology: Vol.2* (pp. 309-355). New York, Wiley.



- <sup>40</sup> Baumwell, L., Tamis-LeMonda, C. S. & Bornstein, M. A. (1997). Maternal verbal sensitivity and child language comprehension. *Infant Behavior and Development*, 20, 247-258
- <sup>41</sup> Tamis-LeMonda, C. S., Bornstein, M. H., & Baumwell, L. (1999). Maternal responsiveness and children's achievement of language milestones. Manuscript submitted for publication.
- <sup>42</sup> Barnes, L. B., Gutfreund, M., Satterly, D., & Wells, G. (1983). Characteristics of adult speech which predicts children's language development. *Journal of Child Language*, 20, 65-84.
- <sup>43</sup> Klein, L.G. (2002). Positive social-emotional development creates strong foundation for school achievement. *News and Issues*, 12 (3), 7-8.
- <sup>44</sup> Bruner, J. (1983). *Child Talk*. New York: Norton.
- <sup>45</sup> Espinosa, L.M. (1995). Hispanic parent involvement in early childhood programs. *ERIC Digest, Clearinghouse on elementary and early childhood education, EDO-PS-95-3*, May.
- <sup>46</sup> Pianta, R.C. & LaParo, K. (2003). Improving early school success. *Educational Leadership*, 60 (7), 24-29.
- <sup>47</sup> Howes, C., Phillipsen, L., & Peisner-Feinberg, C. (2000). The consistency and predictability of teacher-child relationships during the transition to kindergarten. *Journal of School Psychology*, 38(2), 113-132.
- <sup>48</sup> Bradley, R.H., Caldwell, B.M., Rock, S.L., Ramey, C.T., Barnard, K.E., Gray, C., et.al. (1989). Home environment and cognitive development in the first three years: A collaborative study involving six sites and three ethnic groups in North America. *Developmental Psychology*, 25, 217-235.
- <sup>49</sup> Howes, C., & Hamilton, C.E. (1992). Children's relationships with caregivers: Mother and child care teachers. *Child Development*, 63, 859-866; Howes, C., & Hamilton, C.E. (1993). The changing experiences of child care: Changes in teachers and in teacher-child relationships and children's social competence with peers. *Early Childhood Research Quarterly*, 8, 15-32.
- <sup>50</sup> Howes, C., Matheson, C.C., & Hamilton, C.E. (1992). Maternal, teachers and child care correlates of children's relationships with peers. *Child Development*, 63, 449-460.
- <sup>51</sup> Thompson, R.A. (2002). The roots of school readiness in social and emotional development. *Set for Success: Building a Strong Foundation for School Readiness Based on the Social Emotional Development of Young Children*. Vol. 1. Kansas City, MO: Kauffman Foundation. Pp. 8-29.
- <sup>52</sup> Laughlin, L. (2013). *Who's Minding the Kids? Child Care Arrangements: Spring 2011*. P70-135. <http://www.census.gov/prod/2013pubs/p70-135.pdf>
- <sup>53</sup> Laughlin, L. (2013). Op cit.
- <sup>54</sup> Ehrle, J., G. Adams, and K. Tout. (2001). *Who's Caring for Our Youngest Children? Child Care Patterns of Infants and Toddlers*. The Urban Institute.
- <sup>55</sup> Helburn, SW & Howes, C, (1996). Child care cost and quality. *The Future of Children*, 6(2), 62-82; Kontos, S., Howes, C, Shinn, M. & Galinsky, E. (1995). *Quality in family child care and relative care*. New York: Teachers College Press.
- <sup>56</sup> Morrissey, TW. (2007). *Family child care in the United States*. Reviews of Research series. Child Care & Early Education. Research Connections. [www.researchconnections.org](http://www.researchconnections.org).
- <sup>57</sup> National Research Council (2000, 2001). Op. cit.; Zellman, G.L. & Johansen, A. (1998). Op cit.; Karoly, L.A., Kilburn, M.R. & Cannon, J.S. (2006). Op cit.
- <sup>58</sup> Harms, T., Clifford, R.M., & Cryer, D. (1998). Op cit.



- 
- <sup>59</sup> Harms, T., Cryer, D., & Clifford, R. M. (2006). *Infant/Toddler Environment Rating Scale-Revised*. New York: Teachers College Press.
- <sup>60</sup> Harms, T., Cryer, D., & Clifford, R. M. (2007). *Family Child Care Environment Rating Scale-Revised*. New York: Teachers College Press.
- <sup>61</sup> Pianta, La Paro, & Hamre. (2004). Op cit.
- <sup>62</sup> Early, D., Barbarin, O., Bryant, D., Burchinal, M., Chang, F., Clifford, D., Crawford, G., et al. (2005). *Pre-kindergarten in eleven states: NCEDE's multi-state study of pre-kindergarten & study of state-wide early education programs (SWEEP)*. New York: Foundation for Child Development.
- <sup>63</sup> Arnett, J. (1989). Op cit.
- <sup>64</sup> Emlen, A.C., Koren, P.E., & Schultze, K.H. (1999). Op cit.