

**EXAMINING QUALITY IN A FAMILY CHILD  
CARE NETWORK:  
AN EVALUATION OF  
ALL OUR KIN**

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**October, 2015**

Suggested Citation: Porter, T. & Reiman, K. (2015). *Examining quality in a family child care network: An evaluation of All Our Kin*. Larchmont, NY: Early Care and Education Consulting.

## Acknowledgements

We gratefully acknowledge the All Our Kin family child care providers and the unaffiliated family child care providers in Connecticut who welcomed our observers into their homes and completed the survey that was essential for the research.

We are also grateful for the support of Jessica Sager and Janna Wagner, Co-Founders of All Our Kin. They were committed to the research from its inception, and were true partners in the study, participating in regular phone calls and meetings about every phase from the choice of the research design, selection of the study measures, and recruitment of the participants to the analysis of the data and the draft reports. We also want to acknowledge the contributions of Marjorie Rosenthal, Assistant Director, Robert Wood Johnson Foundation Clinical Scholars Program, Yale University School of Medicine and an All Our Kin Board member, who offered guidance throughout the project.

Juliet Bromer, Research Scientist at the Herr Research Center on Children and Social Policy at the Erikson Institute, offered valuable advice on the project design and data analysis as well as insightful comments on the draft report.

Other reviewers who made thoughtful comments and suggestions on the draft reports include Christina Nelson, Janmarie Pena, Erica Phillips, and Alison Wunder Stahl, All Our Kin staff, and All Our Kin Fellow Cindy Xue. Special thanks are due to Tamara Briner, All Our Kin's Yale Presidential Public Service Fellow, whose careful review of the drafts improved the report immeasurably.

We also want to acknowledge the individuals, who worked hard to complete the observations under sometimes challenging conditions including snow storms in January, 2015: Jenny Acevedo, Kristine Bourret, Isabel Osgood-Roach, and Cara Rambusch.

This research was funded by The Grossman Family Foundation. We thank them for their support and acknowledge that the findings and conclusions presented in this report are those of the authors alone, and do not necessarily reflect the opinions of the Foundation.

## Executive Summary

Home-based child care (regulated family child care and legally-exempt family, friend and neighbor care) is one of the most common child care arrangements for young children, especially infants and toddlers under age three (Laughlin, 2013). Recent Census data indicate that approximately 45% of all children under age five with working parents regularly spend time in these settings (Laughlin, 2013). Findings from the National Survey of Early Care and Education (NSECE), a nationally representative survey of the early care and education workforce, provide another perspective on the prevalence of home-based child care (NSECE, 2013). The number of home-based providers was almost quadruple the number of center-based teachers (NSECE, 2013).

The quality of home-based care is important because research indicates that children in high-quality care have better results on cognitive and language assessments than children in poor quality settings. High-quality care is especially important for children who are at high risk of not being ready for school—those in families with low incomes, those in households headed by a single parent, and those whose parents have low educational levels (Brooks-Gunn & Duncan, 1997). Yet, findings on the quality of family child care show mixed results, with some studies indicating that the care is poor or minimal and others that caregivers are responsive and nurturing to children and engaged with the children in their care.

This study focuses on the quality of care offered by family child care providers in All Our Kin (AOK), a nationally-recognized model for improving family child care quality. Established in 1999 in New Haven, Connecticut, AOK uses a high-touch model to support providers across a continuum that extends from family, friend and neighbor caregivers who seek to become licensed, and newly licensed providers who need assistance to establish their programs, to experienced family child care providers who want to enhance their education and professional development. The centerpiece of AOK's model is its family child care network, which offers a variety of activities including intensive consultation, monthly meetings, trainings, Child Development Associate (CDA) credential coursework and scholarships, and an annual conference.

Using a quasi-experimental design with 28 AOK network members and 20 family child care providers outside of AOK's service areas who had had no contact with AOK, the study sought to

examine two questions: (1) How does the quality of care that AOK family child care providers offer compare to the quality of care of family child care providers who are not affiliated with AOK?, and (2) What provider characteristics are associated with quality? Study methods consisted of a paper and pencil survey as well as observations with the Family Child Care Environment Rating Scale-Revised (FCCERS-R: Harms, Cryer, & Clifford, 2007) and the Parenting Interactions with Children Checklist of Observations Linked to Outcomes (PICCOLO: Roggman, Cook, Innocenti, Norman, & Christensen, 2013). The survey included questions about the demographic characteristics of the providers, the characteristics of their family child care programs, and their attitudes towards and beliefs about providing child care.

Study findings indicate that observed family child care quality was significantly higher on both the FCCERS-R and the PICCOLO for AOK family child care providers compared to family child care providers who were not affiliated with AOK. The mean FCCERS global quality score for AOK providers was 4.39, close to “good” (a score of 5), compared to a global mean of 2.86 (below 3, “minimal”) for non-AOK providers. In addition, a significantly higher proportion of AOK providers (64%) were rated at a global score of 4 or higher than non-AOK providers (5%). The proportion of AOK providers with scores 5 and over, in the “good” to “excellent” range, was also higher than that for non-AOK providers: 29% for the AOK providers compared to 5% for non-AOK providers. Mean PICCOLO total scores for AOK providers were 43.04 of a possible total of 58, compared to non-AOK providers’ mean scores of 33.05.

The study also found positive relationships between observed quality and provider intrinsic motivation, provider intention to stay in the field (“years planned to work”), and self-efficacy. In addition, it found that self-efficacy was positively related to motivation, intention to stay in the field, and social supports. Observed quality was also associated with education, but no statistically significant relationships were found between quality and specialized education in early childhood, a CDA or provider experience. Traditional beliefs and job demands were negatively associated with observed quality.

The findings suggest that the AOK network model’s emphasis on relational supports and specific components that focus on enhancing provider knowledge and practice have significant potential for improving the quality of care that family child care providers offer. Future research is

needed to identify the effectiveness of individual components—singly or in combination — on quality in general, and for providers at different stages of professional development, in particular. In addition, there is a need for research on the relationship between network quality, the quality of care provided by network participants, and outcomes for children. Answers to these questions can contribute to strengthening the AOK model as well as to the field’s understanding of how family child care networks like AOK represent effective strategies for improving quality for young children.

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## 1. Introduction

Home-based child care (regulated family child care or license-exempt family, friend or neighbor care) is one of the most common non-parental child care arrangements for young children in the United States (Laughlin, 2013). Recent Census data indicate that approximately 45% of all children under the age of five whose mothers are working spend some regular time<sup>1</sup> in these settings (Laughlin, 2013). Many of these children are very young—infants and toddlers (Laughlin, 2013). Data indicate that home-based care is more often used by families with low incomes and families of color than other families (Johnson, 2005; Layzer & Goodson, 2006).

Findings from the National Survey of Early Care and Education (NSECE), a nationally representative survey of the early care and education workforce and families who use child care, document the prevalence of home-based care as a child care arrangement for young children (National Survey of Early Care and Education, 2013). The NSECE groups home-based care into two broad categories: listed providers (those who are included in state or local licensing lists or child care resource and referral data bases, and most likely family child care providers) and unlisted providers (those who are not included in any kind of formal listing and most likely family, friend and neighbor caregivers who are legally exempt from regulation) (National Survey of Early Care and Education, 2013). Survey findings indicate that the number of home-based providers is almost quadruple the number of center-based providers: 3,788,000 compared to 995,000 (National Survey of Early Care and Education, 2013). The NSECE distinguishes home-based providers who receive payment for providing child care through subsidies or other sources like parental tuition and those who do not receive payment (National Survey of Early Care and Education, 2013). Approximately 27% of all home-based providers are paid to provide care (National Survey of Early Care and Education, 2013). Listed providers—primarily family child care providers—account for approximately 11% of the paid home-based providers (National Survey of Early Care and Education, 2013).

The NSECE findings support census data about the large proportion of very young children in these home-based settings: the vast majority of listed providers (80%) offer care to children age 5

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<sup>1</sup> The Census data use the term “regular” to refer to any amount of time in care on a consistent basis in a child care arrangement (Laughlin, 2013).

and younger (National Survey of Early Care and Education, 2013). The proportion of listed providers who provide care exclusively to infants and toddlers is slightly more than double that of those who care exclusively for preschoolers – 11% compared to 5% (National Survey of Early Care and Education, 2013).<sup>2</sup> Many listed providers offer care to school-age children as well (National Survey of Early Care and Education, 2013).<sup>3</sup>

Research shows that parents choose home-based child care for a variety of reasons (Porter, Paulsell, Del Grosso, Avellar, Hass, & Vuong, 2010a). Some families want a home setting for their very young children because they see care by a single provider with a small group of children as offering more opportunities for individual attention to their child. Other families choose home-based care because they see it as more flexible than center-based care, which may not offer care during non-traditional hours, including nights and weekends, to meet parents' work or school scheduling needs (Chaudry et al., 2011; Morrissey, 2007; National Survey of Early Care and Education, 2014; Susman-Stillman & Banghart, 2008). Still other families may choose home-based care because it is more affordable than center-based care (Chaudry et al., 2013; National Survey of Early Care and Education, 2014), or because it is located in their neighborhood and therefore more convenient than other options (Henly & Lyons, 2000).

### 1.1. The Quality of Family Child Care

Policy makers, researchers and practitioners have long been concerned about the quality of child care because research suggests high-quality child care is associated with positive outcomes for children (NICHD, 2000, 2005). A variety of studies have found that children in high-quality child care have better results on cognitive and language assessments compared to those in poor-quality child care (Clarke-Stewart, Vandell, Burchinal, O'Brien, & McCartney, 2002; Elicker, Clawson, Hong, Kim, Evangelou, & Kontos, 2005; Loeb, Fuller, Kagan, & Carrol, 2004). High-quality care is especially important for children who are at high risk of not being ready for school—those in families with low incomes, those in households headed by a single parent, and those whose parents have low educational levels (Brooks-Gunn & Duncan, 1997).

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<sup>2</sup> The smaller proportion of listed providers who serve infants and toddlers may be related to state regulations that limit the number of children under age three in family child care.

<sup>3</sup> The NSECE data do not currently report these findings, but other studies have found that school-age children represent a significant proportion of children in home-based care (Susman-Stillman & Banghart, 2008).

Research on child care quality in family child care is limited (Porter et al., 2010a). Only a relatively small number of studies have examined this issue (Porter et al., 2010a). Some have compared family child care quality with quality in centers and in family, friend and neighbor care (Coley, Li-Grining, & Chase-Lonsdale, 2001; Elicker et al., 2005; Fuller & Kagan, 2001; Loeb et al., 2004), and others have compared family child care quality to family, friend and neighbor care quality (Kontos, Howes, Shinn & Galinsky, 1995; Layzer, Goodson & Brown-Lyons, 2007; McCabe & Cochran, 2008). Still other studies have focused solely on quality in family child care (Bromer, van Haitsma, Daley, & Modigliani, 2009; Paulsell, Boller, Aikens, Kovac, & Del Grosso, 2008; Peisner-Feinberg, Bernier, Bryant, & Maxwell, 2000; Shivers, 2006).

The findings about quality from these studies are mixed. Using the Family Day Care Rating Scale (FDCRS: Harms & Clifford, 1989), a measure of the global quality of family child care, several studies have found that that average quality is inadequate (Coley et al., 2001; Elicker et al., 2005; Fuller et al., 2004; Kontos et al., 1995), and others have found that family child care quality, on average, is minimal to good (Paulsell et al., 2008; Shivers, 2006). Studies that have used other instruments such as the Quality of Early Childhood Settings Caregiver Rating Scale—Revised (QUEST-R: Goodson & Layzer, 2005), and the Caregiver Interaction Scale (CIS: Arnett, 1989) have found that family child care homes were safe, that providers were warm, responsive and nurturing, and that providers were engaged with the children in their care (Coley et al., 2001; Fuller & Kagan, 2000; Layzer et al., 2007; Peisner-Feinberg et al., 2000).

**Provider characteristics associated with quality.** Studies have found that several provider characteristics are associated with high observed global child care quality. These characteristics are generally grouped into two categories: professional characteristics that consist of the provider's qualifications, and personal characteristics that consist of the provider's beliefs, attitudes, and financial or emotional well-being. Research has found an association between observed global child care quality and provider professional characteristics such as educational levels (Burchinal, Howes, & Kontos, 2002; Elicker et al., 2005), specialized training in early childhood (Doherty, Forer, Lero, Goelman, & LaGrange, 2006; Morrissey, 2007; Weaver, 2002), or a Child Development Associate (CDA) credential (Norris, 2001; Peisner-Feinberg et al., 2000; Raikes, Raikes & Wilcox, 2005; Weaver, 2002).

Other research has found several provider personal characteristics that are associated with observed global quality (Forry et al., 2013). In part, researchers have sought to understand the relationship between these types of characteristics and quality because some findings suggest that provider personal characteristics can be positively affected by training and professional development (Ajzen & Fishbein, 2005; Espinosa, Mathews, Thornburg, & Ispa, 1999; Heisner & Lederberg, 2011; Todd & Deery-Schmitt, 1996). For example, studies have found that providers' motivation for providing family child care—their identification of family child care as their chosen occupation and their intention to stay in the field—is associated with global quality (Doherty et al., 2006; Kontos et al., 1995). Providers' participation in professional organizations and contacts with other providers (Forry et al., 2013; Raikes et al., 2005) and providers' beliefs about child rearing have both been linked to global quality as well (Cassidy et al., 1995; Clarke-Stewart et al., 2002; Forry et al., 2013; Marshall et al., 2003). Some studies have found an association between provider resources—particularly income—and quality (Forry et al., 2013).

Several studies have also examined the association between provider health and mental well-being and quality. Some studies have found that provider depressive symptoms are negatively associated with observed global quality (Weaver, 2002) and less sensitive caregiving (Hamre & Pianta, 2004), but others have found no associations between provider mental health and quality (Clarke-Stewart et al., 2002). One study found a negative association between quality and job demands such as working with challenging children and difficult parents which can, in turn, have an effect on providers' emotional well-being (Forry et al., 2013).

## **1.2. Strategies for Improving the Quality of Family Child Care**

A wide range of initiatives have been developed to address the issue of quality in family child care. Although research on the effectiveness of these efforts is limited, studies provide some insights into strategies that have the potential to improve quality in these settings (Paulsell et al., 2010; Porter et al., 2010a). A review of the literature on home-based child care (Porter et al., 2010a) and a scan of 96 initiatives that served home-based caregivers (Porter et al., 2010b) identified eight strategies for

supporting home-based child care.<sup>4</sup> The most commonly used were training through workshops and home-based technical assistance (coaching, consultation and home visiting).

**Training through workshops.** Initiatives that use training as a strategy to improve quality in family child care offer stand-alone workshops or a workshop series that ranges in duration and intensity (Paulsell et al., 2010; Porter et al., 2010a). Findings indicate that participation in training workshops can have a positive effect on family child care quality (Porter et al., 2010a). For example, one study found that providers who participated in workshops on a regular basis had higher observed quality than providers who had never attended a workshop or those who had only attended workshops intermittently (Norris, 2001). Participation in workshops has been linked to improved quality in other studies as well, although the initiatives examined included other activities such as lending libraries or CDA credential preparation, which makes it difficult to isolate the effects of workshops alone (Kansas Association for Child Care Quality, 2003; Peisner-Feinberg et al., 2000).

Porter et al. (2010a) also identified several studies of the relationship between participation in training workshops and specific aspects of provider practice. For example, an evaluation of a six-month training program that focused on working with young children found increases in provider responsiveness to children and reduced incidence of provider detachment from children (Howes, Galinsky, & Kontos, 1998). Another evaluation examined the effects of a video-based workshop series which aimed to promote positive social development among preschoolers in family child care. It found improvements in providers' behavior management, but these effects faded after six months (Rusby, Smolkowski, Marquez, & Taylor, 2008).

**Consultation, coaching, and home visiting.** Several studies point to the effectiveness of consultation and coaching—intensive individual support by a consultant with a provider—as a strategy for improving quality in family child care (Porter et al., 2010a). Findings from the Quality Interventions for Early Care and Education (QUINCE) evaluations indicate that coaching results in higher observed quality. The evaluation of the Partners for Inclusion (PFI) model, one of the QUINCE interventions, found improved scores on several aspects of global environmental

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<sup>4</sup> Strategies for supporting home-based child care include: home-based technical assistance, professional development through formal education, training through workshops, Play and Learn, peer support, grants to caregivers, materials and mailings, and reading vans ( Paulsell et al., 2010; Porter et al., 2010b).

quality—teaching and learning, provisions for learning, and literacy and numeracy (Bryant et al., 2009). These improvements were sustained six months after the intervention ended. The evaluation of the other QUINCE intervention, Right from Birth, which compared results from a workshop approach with those from intensive coaching combined with workshops, found significantly higher gains in observed quality among the cohort of providers who had received the intensive coaching (Ramey & Ramey, 2008). Like the PFI results, these gains were sustained after the intervention ended. Another evaluation examined the effects of participation in a combination of coursework and coaching with coursework alone (Neuman & Cunningham, 2009). It found higher quality language and literacy practices among family child care providers who participated in the coursework and coaching approach than those who only received coursework or those who did not receive any treatment (Neuman & Cunningham, 2009).

A few studies have examined the effects of home visiting on family child care quality (Porter et al., 2010a). Using a random control design, one study found that family child care providers who received regular bi-weekly visits from a home visitor who used the Parents as Teachers *Supporting Care Providers through Personal Visits* curriculum (Parents as Teachers, n.d.) combined with monthly network meetings for nine to twelve months had higher observed quality compared to providers who received no home visits (McCabe & Cochran, 2008). Another study found that participation in home visits with a focus on technical assistance had small, but significant, effects on global quality (Pearlmutter, Grayson, & Fernando, 2005).

**Family child care networks.** Family child care networks—organizations with staff that offer a variety of services to providers—represent another approach for improving quality in family child care. Network services can range from monthly networking and training meetings to home visits and supports for CDA attainment, peer support, and support for accreditation (Porter et al., 2010b).<sup>5</sup>

Research on the effectiveness of family child care networks is limited. Some studies have found that family child care provider affiliation with a network or a family child care provider

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<sup>5</sup> Examples include the Child Care Quality Improvement Program, which offers monthly network meetings and training; Acre Family Child Care, which offers home visits and supports for CDA attainment; the Provider Training and Activity Resource Center, which offers peer support; and Satellite Family Child Care, which offers support for accreditation (Porter et al., 2010b).

association was associated with higher observed quality (Doherty et al., 2006; Kontos et al., 1995), but these studies did not examine the specific components of network services that may have contributed to these results. One study compared family child care observed quality in networks with staff that had special training to work with family child care providers, family child care quality in networks with staff that had no special training, and family child care quality in provider associations that did not have any staff (Bromer et al., 2009). It found higher observed quality among providers in networks with specially-trained staff than in either of the other two groups (Bromer et al., 2009). In addition, the study found that specific kinds of network services—provider training at the network site, frequent home visits to help providers work with children and parents, communication between staff and providers through meetings and a warm line that providers could call for advice—were associated with higher quality (Bromer et al., 2009). Other services such as referrals to training offered by other organizations, provision of materials and equipment, business support, and peer mentoring were not associated with higher quality (Bromer et al., 2009).

A recent qualitative study of family child care providers' views on professional development suggests some of the perceived benefits of network participation from the family child care provider perspective (Lanigan, 2011). Providers reported that opportunities to socialize with network staff and other providers provided mutual support and understanding, which, in turn, increased their confidence in their capacity as family child care providers (Lanigan, 2011). Especially valued were the long-term relationships with network staff, who were viewed as non-judgmental and respectful.

## 2. **All Our Kin (AOK)**

Created in 1999, All Our Kin (AOK) is a nationally recognized model for improving quality in home-based child care (Porter et al., 2010b). Using a high-touch approach, it aims to support providers across a continuum that extends from family, friend and neighbor caregivers who seek to become licensed and newly licensed providers who need assistance to establish their programs, to experienced family child care providers who want to enhance their education and professional development. In 2014, AOK provided services to 405 caregivers in New Haven, Bridgeport, Stamford, and Norwalk and the surrounding areas. Of these caregivers, 235 were licensed at the time of the study. Approximately 70% of the children in care with AOK providers were eligible for subsidies through Connecticut's Care 4 Kids subsidy program (Waite, Carstensen, Coghlan,

Graziano, & Parr, 2011). In collaboration with the Connecticut Children’s Museum, AOK’s Family Child Care Tool Kit Licensing program, which provides home visits, materials and equipment, and support for completing requirements for state licensure, was also working with 103 individuals in New Haven, Stamford, Norwalk, Bridgeport, and adjoining communities.<sup>6</sup>

**Goals and Strategies.** AOK has three primary goals: (1) to increase the supply of high-quality, affordable child care options to enable parents to enter and remain in the workforce; (2) to help family child care providers attain economic self-sufficiency through their child care businesses; and (3) to improve young children’s positive outcomes by enhancing family child care providers’ knowledge, skills, and practice as early childhood educators.

The centerpiece of the AOK model is its Family Child Care Network through which licensed providers engage in educational mentorship, professional development, advocacy and leadership opportunities, and a network of relationships with other family child care providers. Network members can participate in a variety of activities that include intensive consultation, monthly meetings with opportunities for social networking and a workshop, trainings such as a 10-session business series and individual workshops, CDA credential coursework and preparation, and an annual professional development conference. In addition, Network members also have access to grants/zero-interest loans and a “warm line.”

AOK’s intensive consultation component offers individual support for providers. The seven educational consultants provide two to three hour intensive consultation visits on a weekly, biweekly, or monthly basis depending on the provider’s needs. Consultants work with a caseload of approximately 12 providers for one year, but this duration can extend beyond a year if the provider continues to express interest. The educational consultants have a college degree with specialization in early childhood as well as extensive experience working with children. AOK provides the educational consultants with regular in-service training of a variety of topics such as adult learning styles, using curricula, family support and child development, and supports their participation in professional conferences. Supervision of the consultants is provided through regular team meetings with the chief knowledge and learning officer as well as one-on-one biweekly reflective supervisory meetings.

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<sup>6</sup> An additional 67 unlicensed caregivers participated in AOK’s workshops and other trainings.

AOK's central office is in New Haven, where it initially began to offer services. In 2012 it established a satellite office in Bridgeport to expand its outreach to individuals who were interested in becoming licensed. In the following year, AOK staff in Bridgeport began to offer intensive consultation to providers. A second satellite office was opened in 2014 to serve Stamford and Norwalk.

## 2.1. Early Evaluations

AOK has conducted several studies to assess the effectiveness of its model. A 2007 study found that AOK had a significant impact on family child care supply, increasing the number of providers in New Haven even as the number of providers statewide in Connecticut declined (Holt, Wexler, & Farnam, 2007). A later study, conducted in 2011, found that AOK had a positive effect on the economic viability of its providers' family child care businesses and improved their educational levels (Waite et al., 2011). Six in ten providers reported increases of \$5000 in income in their first year after licensing, and close to half reported that the amount doubled in the following year (Waite et al., 2011). After becoming licensed, a significant proportion of the providers also increased their levels of education: 47% of the providers completed a CDA, and 11% completed an associate degree (Waite et al., 2011).

Other AOK research has focused on child care quality. In a 2013 qualitative study which used interviews, focus groups, and a telephone survey, AOK providers reported that they had gained a better understanding of child development and how to support children's cognitive, language, social-emotional and physical development (Weiser & Susman, 2013). Providers' views of themselves as professionals also improved. Many providers credited AOK for their interest in pursuing a CDA or an associate degree (Weiser & Susman, 2013).

Internal research suggests that AOK has improved the child care quality its network members offer. In 2008, AOK used the National Association for Family Child Care Accreditation Readiness Checklist to assess changes in providers' practice. It found marked improvements among the 20 providers observed by staff in pre-/post-test observations (AOK, 2009a). Another internal

study with 25 providers enrolled in AOK's CDA program found that a significant proportion of providers reported positive changes in practice between the pre- and post-tests (AOK, 2009b).

### 3. **The 2014-2015 Evaluation of Quality**

Fifteen years after its inception AOK recognized the need for additional evidence of its approach for improving quality in family child care. To address this need, it sought to conduct a formal external evaluation. The evaluation aimed to examine two primary questions:

- 1) How does the quality of care that AOK family child care providers offer compare to the quality of care offered by family child care providers who are not affiliated with AOK ?
- 2) What provider characteristics are associated with quality?

Planning began in the spring of 2014. Data were collected in fall, 2014 and winter, 2015.

#### 3.1. **Study Design**

The evaluation used a quasi-experimental design with randomly-selected AOK providers and a comparison group of providers who had had no prior contact with AOK. Study methods consisted of a paper and pencil survey and observations with two instruments—the Family Child Care Environment Rating Scale-Revised (FCCERS-R: Harms, Cryer & Clifford, 2007) and the Parenting Interactions with Children Checklist of Observations Linked to Outcomes (PICCOLO: Roggman, Cook, Innocenti, Norman, & Christensen, 2013). The survey included questions about the providers' programs such as the program schedule and number and ages of children in care; provider professional characteristics such as education, specialized training in early childhood, and a CDA; and provider personal characteristics such as motivation, intention to stay in the field, beliefs, and job stress. In addition, the survey included questions about social supports and self-efficacy, because some research suggests that these characteristics may have an influence on quality (Gray, 2015; Susman-Stillman & Banghart, 2011).

### 3.2. Methods

The target sample size was 30 AOK providers and 30 non-AOK providers. Several criteria were established for study eligibility. All providers had to be licensed family child care providers who were caring for a minimum of three children, with at least one child between 10 and 47 months.<sup>7</sup> There were two eligibility criteria for AOK network providers: between October 2012 and October 2014, (1) providers had to have had a minimum of seven intensive consultation visits from AOK educational consultants; and (2) providers had to have participated in a minimum of 15 AOK programs, with a minimum of 5 in 2014. AOK providers who had only participated in the Tool Kit Licensing Project were excluded from sample eligibility because they had not participated in network services that focus on quality improvement.

Non-AOK participants had to have had no contact with AOK, meaning that they had not participated in any AOK activities nor had they participated in any events with which AOK was involved.<sup>8</sup> In addition, the non-AOK providers were recruited from communities that were not located near AOK's offices in New Haven, Bridgeport, Norwalk and Stamford to reduce the possibility that they may have had opportunities to enroll in the AOK Network.

**Sample Recruitment.** To enroll AOK providers in the study, the AOK study coordinator sent e-mails to the pool of eligible providers explaining the study and inviting providers to participate. She also made follow-up phone calls, and AOK educational consultants answered providers' questions on an as-needed basis. (Please see Appendix A: Recruitment of the Sample for a detailed description). Recruitment of the non-AOK sample consisted of a multi-stage process. Initially, letters were sent to the 215 licensed family child care providers in Hartford and Waterbury, because these communities shared many of the same characteristics with the AOK communities. Then the AOK study coordinator called all 215 providers, beginning with a random number calculator list. Because there were significant challenges in recruiting providers from these two sites (disconnected phones, voice mail messages ignored, provider refusal), recruitment was extended to

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<sup>7</sup> Observations with the PICCOLO require children in this age range.

<sup>8</sup> AOK had offered a series of workshops on the CT Early Learning Standards with other organizations throughout the state in 2014.

the 60 licensed providers in Danbury and New Britain, where there were other relatively high numbers of licensed family child care providers and which shared similarities with AOK's sites.

In total, 73 providers—30 AOK providers and 43 non-AOK providers—were recruited for the study. Two AOK providers and 23 non-AOK providers dropped out after agreeing to participate. This attrition was related to a variety of issues—family issues, the winter weather (snow storms in January, 2015) and lack of provider response to scheduling the observation. Among the non-AOK providers, there may have been a trust issue: providers stated that they were not comfortable allowing anyone other than a state employee to enter their home. The final sample consisted of 28 AOK providers and 20 non-AOK providers. All participating providers provided informed consent and received a \$100 gift card.

### 3.3. Measures

Three measures were used in the study. One was a paper and pencil provider survey. The others were two observational instruments: the Family Child Care Environment Rating Scale-Revised (FCCERS-R: Harms, Cryer & Clifford, 2007) and the Parenting Interactions with Children Checklist of Observations Linked to Outcomes (PICCOLO: Roggman, Cook, Innocenti, Norman, & Christiansen, 2013). Each of these measures is described below.

**The Provider Survey.** Survey questions were intended to gain information about the providers' demographic characteristics (e.g. race/ethnicity, educational levels, and experience), program characteristics (e.g. schedules and numbers/ages of children in care), provider attitudes and beliefs, and provider well-being. (Please see Appendix B: Survey Development for details). Surveys were mailed to providers after they agreed to participate in the study. The surveys were collected by observers after the observations were completed.

The survey included demographic and program characteristic items from an existing survey (Tonyan, 2014), in part because the items might allow comparison with other research. The survey also included eight scales which are described below.

***Provider Motivation.*** Provider motivation was assessed with eight items from the QUINCE adaptation of Kontos et al.'s (1995) professional motivation scale. These items, which are rated on a 5-point Likert scale ranging from “not at all the way I feel” to “exactly the way I feel,” capture providers’ perceptions of their work as something the providers report is “their career or profession” or if they view it as “just a way to earn a living.”

Motivation or commitment to the field was also assessed with another item, “For how many years do you intend to be a child care provider?” Responses were grouped into three categories: less than 5 years, 5 to 9 years, and 10 or more years including providers’ “as long as I can” response.

***Self-efficacy.*** Providers’ sense of self-efficacy—their beliefs in their capacity and competence to make a difference—was measured with an adaptation of the Teacher Opinion Survey (Geller & Lynch, 1999). The adapted survey consisted of 12 items with a 5-point Likert scale (strongly disagree to strongly agree), including statements such as “If I keep trying I can find a way to reach even the most challenging child” and “I feel a sense of helplessness about the future of the children I work with.”

***Social supports.*** The Medical Outcomes Survey, which assesses perceptions of emotional, tangible and affectionate positive social interactions, was used as a measure of social support (Shelbourne & Stewart, 1991). The 11-item scale assesses the degree to which providers have supports such as “someone whose advice you really want” and “someone who understands your problems” with a 5-point Likert scale from “never” to “all of the time.”

***Indicators of Personal or Professional Stress.*** Providers’ depressive symptoms were assessed through the Center for Epidemiology Depression Scale (CEDS: Radolf, 1997) adapted for the Head Start FACES 2008 parent interview. The 12-item Likert scale, which uses a 4-point response code (“rarely or none of the time” to “most of the time”), assesses the frequency of reported depressive symptoms such as “I was bothered by things that don’t usually bother me” and “I felt like everything I did was an effort.”

Provider perceptions of job control, job demands, and job resources were assessed with a modified version of the Job Stress Inventory (Curbow, Spratt, Ungaretti, McDonnell, & Breckler,

2001) adapted for the QUINCE study. The job control subscale consists of 8 items that relate to interactions with parents about managing their children; the job demands subscale consists of 7 items related to children's challenging behavior and difficult relationships with parents. The job resources subscale, which assesses providers' satisfaction with their work, consists of 12 items. Responses are reported on a 5-point response scale from "rarely/never" to "most of the time."

***Provider Beliefs.*** Provider beliefs about child-rearing were assessed with the Parental Modernity Scale (Schaefer & Edgerton, 1985), adapted for the QUINCE study (Forry et al. 2013). The 16-item scale measures "traditional" (authoritarian) beliefs and "progressive" (child-centered or authoritative) beliefs on a response scale that ranges from 1 (strongly disagree) to 5 (strongly agree). Examples of traditional beliefs are: "Children should be treated the same regardless of the differences between them" and "The main goal of education is to put basic information into the minds of children." Examples of progressive beliefs are "Children have a right to their own point of view and should be allowed to express it" and "Children learn best by doing things themselves rather than listening to others." Scores are calculated by summing progressive and traditional beliefs with progressive beliefs reverse-coded, meaning that a higher score indicates more traditional beliefs.

***Child Care Quality Observations.*** Two observational measures were selected for the study: the Family Child Care Environment Rating Scale-Revised (FCCERS-R: Harms, Cryer & Clifford, 2007) and the Parenting Interactions with Children Checklist of Observations Linked to Outcomes (PICCOLO: Roggman, Cook, Innocenti, Norman, & Christiansen, 2013). The FCCERS-R, and the original Family Day Care Environment Rating Scale (FDCRS: Harms & Clifford, 1989), are commonly used in studies of family child care quality (Porter et al., 2010a). The PICCOLO was initially used in the Early Head Start Research and Evaluation Project to assess the effects of EHS services on the quality of parental interactions with their young children (Roggman et al., 2013). A recent study of the PICCOLO's concurrent validity with the FCCERS-R indicates that it can be used effectively to measure the quality of interactions between family child care providers and the children in their care (Norman & Christiansen, 2013).

In fall, 2014 four observers were trained to use both instruments. The training consisted of one day of classroom training, in which the observers used video training designed by the instrument developers, and two site visits to use the instruments in family child care settings. Inter-

rater reliability on both instruments was consistent with the developers' standards: 0.85 on the FCCERS-R, and 0.77 on the PICCOLO. After observations began, the observers participated in bi-weekly phone calls with the principal investigator and the project coordinator to address issues related to scheduling interviews and questions about rating specific items. Information about whether the providers were members of the AOK or non-AOK group was not provided to the observers. The following section describes the two observation measures in detail.

***The Family Child Care Environment Rating Scale-Revised (FCCERS-R)***. The FCCERS-R (Harms et al., 2007) measures the quality of the child care environment with 38 items in seven subscale areas, including space and furnishings, personal care routines, listening and talking, activities, interaction, program structure, and parents and provider (items related to the relationship between the parent and the provider). Each item is rated from 1 (“inadequate”) to 7 (“excellent”); subscale ratings are based on the average of the individual item ratings. The developers recommend 2.5 to 3-hour-observations.

***Parenting Interactions with Children Checklist of Observations Linked to Outcomes (PICCOLO)***. The PICCOLO measures the quality of caregiver interactions with children ages 10 to 47 months with 29 items grouped into four subscales: affection, responsiveness, encouragement, and teaching. Each item is rated on a 3-point response scale with 0, “absent” (no behavior observed), 1, “barely” (brief or minor behavior), and 2, “definite” (strong or frequent behavior). The PICCOLO was intended to be used as a video-taped observation of parent-child interactions, but it has been tested in live settings in family child care and center-based care (Norman & Christensen, 2013). For live observations with family child care providers, the developers suggested a 10-minute observation during an interactive activity (V.J. Norman, personal communication, June 26, 2014).

#### 4. ANALYSIS

Several analytical techniques were used in the study. Chi-square analysis was used to examine significant differences between the AOK and non-AOK groups on provider demographic and program characteristics, and Fisher's Exact test was used where expected cell counts were less than 5. Cronbach's alphas were calculated to determine the internal consistency of the survey scales. (Please see Appendix C: Survey Scale Alphas for more detail.) T-tests were calculated to examine differences

in observed quality on the FCCERS-R and the PICCOLO between the AOK providers and the non-AOK providers as well as differences between survey scale scores.

Pearson's  $r$  correlations were used to examine the relationship between selected provider professional and personal characteristics and observed quality on both the FCCERS-R and the PICCOLO as well as associations between the characteristics. Correlations were also used to examine the relationship among subscale scores and observed quality on these two measures. In addition, multivariate analysis was conducted to identify the relationship between educational levels and specialized education in early childhood and observed quality. Multiple Linear Regressions were used to examine the relationship between CDA, All Our Kin, and observed quality.

## 5. RESULTS

The primary goals of the evaluation were to examine the difference in observed child care quality between AOK family child care providers and family child care providers who had no contact with AOK, and to examine the relationships between specific provider characteristics and quality. This section presents the findings. First, it reports on the results of the observations of quality with the FCCERS-R and the PICCOLO. Second, it reports on the findings on associations between provider personal and professional characteristics and observed quality.

### 5.1. The Sample

The analytic sample consisted of 48 providers: 28 AOK providers and 20 non-AOK providers. Almost all of the providers were women, the majority of color. More than two-thirds had some college education or had completed an undergraduate college degree. Approximately half had some specialized coursework or a degree in early childhood and close to half had obtained a CDA credential. Many providers had a great deal of experience providing child care. All of the providers offered full-time care to children, and most of them cared for children with a variety of age ranges.

***Provider gender and age.*** Of the 45 providers who reported data on gender, 44 were women (Table 1: Comparison of AOK and non-AOK Provider Demographic Characteristics). Close to two thirds of the providers (63%) were between the ages of 40 and 60, with a slightly higher

percentage in the 40 to 49 year age group (35%) than the 50 to 59 age group (28%). Eleven providers (26%) were age 39 or younger, and four (9%) were under age 30. There were some differences between the AOK and the non-AOK groups but none were significant ( $p=.177$ ). A higher proportion of AOK providers (69%) were in their forties and fifties than non-AOK providers (53%), and a higher proportion of non-AOK providers (18%) were in their twenties than AOK providers (4%).

***Race/Ethnicity.*** Providers of color accounted for approximately 82% of the sample: 19 providers self-identified as Latina, 15 as African-American, and 3 providers identified as some other race or ethnicity (Table 1). There were some differences between the AOK providers and the non-AOK providers, but, again, none were significant ( $p=.402$ ). A far higher proportion of AOK providers identified as Latino than the non-AOK providers: slightly more than half of the AOK providers, 52%, compared to non-AOK providers, 28%. By comparison, a higher proportion of non-AOK providers self-identified as African-American or Black: (39%) than the AOK providers (30%). Only 15% of AOK providers and 22% of non-AOK providers identified as white. One AOK provider identified with any other race/ethnicity, and two non-AOK providers identified as some other race or ethnicity (American-Indian, Asian, Other Pacific Islander or mixed race).

***Education.*** Among the 45 providers who reported data, slightly more than two thirds (67%) reported some college or an undergraduate college degree: 31% with some college-level education, 16% with an associate degree, and 20% with a bachelor's degree (Table 1). Approximately equal proportions of AOK and non-AOK providers, 30% and 33% respectively, reported some college education. The proportion of AOK and non-AOK providers with college degrees or graduate education was also somewhat similar: 41% for the AOK providers and 39% for the non-AOK providers. A higher proportion of AOK providers reported an associate degree (19%), however, than non-AOK providers (11%), but the proportion of non-AOK providers with bachelor's degrees (28%) was higher than that of AOK providers (15%). These differences were not significant ( $p=.327$ ).

***Highest early childhood education.*** Of the 34 providers who reported data on specialized education in early childhood, slightly more than half (56%) indicated that they had had some coursework or a degree (Table 1). Approximately 27% reported that they had taken some college

coursework in early childhood, 15% had received an associate degree in early childhood, and 15%, a bachelor's degree in early childhood. A higher proportion of AOK providers (60%) reported some specialized early childhood education than non-AOK providers (50%), but, again, like other demographic characteristics, this was not a statistically significant difference ( $p=.855$ ).

**CDA.** Approximately 45% of providers reported having a CDA credential. The proportion of AOK providers who reported a CDA, 59%, was more than double the proportion of non-AOK providers, 24% (Table 1). Once sample size had been accounted for, AOK providers were 2.52 times more likely than non-AOK providers to have a CDA. The difference between the AOK providers and the non-AOK providers was significant ( $\chi^2 = 5.371$ ,  $p=0.020$ ).

**Income.** Thirty-two providers reported data on annual household income before taxes (Table 1). Close to half of the providers (47%) reported incomes of \$35,000 or less: approximately a quarter (25%) reported incomes of \$25,000 or less, and a fifth (22%) reported incomes between \$25,001 and \$35,000. The proportion of providers who reported incomes between \$35,001 and \$50,000 (28%) was approximately equal to those who reported incomes of \$50,001 and higher (25%). Only a small proportion of providers (9%) reported incomes of less than \$15,000.

There were some differences in reported income between the two groups, but none was significant ( $p=.990$ ). A similar proportion of AOK and non-AOK providers reported incomes of \$35,000 or less (45%), but a higher proportion of AOK providers (28%) reported incomes of \$50,000 or higher than the non-AOK providers (22%). The proportion of AOK providers who reported incomes of \$15,000 or less was almost half (6%) that of the non-AOK providers (14%).

**Years of Experience.** Forty-three providers reported data on their experience in the field. Overall, providers were approximately evenly divided into the following three categories: 10 years or fewer (35%), 11-20 years (35%), and 21 years or more (30%). While AOK providers were somewhat more likely to have 21 years of experience or more than non-AOK providers (24% and 39% respectively), the differences between the AOK group and the comparison group were not statistically significant ( $\chi^2 = 1.237$ ,  $p=0.539$ ).

Table 1: Comparison of AOK and non-AOK Provider Demographic Characteristics

Provider Characteristics	Total	AOK	Non-AOK	p-value
<b>Race/Ethnicity</b>	<b>n=45</b>	<b>n=27</b>	<b>n=18</b>	<b>p=.402</b>
Latino of any race	42%(19)	52% (14)	28% (5)	
Black	33%(15)	30% (8)	39% (7)	
White	18%(8)	15% (4)	22% (4)	
Other race	7%(3)	4 % (1)	11 % (2)	
<b>Age Range</b>	<b>n=41</b>	<b>n=24</b>	<b>n=17</b>	<b>p=.177</b>
<30	9% (4)	4% (1)	18% (3)	
30-39	16% (7)	19% (5)	12% (2)	
40-49	35% (15)	46% (12)	18% (3)	
50-59	28% (12)	23% (6)	35% (6)	
60+	12% (5)	8% (2)	18% (3)	
<b>Education</b>	<b>n=45</b>	<b>n=27</b>	<b>n=18</b>	<b>p=.327</b>
< high school	4%(2)	0% (0)	11% (2)	
High school or GED	24%(11)	30% (8)	17% (3)	
Some college	31%(14)	30% (8)	33% (6)	
Associate degree (AA)	16%(7)	19% (5)	11% (2)	
Bachelor's degree (BA)	20% (9)	15% (4)	28% (5)	
Graduate school	4%(2)	7% (2)	0% (0)	
<b>Child Development Associate</b>	<b>n=44</b>	<b>n=27</b>	<b>n=17</b>	<b>p=.020*</b>
	45% (20)	59% (16)	24% (4)	
<b>Highest Early Childhood Education</b>	<b>n=34</b>	<b>n=20</b>	<b>n=14</b>	<b>p=.855</b>
None	44%(15)	40% (8)	50% (7)	
Some college	26% (9)	25% (5)	29% (4)	
AA	15%(5)	20% (4)	7% (1)	
BA	15% (5)	15% (3)	14% (2)	
<b>Income</b>	<b>n=32</b>	<b>n=18</b>	<b>n=14</b>	<b>p=.990</b>
Less than \$15,000	9%(3)	6% (1)	14% (2)	
\$15,001-\$25,000	16%(5)	17% (3)	14% (2)	
\$25,001-\$35,000	22%(7)	22% (4)	21% (3)	
\$35001-\$50,000	28%(9)	28% (5)	29% (4)	
\$50,001-\$65,000	13%(4)	17% (3)	7% (1)	
Over \$65,000	13%(4)	11% (2)	14% (2)	
<b>Years of Experience</b>	<b>n=43</b>	<b>n=25</b>	<b>n=18</b>	<b>p=.539*</b>
10 years or fewer	35% (15)	40% (10)	28% (5)	
11-20 years	35% (15)	36% (9)	33% (6)	
21 years or more	30 % (13)	24% (13)	39 % (7)	

Sample sizes vary based on provider survey responses.

\* denotes Chi-square approximation. All other p-values in this table use Fisher's Exact Test.

**Survey Scale Responses.** The two groups' survey scale responses were fairly similar; the only significant difference was that AOK providers were significantly less likely to report sources of social support than non-AOK providers (Table 2: Comparison of AOK and non-AOK Survey Scale Scores.)

**Table 2: Comparison of AOK and non-AOK Survey Subscale Scores**

Survey Items	AOK			Non-AOK			p-value
	Mean	SD	N	Mean	SD	N	
Motivation	4.30	.414	23	4.18	.586	15	.480
Self-Efficacy	4.44	.313	25	4.37	.418	15	.544
Social Support	3.51	1.06	25	4.22	.774	16	<b>.025</b>
Depression	.160	.283	26	.201	.243	17	.629
Job Control	3.63	.650	26	3.90	.538	17	.159
Job Demands	2.48	.727	26	2.50	.566	15	.938
Job Resources	4.62	.452	26	4.55	.459	16	.632
Total Beliefs	3.15	.410	20	3.29	.470	14	.378

**Years Planned to Work.** In addition to the survey scales listed in Table 2, the questionnaire also measured intentionality by asking providers how many more years they planned to work as child care providers. Answers ranged from 2 to 20 years, with eleven providers (32% of respondents) reporting variations of the answer “as long as possible”. Responses were coded into three categories: under five years (12%), five to nine years (21%), and ten or more years (including providers who answered “as long as possible”) (68%). While Fisher’s exact test showed no statistically significant difference between AOK and non-AOK providers on these categories ( $p=.161$ ), there was a large difference between the two groups in the proportion of providers who

wrote “as long as possible”. Overall, 50% of All Our Kin providers planned to stay in the field “as long as possible”, compared to 7% of comparison providers.<sup>9</sup>

## 5.2. Program Characteristics

The provider survey included questions about program schedules as well as the number and ages of children in full-time and part-time care. The data indicate some differences between the AOK providers and the non-AOK providers in both the types of schedules that were available to parents as well as the ages of children in care full-time and part-time.

***Program schedules.*** Forty-two providers reported on their program schedules: 24 of the AOK providers (86%), and 18 of the non-AOK providers (90%). All of them reported that they offered full-day care (Table 3: Comparison of AOK and non-AOK Program Characteristics). For the most part, however, higher proportions of the non-AOK providers reported offering flexible-hour schedules than AOK providers. A significantly higher proportion ( $p=.032$ ) of non-AOK providers (67%) reported offering variable hours of care than AOK providers (33%), and the proportion of non-AOK providers who reported that they offered sick care (22%) was almost five times higher than the proportion of AOK providers (4%), although this difference was not statistically significant. Higher proportions of non-AOK providers also reported offering care after 6:00 p.m. and weekend care (44% and 28% respectively) than AOK providers (21% and 17% respectively). Overall, 61% of non-AOK providers reported offering care sometimes or frequently during these hours compared to 41% of the AOK providers.

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<sup>9</sup> An additional analysis revealed a significant difference between All Our Kin and comparison providers when the “as long as possible” responses were separated into a fourth category ( $p=.041$ ).

**Table 3: Comparison of AOK and non-AOK Program Schedule Characteristics (n=42)**

<b>Program Schedule</b>	<b>AOK (n=24)</b>	<b>Non-AOK (n=18)</b>	<b>p-value</b>
Full-day	100 % (24)	100 % ( 18)	
Part-day care schedule	46% (11)	61% (11)	p=.327*
After-school	67% (16)	89 % (16)	p=.147
Before school	63% (15)	73% (13)	p=.508*
After 6:00 p.m.	21% (5)	44% (8)	p=.101*
Weekend care	17% (4)	28% (5)	p=.462
Sick care	4% (1)	22 % (4)	p=.146
Variable hours care	33% (8)	67% (12)	p=.032*
Overnight care	17% (4)	18% (3)	p=1.00
<b>Open after six or weekends</b>	<b>AOK (n=22)</b>	<b>Non-AOK (n=18)</b>	<b>p=.517</b>
Never	41% (9)	28% (5)	
Rarely	18% (4)	11% (2)	
Sometimes	27% (6)	28% (5)	
Frequently	14% (3)	33% (6)	

Sample sizes vary based on provider survey responses.

\* denotes Chi-square approximation. All other p-values in this table use Fisher's Exact Test.

***Ages of children in care.*** Of the sample, 41 providers reported data on the number and ages of children in their care and the children's schedules (Table 4: Comparison of AOK and non-AOK Number and Ages of Children Full-Time/Part-Time). On average, there were more full-time children (5.43) in care with AOK providers than non-AOK providers (4.23). The average number of full-time infants under 18 months, two-year-olds (24 to 36 months), and school-age children was higher for AOK providers compared to non-AOK providers.

Conversely, the average number of children part-time was higher among non-AOK providers (2.38) than AOK providers (2.26). Non-AOK providers cared for higher average numbers of part-time children in every age group with the exception of children under 18 months of age. The only statistically significant difference on Chi-square values between the mean number of children in AOK care compared to non-AOK care, however, was in the 18-month to 23-month age group, where there was a higher average number of children in AOK part-time care compared to those in non-AOK care (p=.030).

**Table 4: Comparison of AOK and non-AOK Providers Number and Ages of Children, Full-time/Part-Time**

	<b>Total (n=293)</b>	<b>AOK (n=173)</b>	<b>Non-AOK (n=122)</b>	<b>p-value</b>
<b>Full-time</b>				
<b>Total</b>	<b>M=7.51(n=202)</b>	<b>M=5.43 (n=125)</b>	<b>M=4.23 (n=77)</b>	
<18 months	M=1.22(n=50)	M=1.52 (n=35)	M=.833 (n=15)	p=.549
18 months -23 months	M=.683(n=28)	M=.652 (n=15)	M= .722 (n=13)	p=.304
24-35 months	M=1.54(n=63)	M= 1.70(n=39)	M=1.33 (n=24)	p=.698
3 years to before K	M=.927(n=38)	M=.870 (n=20)	M= 1.00 (n=18)	p=.178
School-age	M=.561(n=23)	M=.696(n=16)	M=.389 (n=7)	p=.743
<b>Part-time</b>				
<b>Total</b>	<b>M=6.61 (n=91)</b>	<b>M=2.26 (n=48)</b>	<b>M=2.38 (n=43)</b>	
<18 months	M=.293(n=12)	M=.391 (n=9)	M=.167 (n=3)	p=.598
18 months -23 months	M=.146(n=6)	M=.087(n=2)	M= .222 (n=4)	<b>p=.030</b>
24-35 months	M=.414(n=17)	M=.478 (n=11)	M=.333 (n=6)	p=.527
3 years to before K	M=.293(n=12)	M=.261 (n=6)	M= .333 (n=6)	p=.317
School-age	M=1.07(n=44)	M=.870 (n=20)	M=1.33 (n=24)	p=.779

### 5.3. Observed Quality

Observed quality on both the FCCERS-R and the PICCOLO was statistically higher for AOK providers than non-AOK providers. AOK providers' mean scores on all seven FCCERS-R and three out of four PICCOLO subscales were significantly higher than those of non-AOK providers. There was a strong correlation between the total FCCERS-R and PICCOLO means and subscale scores (Please see Appendix D: Correlations of the FCCERS-R and the PICCOLO).

**FCCERS-R.** FCCERS-R global quality scores for the full sample ranged from 1.19 to 5.86. Global child care quality on the FCCERS-R among AOK providers was significantly higher than global quality among non-AOK providers (Table 5: Comparison of AOK and Non-AOK Observed

Quality). Mean global quality for AOK providers was 4.39, close to “good” (a score of 5) compared to a global mean of 2.86 (below 3, “minimal”) for non-AOK providers.

**Table 5: Comparison of AOK and Non-AOK Observed Quality**

<b>Observed Quality: PICCOLO and FCCERS-R (n=48)</b>					
	AOK (n=28)		Non-AOK (n=20)		
	Mean	SD	Mean	SD	Sig
<b>FCCERS-R</b>	4.39	1.01	2.86	.863	<b>.000</b>
Space/Furnishings	4.27	1.03	3.04	1.08	<b>.000</b>
Personal Care Routines	3.47	1.35	2.28	.877	<b>.001</b>
Listening/Talking	5.14	1.47	3.12	1.40	<b>.000</b>
Activities	3.90	1.22	2.26	.727	<b>.000</b>
Interaction	5.73	1.26	4.26	1.53	<b>.001</b>
Program Structure	4.41	1.93	2.76	1.06	<b>.000</b>
Parent/Provider	5.18	.870	3.57	1.45	<b>.000</b>
<b>PICCOLO</b>	43.04	9.13	33.05	9.85	<b>.001</b>
Affection	12.00	1.61	9.90	2.92	<b>.007</b>
Responsiveness	11.14	2.65	9.90	2.55	.111
Encouragement	10.32	2.99	7.80	3.33	<b>.009</b>
Teaching	9.57	3.47	5.45	3.27	<b>.000</b>

Mean FCCERS-R subscale scores ranged from 2.53 to 5.86 for the AOK providers and 1.19 to 3.73 for the non-AOK providers. Mean scores on all the FCCERS-R subscales for AOK providers were significantly higher than those for non-AOK providers (Table 5). For example, the mean score for Interactions for AOK providers was 5.73 (between “good” and “excellent”) compared to 4.26 (between “minimal” and “good”) for non-AOK providers, and the mean score for Listening and Talking was 5.14 (above “good”) for AOK providers and 3.12 (“minimal”) for non-AOK providers.

In addition, a higher proportion of AOK providers were rated at a global score of 4 or higher than non-AOK providers. More than half (64%) of AOK providers scored at these levels compared to non-AOK providers, of whom only 5% had scores above 4. The proportion of AOK providers with scores 5 and over, in the “good” to “excellent” range was also higher than that for non-AOK providers: 29% for the AOK providers compared to 5% for non-AOK providers.

An examination of the ratings of the 9 AOK providers with FCCERS-R ratings of 5 and above showed considerably higher participation rates, in general, and participation in a broader range of activities, in particular, than those for the 3 AOK providers who were rated 3 and under. Mean participation in activities for the high scoring group, for example, was 65.6 compared to 51.0 for the low scoring group. In addition, the high scoring group participated in a wider variety of activities—educational workshops, a business workshop series, and more years of intensive consultation—than the low scoring group.

**PICCOLO.** AOK providers' mean scores on the PICCOLO were significantly higher than those of non-AOK providers. Mean total scores for AOK providers were 43.04 of a possible total of 58 compared to non-AOK provider mean scores of 33.05 (Table 5). There were also statistically significant differences in three of the four subscale scores. For example, AOK providers mean scores for the “Encouragement” subscale were 10.32 of a possible score of 14 compared to 7.80 for non-AOK providers, indicating that AOK providers rated higher on consistently supporting children’s initiative and autonomy than non-AOK providers. Similarly, AOK providers rated higher on the “Teaching” subscale, which measures provider support for language development through asking questions, naming and labeling and extending children’s language. AOK providers’ mean subscale scores were 9.57 of a possible score of 16 compared to 5.45 for non-AOK providers. “Responsiveness” was the only scale where no significant difference was found, although AOK provider means were higher than those for non-AOK providers.

There was a strong positive correlation between the FCCERS-R and PICCOLO overall means ( $r=0.747, p=.000$ ), and there were statistically significant correlations between almost all of the FCCERS and PICCOLO subscale scores (Please see Appendix D: Correlations of FCCERS-R and PICCOLO Subscales).

#### 5.4. Characteristics Associated with Quality

Of the provider professional characteristics, only one—education—was positively related to FCCERS-R and PICCOLO observed quality (Table 6: Correlations of Provider Professional Characteristics with Quality). This association remained statistically significant in multivariate analyses of variance for quality as a function of education and status as an AOK provider ( $p=.012$  for education,  $p=.000$  for AOK) (MANOVA). There were not any statistically significant

correlations between specialized education in early childhood or a CDA credential and observed quality scores on the FCCERS-R or the PICCOLO. Nor was there a significant correlation between experience and observed quality.

Several provider personal characteristics, however, were positively associated with observed FCCERS-R quality. These characteristics included intrinsic motivation, years planned to work in child care, and self-efficacy (Table 7). Provider intentionality—years planned to work in child care—was strongly associated with FCCERS-R total scores, and approached significance ( $p = .067$ ) with PICCOLO observed quality.

There were also some correlations between provider personal characteristics. Self-efficacy was positively related to motivation, years planned to work, and job resources. Social supports were related to self-efficacy as well.

Some provider personal characteristics were negatively associated with quality. Both job demands and traditional beliefs were negatively related to FCCERS-R total scores. Again, the correlations between these two survey scales and the PICCOLO approached significance ( $p = .074$  for job demands and  $p = .071$  for traditional beliefs). There were also negative relationships between depression and motivation and between depression and self-efficacy. No significant associations were found between observed quality and provider income, job control or job resources.

**Table 6: Correlations of Provider Professional Characteristics with Observed Quality**

	PICCOLO TOTAL	Total FCCERS-R	Education	Early Childhood Education	CDA	Years of Experience
PICCOLO TOTAL	1					
Total FCCERS-R	<b>.747**</b>	1				
Education	<b>.451**</b>	<b>.333*</b>	1			
Early Childhood Education	.031	.200	<b>.411*</b>	1		
CDA	.145	.166	-.239	.170	1	
Years of Experience	.218	.083	.225	<b>.413*</b>	-.215	1

\*\* denotes p value <.01,\* denotes p value <.05

**Table 7: Correlations of Personal Characteristics with Observed Quality**

	1	2	3	4	5	6	7	8	9	10	11	12
1. PICCOLO	1											
2. FCCERS	<b>.747**</b>	1										
3. Motivation	.268	<b>.369*</b>	1									
4. Years Planned to Work	.318	<b>.346*</b>	<b>.416*</b>	1								
5. Self-Efficacy	.225	<b>.326*</b>	<b>.557**</b>	<b>.542**</b>	1							
6. Social Support	-.204	-.159	<b>.389*</b>	-.026	<b>.390*</b>	1						
7. Traditional Beliefs	-.313	<b>-.387*</b>	-.129	.042	-.081	.003	1					
8. Job Demands	-.282	<b>-.412**</b>	<b>-.389*</b>	-.123	-.249	-.034	.066	1				
9. Job Control	-.101	-.035	.189	.110	.316	<b>.339*</b>	-.154	-.109	1			
10. Job Resources	.003	.023	.191	<b>.646**</b>	<b>.386*</b>	.290	.091	-.142	<b>.375*</b>	1		
11. Depression	.018	-.141	-.286	<b>-.414*</b>	-.308	-.229	-.196	.208	-.260	<b>-.370*</b>	1	
12. Household Income	.217	.319	.028	-.311	.096	-.005	<b>-.387*</b>	-.123	.122	-.254	.041	1

\*\* denotes p value <.01,\* denotes p value <.05

The study clearly points to the potential of the AOK model for supporting quality in family child care. AOK providers' total mean scores and almost all of the subscales scores on both the FCCERS-R and the PICCOLO were significantly higher compared to those of providers who had no association with AOK. Observed FCCERS-R global quality for the AOK providers was also higher than scores reported for family child care providers in other studies: 4.39 compared to 2.5 to 3.0 (Fuller & Kagan, 2000), 2.8 to 3.8 (Loeb et al., 2004), 2.9 (Elicker et al., 2005), and 3.4 (Paulsell et al., 2008). In addition, the AOK global FCCERS-R means were higher than those reported in several studies of interventions to improve quality. For example, one evaluation of a training initiative found a FCCERS-R global mean of 3.61 (Peisner-Feinberg et al., 2000), and one of the QUINCE evaluations found a mean of 3.48. The AOK global mean also exceeded that found in the Caring for Quality study, 4.25.

The proportion of AOK providers with FCCERS-R scores in the “good” to “excellent” category (5 to 7) was also higher than those found in other studies. Of the AOK providers, 29% were rated at 5 or above compared to only 9% in Kontos's seminal study of family child care (Kontos et al., 1995), 8% in an evaluation of a training initiatives (Peisner-Feinberg et al., 2000), and 7% in a study of family child care providers in Washington state (Paulsell et al., 2008). In addition, the proportion of AOK providers with ratings of “inadequate” (3 or below) was lower than that found in other studies: 11% compared to 35% (Kontos et al., 1995), 29% (Paulsell et al., 2008), and 26% (Peisner-Feinberg et al., 2000).

Some of the findings reflect other research about the relationship between provider characteristics and quality. Like some other studies, the study found a positive association between education and quality (Burchinal, Howes, & Kontos, 2002; Elicker et al., 2005). It also found that neither a CDA credential nor experience was related to quality, as some other studies indicate (Forry et al., 2013).

Other study findings also parallel research results about the relationship between attitudes and beliefs and quality. Like Forry et al. (2013), for example, the findings indicate a statistically significant association between provider intrinsic motivation and quality, which suggests that

attitudes towards child care work affect the ways in which providers interact with children and the environments they create for them. In addition, the study found negative associations between traditional beliefs and quality, as did Forry et al. (2013), which points to the role that child-centered beliefs may play in how providers support children in their care. The findings about the negative relationship between job demands and quality are also similar to Forry et al.'s (2013). These findings make intuitive sense: difficulties managing aspects of providing child care may translate into poor quality. Unlike Forry et al. (2013), the study found a positive relationship between intentionality as defined as years planned to work in child care and quality.

The findings also point to an association between self-efficacy, which has not received much attention in other research (Gray, 2015), and quality. In addition, self-efficacy was positively correlated with intrinsic motivation for providing child care and years planned to work in child care, which suggests these characteristics may work together to contribute to quality. There was also a positive relationship between self-efficacy and social supports, which may indicate that providing opportunities to spend time with other providers may influence providers' view of their own capacity. Conversely, self-efficacy was negatively related to depression, which suggests that providers who are experiencing stress may not feel good about their competence in providing child care.

What factors account for the differences in quality between the AOK providers and the non-AOK providers? The providers in the sample shared many characteristics. Most were middle-aged women of color, with some college education or an undergraduate degree. A relatively large percentage had some specialized education in early childhood. Many had low to moderate household incomes. The only significant difference was in CDA attainment, but regression analysis of FCCERS-R and PICCOLO scores indicated that this was not a confounding variable.

The study suggests that participation in AOK Network activities may contribute to quality, but it is difficult to identify the specific AOK activities that are associated with quality or whether some combination of activities contributes to quality, because the study did not examine these relationships. It is possible that, consistent with Bromer et al.'s findings about effective network services, the intensive consultation component with its emphasis on strong relationships between the specially-trained consultants and providers as well as its focus on provider-child interactions may play a significant role in AOK providers' quality. On the other hand, a variety of network activities

such as the monthly meetings, trainings and the annual conference may contribute to quality. For example, a 2015 AOK survey of 194 members found a statistically significant positive correlation between participation in AOK activities and membership in professional child care organizations such as the National Association for Family Child Care ( $r= 0.305, p=.000$ ), and providers' communication with other providers ( $r=0.163, p=.034$ ) (All Our Kin, 2015), both of which are associated with quality (Forry et al. 2013; Raikes et al., 2005).

The characteristics of the providers' programs may have played a role in the difference in quality as well. Non-AOK providers were more likely to offer flexible hours than AOK providers, and were also more likely to provide part-time care for children than AOK providers. Although research indicates that parents value the flexibility of family child care providers' schedules, it is possible that this very flexibility may make it difficult to provide consistently high quality care for children who come at different times and on different days. These challenges may explain, in part, the negative relationship between job demands and FCCERS-R quality for the full sample, and the lower, although not significant, job demands scores for the AOK providers.

The findings about the significant differences between reports of social supports by non-AOK providers and AOK providers are more difficult to explain. One possibility may be that the providers interpreted the survey subscale items as support from family and friends for personal issues rather than as sources of professional supports. Findings from the cognitive interviews of the survey items and the 2015 AOK Annual Conference survey results suggest that this may have been the case. The Conference survey findings indicated that there was a strong positive association between participation in AOK activities and social supports in general ( $r=.226, p=.001$ ), as well as between professional supports ( $r=0.235, p=.001$ ) and between personal supports ( $r= 0.180, p=.008$ ) (All Our Kin, 2015). In addition, participation in intensive consultation with significantly associated with professional social supports ( $r=0.143, p=.047$ ), but not personal social supports ( $r=.038, p=.594$ ) (All Our Kin, 2015).

## 7. **Limitations**

There are several limitations to this study. The study design was quasi-experimental and used a comparison group of providers, who may have had access to family child care quality

improvement resources outside of AOK services. A true random control trial would have allowed for a more rigorous analysis of the difference in quality. The sample size was also relatively small, and limited to providers in specific cities in Connecticut. Although family child care providers in the study may share characteristics with other family child care providers in similar urban areas, the findings are not nationally representative.

In addition, the findings may reflect some selection bias. In general, providers may have agreed to participate in the study because they believed they offered good quality care. AOK providers, in particular, may have joined the AOK network because they were already motivated to improve their child care quality, and may have chosen to participate in the study out of their loyalty to AOK. In addition, although there was an effort to match demographic characteristics between the AOK and non-AOK providers, there was a significant difference between the two groups in terms of CDA attainment, but, as indicated earlier, this was not a confounding variable. The small sample size may have also contributed to low variation on some of the survey scales scores, which may explain some of the results related to provider characteristics.

## 8. Conclusion

This study demonstrates that AOK family child care providers have higher quality than family child care providers who do not participate in AOK's Network. It also indicates that participation in AOK services may influence provider attitudes towards providing care, specifically their intrinsic motivation and their intention to stay in the field, which are important correlates of quality. These findings suggest that the AOK model of a continuum of services has significant potential for improving quality in family child care.

Family child care networks are increasingly viewed as promising strategies for improving child care quality, especially for the very young children that family child care providers serve. This study suggests that family child care networks which offer strong relational supports and specific activities that focus on provider knowledge and practice may have an effect on quality. The findings point to the need for descriptive research on network design and implementation, including staffing, staff training, and supervision as well as service delivery dosage and content. Research is also needed to examine the effectiveness of specific network services, and the ways in which these services might

work together to improve quality. Related to this research is the need to examine the effects of network services for specific types of providers—those who are new to the field, those who have some experience, and those who are seasoned. Such research will help contribute to an understanding of how network resources, which may be limited, can best be used to meet providers' needs and improve quality.

The findings also add to the knowledge base about provider characteristics and quality, specifically the relationship between self-efficacy and quality. In addition, the findings seem to indicate that social support may be associated with self-efficacy. These findings point to the need for future research on the role that social supports provided through networks or other strategies such as communities of practice or cohort designs may play in improving child care quality.

Finally, there is a need to understand the relationships between the quality of family child care networks, the quality of care that their members offer to children, and child outcomes. Answers to these questions can contribute to strengthening the AOK model as well as to the field's understanding of how family child care networks like AOK represent effective strategies for improving quality for young children.

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## Appendix A: Recruitment of the Sample

A total of 45 AOK providers met the study criteria. Of these providers, five were eliminated when additional information indicated that they had an enrollment of fewer than three children. The AOK study coordinator sent e-mails to this pool of providers explaining the study and inviting providers to participate. She also made follow-up phone calls, and AOK educational consultants answered providers' questions on an as-needed basis.

Recruitment of the non-AOK sample consisted of a multi-stage process, initially focusing on two communities and then expanding to three additional sites. Hartford and Waterbury were identified as the first two locations for recruitment, because these sites closely shared many of the same characteristics as the AOK communities (New Haven, Bridgeport, Norwalk and Stamford). Letters were sent to all 215 licensed family child care providers in the two communities, and, after only three or four providers responded, a second letter was sent, followed by a third. Then the AOK study coordinator called all of the providers, beginning with a random number calculator list. Of these providers, 114 (53%) could not be reached because the phone had been disconnected or because voicemail messages were ignored. Another 45 providers were ineligible to participate because their enrollment was too low or they had had some previous contact with AOK. A total of 25 providers declined to participate for different reasons—family issues, reluctance to have a stranger in their home, or with no explanation. Eventually, 31 licensed providers from the Hartford/Waterbury list were enrolled in the study. When the observers called to schedule appointments, however, many of these providers canceled.

To reach the non-AOK enrollment target of 30 providers, invitation letters were sent to the 60 licensed providers in Danbury and New Britain. Many of the same issues that had been experienced in Hartford and Waterbury were encountered. Nearly half of the providers (26) could not be reached. Twelve were ineligible to participate, one was closing her business and another was scheduled for surgery. An additional nine providers declined. Eleven providers from the list were enrolled in the study. Following the many cancellations by members the control group, the coordinator additionally called the licensed providers in Meriden and New London three weeks before the study's end. Out of 53 licensed providers, only one was able to participate in the allotted time frame.

Over the course of recruitment, the sample consisted of 73 providers: 30 AOK providers and 43 non-AOK providers. A total of 25 providers (2 AOK providers and 23 non-AOK providers) dropped out of the study after agreeing to participate. This attrition was related to a variety of issues—family issues, the winter weather (snow storms in January, 2015) and lack of provider response to scheduling the observation. Among the non-AOK providers, there was also a trust issue: providers were not comfortable allowing anyone, other than a state employee, to enter their home.

## Appendix B: Survey Development

Survey development consisted of several steps. First, the project team reviewed existing surveys that aimed to collect data about provider programs and characteristics as well as scales that have been used to measure the constructs of interest—provider motivation, perceptions of self-efficacy and social supports, mental well-being and perceptions of job stress, and child-rearing beliefs. Among the existing surveys was “Are You In? Family Child Care Providers’ Experiences in Quality Improvement Initiatives: Case Study Survey Draft” (Tonyan, 2014), in part, because the items and the subscales might have allowed allow comparison with other research.

Draft surveys were translated into English and Spanish.<sup>10</sup> Cognitive interviews were conducted with two English-speaking providers and two Spanish-speaking providers to assess the degree to which respondents understood the questions as they were intended, and the difficulties that respondents may have had in answering the questions. One scale, the Parental Reflective Functioning Questionnaire (Luyten, Mayes, Sadler, Fonagy, & Nicholls, 2009) related to attachment, sensitivity, and stress, was dropped.

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<sup>10</sup> Several of the scales including the self-efficacy scale, the social supports scale, the depression scale, and the beliefs scale were already available in Spanish.

## Appendix C: Survey Scale Alphas

Tests were conducted to establish the internal reliability or consistency of the subscales included in the survey as well as the internal reliability of the FCCERS-R and PICCOLO subscales. Cronbach's alpha is the statistical test used to measure this reliability. It indicates whether the items in the subscale measure the construct of interest. Cronbach alphas below 0.5 are considered unacceptable: that is, the responses lack sufficient variation to serve as a valid measure of the construct. Alphas between 0.5 and 0.6 are considered poor, and those between 0.6 and 0.7 are considered acceptable. Those between 0.7 and 0.8 are considered good. Alphas above 0.8 are considered excellent. The following sections describe the Cronbach alphas for the survey sub-scales.

### Survey Subscales

Cronbach's alphas for the survey subscales ranged from unacceptable to excellent. It is likely that the low alphas reflect the small sample size or lack of variation in the responses.

**Provider Motivation.** Eight items from the QUINCE adaptation of Kontos et al.'s (1995) professional motivation scale were used to assess provider motivation. Cronbach's alpha for the sample was 0.348. This unacceptable alpha may reflect the relatively small size of the sample or the lack of variability in the responses.

**Self-efficacy.** A modified version of the Teacher Opinion Survey (Geller & Lynch, 1999) was used to assess self-efficacy. Cronbach's alpha for the sample was 0.635. This result was just below that report by the developers ( $\alpha=0.66$ ), and indicates that the scale was reliable.

**Social Supports.** The Medical Outcomes Survey was used as a measure of social support (Shelbourne & Stewart, 1991). Cronbach's alpha for our sample was 0.958, which is very strong. It is comparable to the developers' internal reliability, indicating that the scale has excellent internal reliability.

**Provider's Depressive Symptoms.** The Center for Epidemiology Depression Scale (CESD: Radolf, 1997) adapted for the Head Start FACES 2008 parent interview was used. Cronbach's alphas for the full scale range from 0.85 to 0.90. Our sample alpha was 0.783. Fewer

than half of the providers (22) responded to any items on the scale. Of these, only five (10 percent) reported any depressive symptoms.

**Job Demand/Job Control/Job Resources.** Provider perceptions of job control, job demands, and job resources were assessed with a modified version of the Job Stress Inventory (Curbow, Spratt, Ungaretti, McDonnell, & Breckler, 2001) adapted for the QUINCE study. The internal reliability for these subscales varied. Cronbach's alpha for the job demands scale was 0.562, poor; for the job control scale, 0.788, good; and for job resources, 0.879, excellent.

**Provider Beliefs.** Provider beliefs about child-rearing were assessed with the Parental Modernity Scale (Schaefer & Edgerton, 1985), as it was adapted for the QUINCE study (Forry et al., 2013). Internal consistency for the study sample was 0.421, unacceptable.

### **Observational Instrument Alphas**

Cronbach's alphas for the two observation instruments varied. The Cronbach's alpha for the FCCERS overall was 0.956, higher than the 0.90 reported by the developers. For this alpha, items 25 and 34 were removed because they were optional, and missing answers on these items would have otherwise eliminated many providers from the results. Internal reliability for the sample subscales was good to excellent, with alphas ranging from a low of 0.760 to a high of 0.935. Cronbach's alpha for the PICCOLO overall was 0.915. The PICCOLO subscale Cronbach's alphas ranged from 0.714 to 0.789, comparable to the developers' reports, which ranged from 0.75 to 0.80.

### Appendix D: Correlations of FCCERS-R and PICCOLO

Almost every combination of subscales for the PICCOLO and FCCERS were significantly correlated.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. FCCERS-R	1												
2. PICCOLO	.747**	1											
3. Affection	.550**	.744**	1										
4. Responsiveness	.508**	.863**	.575**	1									
5. Encouragement	.674**	.888**	.518**	.746**	1								
6. Teaching	.750**	.887**	.549**	.653**	.709**	1							
7. Space and Furnishings	.885**	.583**	.359*	.363*	.566**	.618**	1						
8. Personal Care Routines	.806**	.487**	.441**	.279	.408**	.500**	.773**	1					
9. Listening and Talking	.873**	.816**	.572**	.629**	.694**	.824**	.686**	.682**	1				
10. Activities	.934**	.751**	.533**	.499**	.674**	.778**	.780**	.627**	.804**	1			
11. Interaction	.835**	.574**	.517**	.420**	.489**	.523**	.749**	.674**	.724**	.667**	1		
12. Program Structure	.784**	.686**	.350*	.561**	.670**	.678**	.595**	.457**	.705**	.821**	.526**	1	
13. Parents and Provider	.808**	.516**	.484**	.293*	.482**	.479**	.654**	.600**	.626**	.719**	.757**	.507**	1

\*\* denotes p value <.01\*, denotes p value <.05