EARLY ACHIEVERS STANDARDS VALIDATION STUDY

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childcare quality & early learning
CENTER FOR RESEARCH AND PROFESSIONAL DEVELOPMENT

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Early Achievers Standards Validation Study

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EXECUTIVE SUMMARY

The Statewide Internal Standards Validation Study of Early Achievers addressed whether elements of Washington State's Quality Rating and Improvement System (QRIS) for early care and education are associated with measurable gains in children's outcomes across developmental domains. With this validation study, Washington joins a handful of other states that have attempted to examine whether sites that receive higher ratings are actually producing better outcomes in terms of child development (Karoly, 2014). The University of Washington Childcare Quality & Early Learning Center for Research & Professional Development (CQEL) conducted this study from June 2014 through December 2015 in partnership with the Washington State Department of Early Learning (DEL).

Nearly every state in the nation has created a QRIS to raise the quality of early care and education. Washington State's QRIS is called Early Achievers. At the time of this study Early Achievers was a voluntary program, but since the passage of the Early Start Act in 2015, participation has been mandated for all child care sites serving children with subsidies as well as Early Childhood Education and Assistance Program (ECEAP) sites. With support from a federal Race to the Top Early Learning Challenge grant, Early Achievers went statewide beginning July 1, 2012. Its goal—consistent with the overarching purpose of QRIS—is to help early learning professionals offer high-quality child care that supports children's learning and development.

Early Achievers is comprised of elements including a standard area rating structure, a quality rating system (quality levels 1–5), coaching and professional development, incentives to attain higher levels of quality, and information sharing among families. In the validation process, independent observers assess quality across standard areas that include Child Outcomes, Family Engagement, Professional Development, and Curriculum and Staff Supports. These ratings are intended to distinguish meaningful levels of quality and subsequent improved outcomes for children.

The validation study

Our validation study employed research methods including records review, surveys with early learning professionals and parents and families, observational assessments of center care classrooms and family child care homes, and individual direct child assessments to explore three key research questions (shown below). Focus areas of the study were provider characteristics and program quality, child outcomes (residual gains in children's learning and development), and parent and family profiles.

The quality standards validation study began in June 2014 and continued through three phases of data collection (October 2014-February 2015; February-May 2015; and March-July 2015). The University of Washington hired research team staff members in August 2014, and in partnership with DEL, began to recruit study participants. Program directors of child care centers (CCCs) and family child care (FCC) program owners served as primary contacts throughout the study. The initial sampling frame included all sites enrolled in Early Achievers, and the study was designed to include both infant/toddler and preschool classrooms across all regions of Washington State.

At the time of initial study recruitment, 2,303 sites were enrolled in Early Achievers. Our final study sample was 100 sites, 152 classrooms, and 761 children ranging in age from 8 months to 71 months. Children younger than 36 months participated in the infant/toddler (I/T) assessment battery (31.4%), and the remaining 68.6% of the sample were considered preschool age. By program type, 139 children attended FCC sites, 532 attended CCCs, and 90 attended HS/ECEAP sites.

Assessment measures

We used a battery of measures for child assessments including both direct and indirect assessments (via teacher report). The instruments we used to assess the quality of the learning environment were the Classroom Assessment Scoring System (CLASS, which assesses classroom practices by measuring teacher-child interactions and material use); Environment Rating Scales (ERS, which measures classroom interactions, activities, and materials); Language Environment Analysis (LENA, which captures information about language use in a child's environment), and Engagement in Classrooms Data Collection (ECDC, an observational tool that tracks children's engagement, or on-task behaviors). We trained data collectors and held them to stringent thresholds of reliability on these instruments.

General areas of individual child assessments were cognitive, early reading, early science, early writing, executive function, expressive language, fine and gross motor, early math, receptive language, and social-emotional. We conducted individual child assessments throughout fall 2014 and again in spring 2015 to determine children's learning and development over time.

Study results

Our validation study found several relationships between early learning setting characteristics (Early Achievers rating levels, standards, and observational measures of quality) and children's developmental gains. But the relationship we found between the complex construct of classroom quality and resulting children's gains resulted in both informative findings and implications for further research.

Our study addressed **three primary research evaluation questions**:

1. Do children who attend higher-rated Early Achievers sites show greater gains than children who attend lower-rated Early Achievers sites?
2. Are the Early Achievers' quality standards associated with children's learning?
3. What is the association between Early Achievers observational measures of quality and children's learning?

Our analyses found that:

- Children make gains in the expected direction across most domains in a relatively short period of time.
- Children make greater gains in sites with higher-level ratings than in sites with lower ratings in the learning domains of receptive language, expressive language, and fine motor skills.
- A relationship of practical significance occurs between the Professional Development standard area and letter word knowledge. Additionally, a single factor comprised of 17 standard items was related to children's gains in receptive language.
- Some associations exist between CLASS domains and child outcomes. The CLASS PK Instructional Support domain was positively related to receptive language and early writing. But Toddler CLASS Emotional and Behavioral Support was related in an unexpected direction to social emotional skills—a curious finding.
- When analyzed with the current Early Achievers threshold, a significant positive relationship exists between CLASS PK Instructional Support and both early writing and letter word knowledge. Additionally, the Toddler CLASS Engaged Support for Learning domain was associated with fine motor skills.
- An alternate administration and proportion scoring method of the Environmental Rating Scales (ECERS-R, ITERS-R, FCCERS-R) family of tools showed positive associations with gains in receptive language, early science, expressive language, cognitive, and social-emotional skills.
- Classrooms implementing Montessori or research-based curriculum improved the effect of CLASS Instructional Support on letter word knowledge. Mastery engagement was associated with social-emotional and early writing skills.

There are important limitations to our study that compel us to advise caution when interpreting results. These include a small dataset in regards to the number of participating sites, classrooms, and children; missing data; limited range of scores on independent variables; and the fact that we observed children whose parents chose these sites and volunteered to participate in our study, raising issues regarding self-selection and the representativeness of our sample. A final limitation concerns the short time frame (average 150 days) from pre- to post-direct child assessments. Ideally, we would follow children over their time in care and have enough data points to understand individual children's growth curves longitudinally. In general, we found some positive results that support the existing literature base. But unexpected findings proved contradictory and require further investigation.

Survey of provider and family experiences in Early Achievers

As part of the validation study, we surveyed key stakeholders in Early Achievers: early learning professionals and the families of children enrolled in their sites.

Among early learning professionals (60.4% response rate for directors/owners and 48.9% for teachers/providers), we found that:

- CCC directors, FCC owners, and CCC teachers/providers (including Head Start and ECEAP) participating in this survey were predominately female, married, white, and English-speaking. Directors and owners tended to be older, have more experience in the field of early childhood education than teachers/providers, and reported higher annual salaries and household incomes than teachers/providers.
- Both centers and FCCs implement curriculum, but they vary considerably in the way they use curriculum. Directors and teachers/providers were more likely to report use of research-based, published curriculum, while FCC owners were more likely to develop and use their own. Directors, owners, and teachers/providers reported that they are most confident teaching children social-emotional skills. FCC owners also indicated higher levels of confidence for teaching physical development and health and early writing. Directors, owners, and teachers/providers identified low wages as interfering with their job performance, and in addition, they all reported that workplace stressors, job expectations, and lack of sleep inhibit their ability to perform their jobs.
- Directors, owners, and teachers reported mixed satisfaction with Early Achievers. Some expressed very positive experiences such as opportunities to learn and become more intentional with teaching practices, while others felt that changes were needed such as time required to participate.

Among the 599 parents/guardians who completed the family survey (64.0% response rate):

- A majority reported that proximity to home was the top reason they chose their child care program, while special needs programming and the caregiver speaking their home language were least important.
- Parents reported overall satisfaction with their children's site/facility/setting. High percentages of parents felt comfortable at their site, connected with the teacher/provider, had children excited to attend, and had seen positive changes in their child's skills since enrollment.
- Parents reported participating in many different types of activities with their children at home, with the most frequent activities being book reading, singing songs, and tickling their child. The least frequent activities were trips to the library and playing board games.

Recommendations

1. Results indicate that children are making positive but modest gains across most developmental domains. Strengthening the focus of teaching and learning across all domains—especially in sites serving children from low-income backgrounds—could enhance learning and development. Specifically, in the year before kindergarten, children were not as strong in early math and letter word identification compared to other domains. More than half of low-income children entering kindergarten were below the mean or established age expected score on standardized measures in receptive vocabulary, letter word identification, executive function, and early math. We recommend considering the results from the analyses of children's developmental gains to inform professional development for early learning professionals.
2. Noting that the sample of dual language learners was very small, our results indicate that children made marked receptive language gains in English, but they did not gain equally in Spanish. This suggests the children could be learning English at the expense of becoming bilingual. We recommend considering professional development for child care professionals in supporting bilingual learners.

3. Our results suggest links between the use of research-based curriculum and children's learning. We recommend considering incentivizing and providing support for the uptake and use of research-based curriculum in Early Achievers sites. Support could include efforts to reduce the costs of curriculum to the providers, training, and ongoing coaching to fidelity.
4. We found some positive linkages between quality assessments and child outcomes, but not for all domains and most linkages are lost when the assessments are summed to Early Achievers quality levels. We recommend exploring domain specific quality assessments. Future work could involve simulations for the inclusion and alternative weighting of quality measures and standard areas that may strengthen linkages to child outcomes.
5. Alternative scoring of the Environmental Rating Scales using a proportion score was related to child outcomes across more developmental domains than traditional scoring. Scoring "all the way up" captures developmentally enhancing interactions within the context of a safe and engaging environment. Results yielded from proportion scoring also provide more helpful links to tailor information for coaching and professional development goals. We recommend considering using the alternative scoring method of ERS. Additionally, Washington State is currently engaged in an effort to validate the ECERS-3, which has a similar approach to the proportion score and might be a viable measure for QRIS. We recommend exploring alternative administration and scoring methods of ERS, as well as considering the new ECERS-3 tool as future options.
6. Early Achievers data collection is extensive and can be overly time-consuming. We recommend exploring ways to increase the efficiency of data collection in Early Achievers. Validating short forms of quality instruments, collecting data on tablets to streamline data entry, and eliminating duplicative measures are all viable options.
7. More than 25% of directors reported asking a child to leave their centers due to challenging behavior. Child care expulsion is a concerning event and indicates providers need more support to care for all children. We recommend considering system-wide and focused professional development on positive behavioral support for young children.
8. Providers reported stress, and they experience depressive symptoms at higher rates than the general public. Caring for children is demanding physical and mental work and even more difficult to do when one feels stressed or depressed. We recommend considering system-wide and focused support for child care professionals' health and well-being.
9. Limitations in this study were mostly related to sample characteristics due to voluntary recruitment during a less-than-optimal time in the evolution of Early Achievers. But ongoing study of the Early Achievers program is essential to continued quality improvement of the program to optimize child outcomes—especially for vulnerable children. Continued evaluation efforts of Early Achievers in its current structure may be beneficial in understanding future refinement needs of the rating system and the differentiation of quality rating levels. We recommend requiring or rewarding participation in future, ongoing evaluation of all Early Achiever sites.

INTRODUCTION

This report summarizes the findings of the Statewide Internal Standards Validation Study of Early Achievers. The study addressed whether elements of Washington State's Quality Rating and Improvement System (QRIS) for early care and education are associated with measurable gains in children's outcomes across developmental domains. The University of Washington Childcare Quality & Early Learning Center for Research & Professional Development (CQEL) conducted this study from June 2014 through December 2015 in partnership with the Washington State Department of Early Learning (DEL).

We hope this report will promote continued improvement and increased credibility and support for Early Achievers so that parents can rely on ratings in selecting care, and providers may be more inclined to participate in the rating system. This work also supports effective deployment of limited rating resources by encouraging the measurement of only those program characteristics that contribute to quality. Finally, we hope that our findings support coaches and providers in targeting key aspects of care for quality improvement.

1. Early Achievers at a Glance

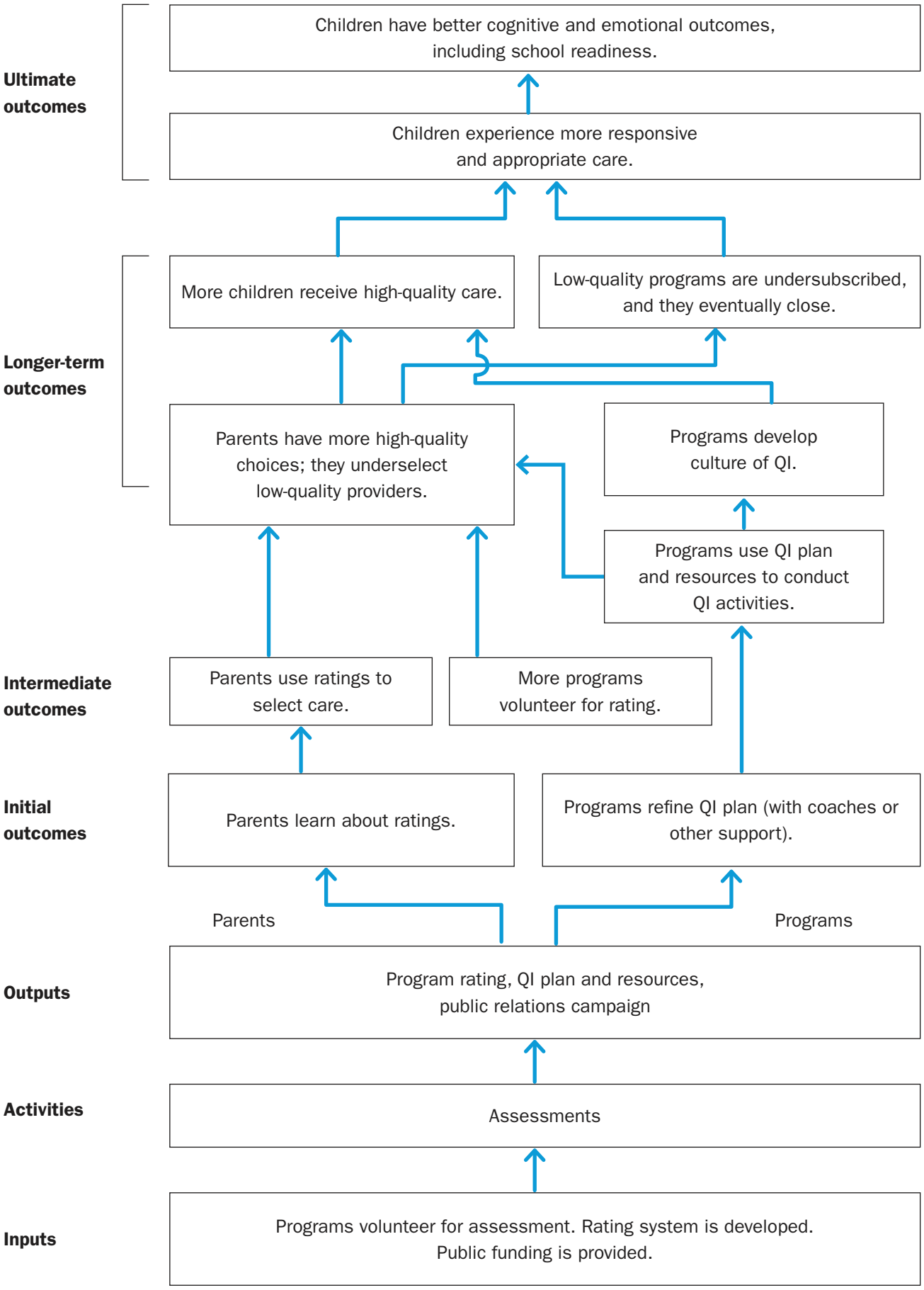
Nearly every state in the nation has created a QRIS to raise the quality of early care and education. A QRIS is "a method to assess, improve and communicate the level of quality in early care and education settings" (Mitchell, 2005, p. 4). Washington State's QRIS is called Early Achievers. With support from a federal Race to the Top Early Learning Challenge grant, Early Achievers went statewide beginning July 1, 2012. The goal of Early Achievers—consistent with the overarching purpose of QRIS—is to help early learning professionals offer high-quality child care that supports children's learning and development.

According to Child Trends (2009), a fully functioning QRIS includes the following components:

1. Quality standards for programs and practitioners
2. Supports and an infrastructure to meet such standards
3. Monitoring and accountability systems to ensure compliance with quality standards
4. Ongoing financial assistance that is linked to meeting quality standards
5. Engagement and outreach strategies.

In the validation process, independent observers assess quality standards, and the results inform an overall quality rating. These overall ratings are intended to distinguish meaningful levels of quality and subsequent improved outcomes for children. The following logic model shows this process:

Figure 1.1 A Logic Model for QRISs



Adapted from Zellman and Perlman, 2008.

High-quality child care helps children get ready for success in kindergarten and beyond. Yet the quality of early learning environments varies considerably across Washington. Early Achievers helps early learning programs offer consistent high-quality care by:

- Supporting programs through training, coaching, resources, and incentives to support children's learning and development.
- Providing information to families about program quality to help them make informed child care choices that fit their needs.
- Ensuring that children have high-quality learning experiences that help them develop the skills they need to be successful in school and life.
- Connecting families to child care and early learning programs with the help of an easy-to-understand rating system.

Research shows this kind of assistance helps providers improve the quality of their programs. When more young children are ready for school, we all benefit.

Early Achievers supports and aligns with other early learning initiatives, including Washington's Kindergarten Inventory of Developing Skills (WaKIDS), and it is a key strategy of the Washington State Early Learning Plan. Seamless alignment is of utmost importance to help all children develop and successfully transition from early childhood into early elementary school.

Early Achievers is comprised of the following components:

- **Standard area rating structure** that includes four distinct areas from which five rating levels can be achieved (see Appendix A).
- **Quality rating system** through which data collectors trained to reliability gather information on the quality of the learning environment.
- **Coaching and professional development** opportunities offered to participating sites and their staff.
- **Incentives** through which sites are encouraged to attain higher levels in the quality structure.
- **Information sharing with families** to help them select quality care for their children.

2. QRIS Validation

Validation of a QRIS involves an examination of the rating structure to gauge how well meaningful differences in program quality are identified. Validators use several approaches to understand the QRIS rating structure, individual components, and overall outcomes (Lugo-Gil, Sattar, Boss, Boller, Tout, & Kirby, 2011). Validation research may include:

- Underlying concepts
- Psychometrics of individual components
- Differentiation of quality levels
- Associations with child outcomes.

The Quality Initiatives Research and Evaluation Consortium (INQUIRE) identifies these characteristics of QRIS validation studies:

- They represent an ongoing, iterative process that assesses whether design decisions about quality standards and measurement strategies are producing meaningful and accurate ratings.
- They assess whether rating components and summary ratings can be relied on as accurate indicators of quality.
- They identify needed changes to standards and measure use and support of continuous quality improvement in a state system.

3. Early Achievers Validation Study

With this validation study, Washington joins a handful of other states that have attempted to examine whether sites that receive higher ratings are actually producing better outcomes in terms of child development (Karoly, 2014). To date, seven states have conducted studies to document this association. Only three (CO, Zellman, Perlman, Le & Setodji, 2008; MN, Tout, Starr, Isner, Cleveland, Albertson-Junkans, Soli & Quinn, 2011; MO, Thornburg, Mayfield & Hawks, 2009) have collected, as we have, independent child outcomes data in the fall and spring (see Appendix B).

Of central importance to Early Achievers, we conducted observations of classroom practices such as overall quality, teacher-child interactions, and engagement. Additionally, we collected data on overall rating status as well as each of the Early Achiever standard areas of Child Outcomes, Family Engagement, Professional Development, and Curriculum and Staff Supports.

The validation study addressed **three primary research evaluation questions**:

1. Do children who attend higher-rated Early Achievers sites/settings show greater gains than children who attend lower-rated Early Achievers sites?
2. Are the Early Achievers' Quality Standards associated with children's learning?
3. What is the association between Early Achievers observational measures of quality and children's learning?

Additional analyses addressed the following subordinate research question:

- How are language modeling, curriculum, and engagement associated with children's learning and development?

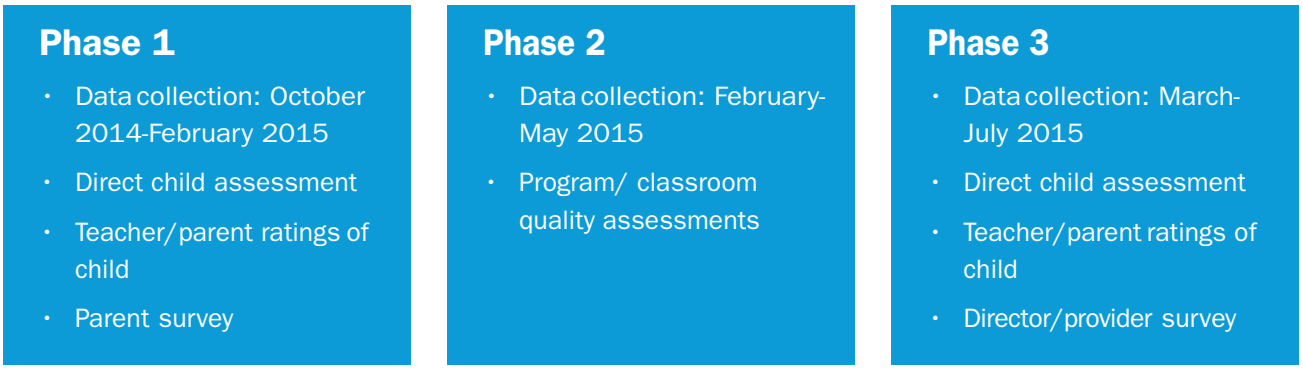
We employed various research methods to explore these questions including records review, surveys with early learning professionals as well as parents and families, observational assessments of CCCs and FCC homes, and individual direct child assessments.

Our **three main focus areas** of the study were provider characteristics and site/facility quality, child outcomes (residual gains in children's learning and development), and parent and family profiles. We briefly discuss each, as well as the three associated data collection phases, below.

- **Provider characteristics and quality.** Researchers examined overall Early Achievers ratings and the elements of quality comprising those ratings. They considered both structural and process measures to identify relationships of quality. Additionally, they incorporated measures of engagement, curriculum implementation, and the use of language in the classroom.
- **Child outcomes.** Participants included infants, toddlers, and preschool children. Researchers administered standardized instruments directly to recruited children during a baseline assessment in fall 2014, which they conducted again in spring 2015 to measure learning and development. They also obtained indirect assessments in the form of parent and provider reports for participating children. Lastly, they collected secondary data from existing entities to study children's gains in knowledge and skills over time.
- **Parent and family profiles.** Parents and families of participating children were key sources of information in this study. Researchers collected data about general family characteristics, home activities, and overall child care experiences.

The quality standards validation study began in June 2014. The timeline for data collection for all three phases of the study are shown in the figure below:

Figure 3.1. Data Collection Timeline



Following are descriptions of specific study implementation activities:

Data collection team

The University of Washington hired data collection staff members in August 2014. The research team screened candidates for experience working with children, knowledge of standardized assessments, and education in early childhood development or a related field. Additionally, we sought bilingual (Spanish and English) and region-specific (Western, Central, and Eastern Washington) candidates. In the end, the study hired 11 qualified candidates to carry out data collection activities.

We trained staff members on human subjects practices and day-of-visit procedures per University of Washington protocol. We trained on one of two assessment batteries, preschool (PK) or infant/toddler (I/T). Training sessions consisted of direct instruction, partner practice, video coaching, lab assessment practice, and in-field assessment practice. To complete the training process, we deployed individual staff members to a participating site on a partner visit, accompanied by an experienced and reliable assessment lead, to determine reliability for independent data collection activities.

Study recruitment

The University of Washington partnered with DEL in summer 2014 to begin recruitment activities. The initial sampling frame included all sites enrolled in Early Achievers. We initially contacted directors and FCC owners via email to introduce the study and gauge interest in voluntary participation.

Specific recruitment efforts included: direct email messages from DEL requesting participation, direct mailings to providers, email messages sent from Child Care Aware (CCA), email messages sent from the Washington State Association for Head Start and ECEAP, and presentations with incentives at Early Achievers Institutes. UW staff members were made available to visit with interested directors/owners in person during summer 2014 and also conducted phone calls to follow-up and answer any study-related questions throughout the recruitment process.

Program directors and FCC owners served as primary contacts throughout the study. These contacts facilitated communication with classroom teachers, and subsequently, children's families, to whom we distributed consent forms for participation in study activities. Families and early learning professionals were rewarded for their participation, receiving $5 upfront with delivery of surveys to be completed and returned to UW staff. Additionally, early learning professionals were offered their choice of a children's book (infant/toddler, preschool, English/Spanish) at the conclusion of each site visit.

Sampling

The initial sampling frame included all sites enrolled in Early Achievers. The sampling plan aimed for equal numbers of sites across quality rating levels and representation of CCCs, FCCs, and early Head Start/Head Start/ECEAP (EHS/HS/ECEAP) facilities. We designed the study to include both infant/toddler and preschool classrooms across all regions of the state. We targeted for participation enrolled, but not yet rated, sites as well as rated ones.

Of the 2,303 sites enrolled in Early Achievers at the time of initial study recruitment, 2,049 (89%) were not yet rated, and 254 (11%) were rated. Of the sites for quality levels, 85 (33%) were rated at Level 2, 104 (41%) at Level 3, 64 (25%) at Level 4, and 1 at Level 5.

Selection criteria

The research team gave sites the opportunity to participate in the study if they were enrolled in Early Achievers, regardless of rating status (not yet rated or rated at levels 2-5) or program type (CCC, FCC, or EHS/HS/ECEAP).

We sent study information and consent forms to every parent in participating sites. Classrooms were randomly selected for data collection depending on program composition (PK, I/T), so that no more than one preschool room, infant room, toddler room, or combined infant/toddler room was selected within each program.

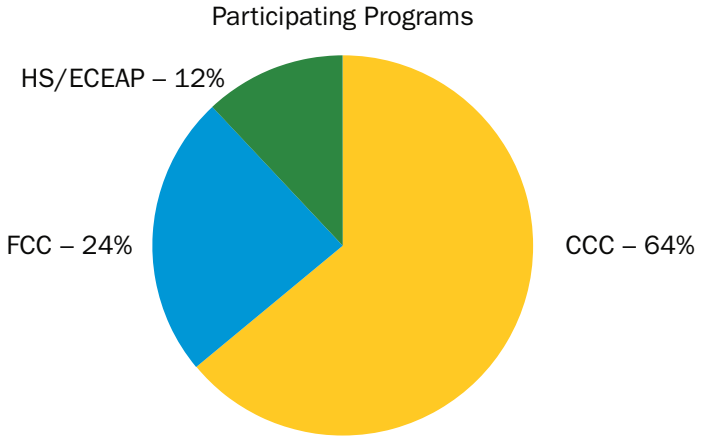
Children in each classroom were then randomly selected for participation—up to eight children (four boys and four girls when possible) per preschool classroom and up to four children (two boys and two girls when possible) per infant/toddler classroom.

Of the sites meeting eligibility requirements, 132 volunteered to participate, completed consent forms, and were enrolled in the study.

4. Participating Providers and Programs

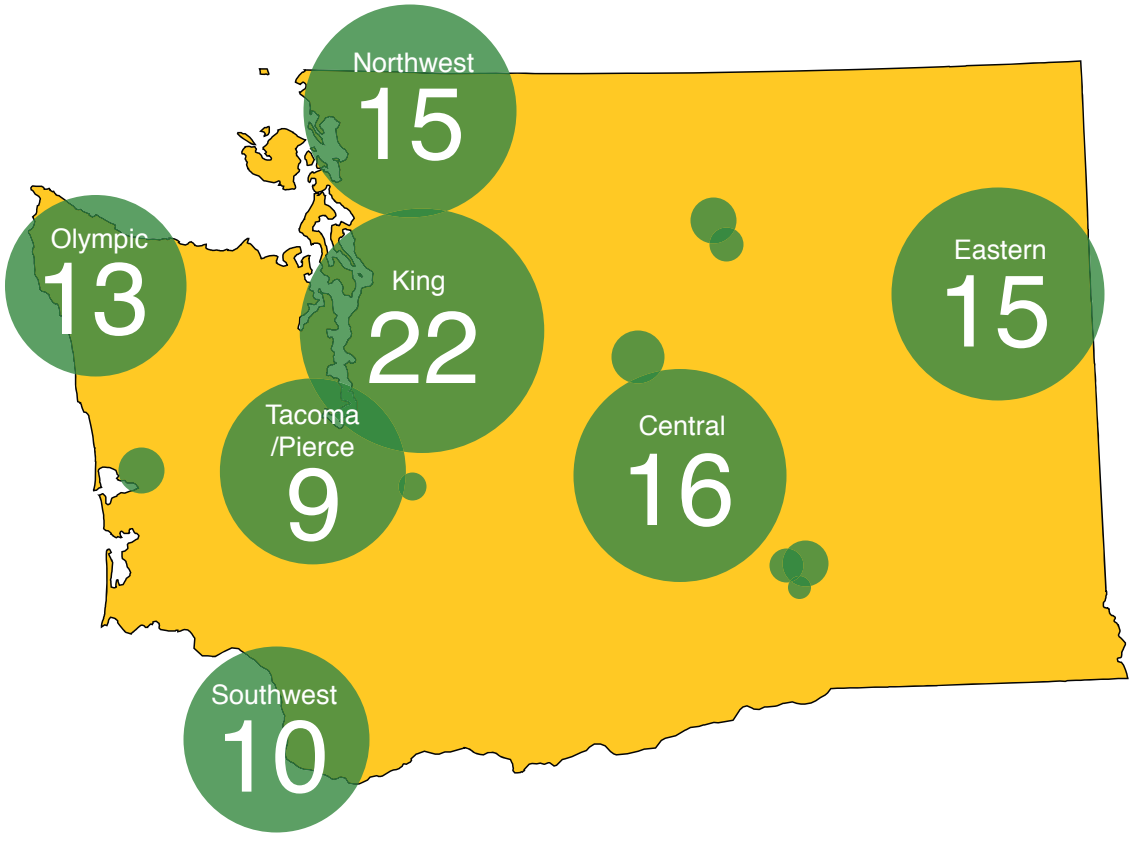
Prior to the first scheduled site visit, 31 of the initially consented sites opted out of the study for a variety of reasons (too overwhelmed to continue, no longer in Early Achievers, unable to contact director, lack of parent consent forms). By program type, 19 were CCCs, 10 were FCCs, and 2 were EHS/HS/ECEAP. Seventeen were rated. The remaining sample of 101 sites completed the first phase of data collection, and 100 sites completed the second and third phases of data collection. The final program sample (N=100) included three different program types. Of these 100 sites, 24 were FCC homes, 64 were CCCs, and 12 were EHS/HS/ECEAP programs, as the following figure shows:

Figure 4.1. Number of Participating Programs



The study achieved adequate representation across Washington State, with sites in each of the seven Child Care Aware regions. There were 16 sites in Central Washington, 15 sites in Eastern Washington, 15 sites in Northwest Washington, 22 sites in King County, 9 sites in Pierce County, 10 sites in Southwest Washington, and 13 sites in the Olympic region.

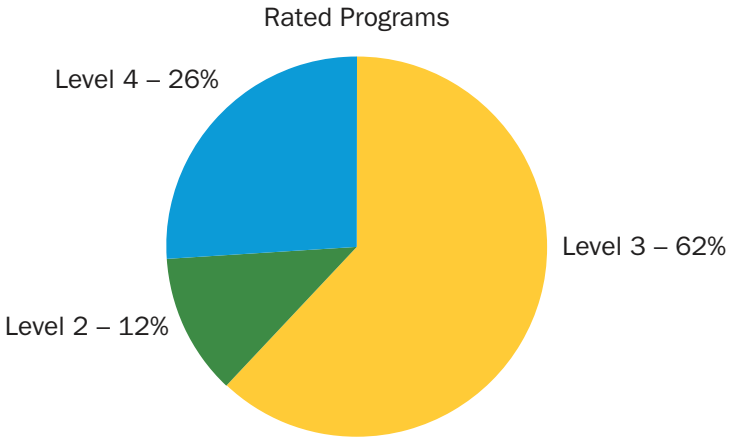
Figure 4.2. Map of Participating Programs



Programs were at various Early Achievers adoption levels. Most had completed the rating process, while others were not yet rated. In total, 81 of the participating sites had published ratings. The remaining 19 sites were engaged in Early Achievers activities but had yet to complete the rating process.

Programs with published ratings spanned across Early Achievers quality levels, with the exception of Level 5. Of the 81 rated sites, 10 (12.3%) had achieved Level 2, 50 (61.7%) achieved Level 3, and 21 (26%) were rated at Level 4. The remaining sites were unrated (n=19). The following chart shows the various quality levels:

Figure 4.3. Program Rating Levels



Over the course of the study, one participating program dropped out after the first phase of data collection, and two classrooms merged into one, resulting in a total of 155 classrooms. Classrooms were randomly selected from sites with more than one consented classroom type. Of these 155 classrooms, 14 (9%) served infants, 45 (29%) served toddlers, 72 (46.5%) of classrooms consisted of preschool-age children, and 24 (15.5%) were blended. Three classrooms did not allow us to collect classroom quality data because teachers felt overwhelmed with other activities and observations. Therefore, in the classroom quality descriptions, data represent 152 of the original 155 classrooms described in the following table:

Table 4.1. Classroom Characteristics

	N	Percent
Program Type		
CCC	117	75.5%
FCC	24	15.5%
HS/ECEAP	14	9%
EA Adoption Level		
Unrated	28	18.1%
Level 2	19	12.3%
Level 3	81	52.3%
Level 4	27	17.4%
Subsidy Percentage		
0%	25	16.1%
<25%	50	32.3%
25-49%	24	15.5%
50-74%	27	17.4%
75-100%	29	18.7%

5. Participating Children and Families

Of the 2,324 consented children, up to 8 preschool and 4 infant/toddlers were randomly selected from each classroom/FCC, resulting in a sample of 947 children in fall 2014. As often is the case in longitudinal studies, subject participation decreased over the course of data collection. Attrition between fall 2014 and spring 2015 time-points was 19.6%, reducing the total sample size. Therefore, 186 children were excluded in the final analysis, resulting in a final sample of 761 children from 100 participating sites. Of this final sample (N=761), 49.7% were boys, and 50.3% were girls. The range of ages for children at spring 2015 assessment was 8 months to 71 months. Children younger than 36 months participated in the infant/toddler battery (31.4%), and the remaining 68.6% of the sample were considered preschool age.

Of the preschool-age children, 33 were Spanish-speaking dual language learners who participated in the Spanish battery. The children in the study sample were from various racial backgrounds, with the largest group being white (59.5%). Additionally, 14% of the children were of Latino ethnicity. The majority of the students were categorized as fluent English speakers (84%). Teacher/provider reports indicated that 64 children had been referred for special education, and 10 parents reported that their children had developmental delays.

Child and family demographic information are shown in the following table.

Table 5.1. Demographics of Participants

Child characteristics	N	Percent	Missing
Gender			0 (0%)
Boy	378	49.7	
Girl	383	50.3	
Primary language			7 (0.9%)
English	639	84.0	
Other language	115	15.1	
Race			108 (14.2%)
White	453	59.5	
Other race	200	26.3	
Ethnicity			108 (14.2%)
Latino	105	13.8	
Other ethnicity	548	72.0	
Family characteristics			
Subsidy			100 (13.1%)
Yes	175	23.0%	
No	486	63.9%	
Parent education			283 (37.2%)
Bachelor's degree	263	34.6	
Less than Bachelor's	215	28.3	

By program type, 139 children attended FCC sites, 532 attended CCCs, and 90 attended HS/ECEAP sites. By Early Achievers adoption level, 151 of the children were enrolled in unrated sites, 85 in Level 2 sites, 380 in Level 3 sites, and 145 in Level 4 sites. This information is shown in the two tables that follow.

Figure 5.1. Participating Children by Program Type

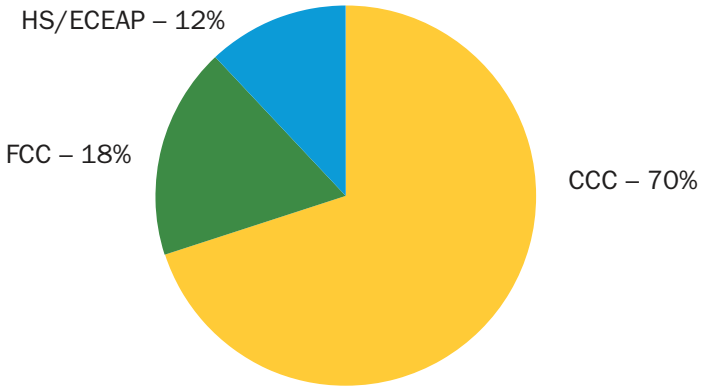
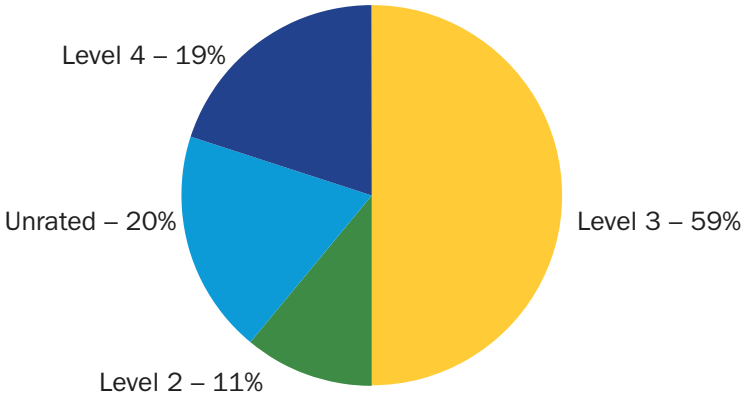


Figure 5.2. Participating Children by Program Rating Level



6. Assessment Measures and Procedures

The battery of measures used for child assessments included both direct and indirect assessments (via teacher report). We collected direct child assessment data across learning domains (social-emotional, language, literacy, science, math, writing, executive functioning, cognitive, and motor) in fall 2014 and again in spring 2015 to determine children's learning over time. We collected program-level data, including overall Early Achievers rating and points achieved within individual standard areas, through record review in the WELS state registry. Classroom quality measures consisted of published standardized instruments collected via observation, a measure of engagement developed specifically for this study and a language sample collected via the Language Environment Analysis (LENA) digital language processor.

Program quality measures

In this study, we define classroom and FCC quality as the environmental and interactional features that optimize child outcomes. To be more specific, high-quality classrooms and family child care homes:

- Are safe and hygienic.
- Are warm and responsive.
- Are well organized and use developmentally appropriate positive behavior management practices to maximize learning time.
- Have stimulating materials accessible to children.
- Are language-rich.
- Provide interactions that foster children's thinking skills.
- Result in high levels of active engagement.

Classroom observation instruments focus on these features and document what children directly experience in their sites (Zaslow, Anderson, Redd, Wessel & Burchinal, 2011). These experiences are presumed to have direct effects on children's development. The instruments include published assessments as well as CQEL-developed observation protocols. Following are brief descriptions of the instruments used to assess the quality of each learning environment.

Classroom Assessment Scoring System. The CLASS is a widely used process quality tool that assesses classroom practices by measuring teacher-child interactions and material use. It is available in multiple versions. Each of the four versions of the CLASS used in this study incorporate several dimensions that load onto specific domains appropriate for a given age group. The tool has been linked to student achievement and development and has been validated in more than 2,000 classrooms. Following are the four CLASS versions used in the validation study:

- **CLASS Infant** (Hamre, La Paro, Pianta, & LoCasale-Crouch, 2014). The Infant version of the CLASS tool is appropriate for use in classrooms serving children up to 15 months of age and consists of four dimensions that load onto one domain: Responsive Caregiving.
- **CLASS Toddler** (La Paro, Hamre, & Pianta, 2012). The toddler version of the CLASS tool is appropriate for use in classrooms with children 15–36 months of age and includes two domains of teacher-child interactions: Engaged Support for Learning and Emotional and Behavioral Support.
- **CLASS Pre-K** (Pianta, La Paro, & Hamre, 2008). The CLASS Pre-K version is appropriate for classrooms serving children 3-5 years of age and is comprised of three domains: Emotional Support, Classroom Organization, and Instructional Support. Ten supporting dimensions contribute to these three domains.
- **CLASS Combined Approach** (Joseph, Feldman, Phillips & Jackson, 2010). Combined CLASS integrates dimensions from all three CLASS tools to allow for multi-age groupings, most often found in FCC homes. It consists of three domains: Emotional Support, Classroom Organization, and Instructional Support.

Scores for the CLASS range from 1-7. A score of 1-2 indicates the classroom is in the low range; 3-5 indicates a score in the mid-range; and a score of 6-7 falls in the high range.

Environment Rating Scales. The ERS, a measure of classroom interactions, activities, and materials is an indicator of environmental quality. These widely used, valid, and reliable scales are designed to assess quality in early childhood environments. The scales, each comprised of six subscales, include the following versions:

- **The Infant Toddler Environment Rating Scale—Revised** (ITERS-R) (Harms, Cryer, & Clifford, 2003). The ITERS-R consists of 32 items, which make up six subscales: Space and Furnishings, Personal Care Routines, Listening and Talking, Activities, Interaction, and Program Structure. We used this measure for observations in classrooms with children up to 30 months of age to assess child care quality.
- **The Early Childhood Environment Rating Scale—Revised** (ECERS-R) (Harms, Clifford, & Cryer, 1998). The ECERS-R assesses quality of preschool classrooms on the following subscales: Space and Furnishings, Personal Care Routines, Language Reasoning, Activities, Interaction, and Program Structure. The total scale consists of 37 items and was used for observations in classrooms with children from 30 months to five years of age.
- **The Family Child Care Environment Rating Scale—Revised** (FCCERS-R) (Harms, Cryer, & Clifford, 2007). The FCCERS-R has 34 items, which make up six subscales: Space and Furnishings, Personal Care Routines, Listening and Talking, Activities, Interaction, and Program Structure. This measure was used to assess child care quality in FCC homes and is appropriate for children up to 12 years of age.

Scores for the ERS are calculated on 7-point scales (1 = inadequate; 3 = minimal; 5 = good; 7 = excellent).

Language Environment Analysis (LENA) (Xu, Yapanel, & Gray, 2009). The LENA is a language environment analysis device, or digital language processor (DLP), that captures information about language use in a child's environment. A software package analyzes the data and provides estimates of language use within the classroom. The software calculates various language characteristics in the form of word counts, conversation initiation, and conversational turns during various blocks of time. For the purposes of this study, we calculated words per hour and total conversational turns per hour. Words per hour and conversational turns have been correlated to improved child outcomes in literacy and early math (Soderberg, 2014). In the validation study we were seeking a "threshold" of word counts within group settings that promote positive child outcomes.

Engagement in Classrooms Data Collection (ECDC) (Taliano, Soderberg & Joseph, 2014). The ECDC is a momentary time sampling observational tool that provides an organized approach to tracking children's engagement (or on-task) behaviors. It was designed for use as an indicator of a quality classroom environment, by looking at children's engagement with materials, peers, and adults. Adapted from the work of Shapiro (1996), this tool provides a systematic approach for observing and tracking young children's engagement behaviors. Data collectors recorded the occurrence of one of four types of behaviors: Mastery Engagement (ME), Functional Engagement (FE), Passive Off-Task (POFT), and Challenging Behaviors (CB). Behaviors were coded as present or not during five-second intervals. For the current study, four children were observed across multiple cycles lasting a total of 50 minutes.

In ME, the child exhibits behaviors that demonstrate a growing mastery of the task-at-hand because these are consistent with the teacher-intended objective of the activity. In FE, the child exhibits behaviors that demonstrate a raw understanding of how materials are expected to be used. In these cases, adult and peer interactions may occur, but they are not avenues for developing further understanding or skill. POFT indicates non-participation in the assigned activity. The child does not use materials at all or is not attending to teachers or peers during the interval. In CB, the child demonstrates inappropriate motor or verbal behaviors that are dangerous or disruptive to peers or the flow of class.

The following table summarizes observation measures used in the validation study.

Table 6.1. Classroom Observation Measures			
Instrument	**Feature of Quality**	**How it is Collected**	**Information Yielded**
Classroom Assessment Scoring System (CLASS) • Infant • Toddler • Preschool • Combined	• Warm and responsive interactions • Positive classroom management • Well-organized classroom • Fostering children's thinking skills • Language richness	• 2-hour direct observation • External assessor	Average domain scores
Environment Rating Scales (ERS) • ITERS-R • ECERS-R • FCCERS-R	• Safe and healthy • Supervision • Interactions • Language richness	• 3-hour direct observation • External assessor	Average scale scores
Language Environment Analysis (LENA)	• Language richness	• Digital language processor worn by provider/teacher	Raw word counts and conversational turns
Engagement in Classrooms Data Collection (ECDC)	• Active engagement	• 1-hour direct observation • External assessor	Percent of time children are engaged in learning activities

Inter-rater reliability (IRR)

We held data collectors to a stringent threshold of 80% reliability for the CLASS and engagement measure and 85% for the ERS tool to establish initial reliability before conducting classroom observations. Anchors and assessment leads annually participated in live reliability checks with the instrument author and approved experts (from Teachstone) and followed IRR procedures to conduct checks on data collection staff over the course of the year.

For the CLASS, the data collection team was led by four assessment anchors whose reliability was checked by the instrument authors. Average reliability percentages on these anchor/author visits were 98.4% and 95.8% for the preschool and toddler version of the tool, respectively. In addition to maintaining Teachstone reliability, these experienced and reliable anchors and assessment leads joined data collectors on average every tenth classroom visit per measure to double-code and check for inter-rater agreement.

As with the CLASS, ERS reliability was tracked for each assessor after meeting the initial reliability expectation. This data collection team was led by six anchors who established reliability with the instrument authors during three live classroom visits in summer 2015. Average reliability percentages on these author/anchor visits were 92.7%, 90.6%, and 99% for ECERS-R, ITERS-R, and FCCERS-R respectively. Pairs of assessors jointly visited the same classroom on every tenth visit per measure to double-code and check for inter-rater agreement.

We used consensus scoring to calculate IRR percentages. We compared ratings assigned by the data collectors to the consensus score, with points given for any item in exact or adjacent agreement. The researchers then divided the total number of items by the sum of all exact and adjacent points to arrive at the final IRR percentage. We show IRR rates for the CLASS and ERS in the following table:

Table 6.2. Data Collector Inter-rater Reliability Rates by Instrument		
Measure	**Average**	Range
CLASS Combined	96.5%	87.5%-100%
CLASS Pre-K	92.2%	82%-98.8%
CLASS Toddler	89.3%	80%-99%
CLASS Infant	89%	80%-100%
ECERS-R	91.8%	86%-98.5%
ITERS-R	94%	87.5%-99%
FCCERS-R	94%	89%-99%

For engagement, we trained data collectors on the use of the tool during direct instruction, field practice, video coding, and coaching activities. Prior to staff being deployed into the field, data collectors were expected to establish initial reliability of 80% with the gold standard code produced by the supervisory team. Videos were recordings of real classroom events. In each video, a rotation of children served as observation targets. Data collectors who did not meet this threshold were coached and asked to track different children or another video. We provided written as well as in-person feedback as well as individualized coaching sessions. We assessed reliability through video coding exercises both for initial and ongoing reliability. To prevent drift, we repeated this reliability process every five weeks for each data collector. We offered training and coaching sessions as needed throughout the study, and data collectors conducting observations in the field maintained an average reliability of 84%.

Although reliability of LENA word counts has yet to be examined in this study, an initial reliability study of the LENA System (Xu, Yapanel, & Gray, 2009) explored LENA Adult Word Counts (AWC) from a set of 70 test files of children ranging from 2 to 36 months by comparing to word counts from human transcriptions. LENA AWC mean estimates were found to be nearly the same as the human transcription counts, being an average of 2% lower than the counts reported by transcribers.

Data collection procedures

While the Early Achievers Standards Validation Study began in June 2014, data collection for Phase 2 (observed quality) spanned the months of February through May 2015. Data collectors visited classrooms to assess quality using the instruments previously described.

Data collection followed Early Achievers procedures and protocols as closely as possible and consisted of direct observations by trained and reliable external assessors. Assessors were extensively trained to observe classrooms and provide ratings on the ERS, CLASS, and engagement measures as well as LENA recordings.

Data collectors, who were scheduled internally by research team staff, arrived at sites “unannounced.” Program directors were given a range of dates spanning 2-3 months, during which they could expect the classroom visits to take place, but they were not provided any details as to the specific date of the observation. Data collection occurred over the course of two calendar days under the following format:

- Visit 1: ERS observations; LENA recording
- Visit 2: CLASS and engagement observations; LENA recording

Upon arrival, the data collector checked in with an on-site contact who then led them to the appropriate classroom. The length of the observation depended on the measure being used. Prior to the unannounced visit, data collectors were briefed to refrain from interacting with children or teachers to avoid any unnecessary interruptions to instruction.

For the CLASS, the team conducted four 20-minute observation cycles, as recommended by the instrument authors. These assessors coded and scored the observational measures at the conclusion of each site visit before submitting documents to office staff, who then conducted a quality check on the data.

ERS data were collected during visits by reliable external assessors. Assessors were extensively trained to observe classrooms and provide ratings on the ERS measures. The ERS observations lasted for approximately three hours, during which time the data collectors limited their interactions with children and providers. At the conclusion of each site visit protocols were submitted to office staff who then conducted a quality check on the data.

The teachers and providers in observed rooms (during both the CLASS and ERS assessments) were asked to wear the LENA device. Teachers had the right to refuse to wear the device, regardless of whether they had agreed to wear it.

Data collectors conducted the engagement observation in conjunction with CLASS in all preschool, toddler, and blended classrooms. Upon arrival at the center, data collectors randomly selected up to six children. They tracked these children cyclically for an average of 50 minutes.

The team assessed infant classrooms in CCCs using the ITERS-R, the infant version of the CLASS, and LENA. Toddler classroom observations included the ITERS-R, the toddler version of the CLASS, LENA, and the ECDC. The team assessed preschool classrooms using the ECERS-R, the pre-K version of the CLASS, LENA, and the ECDC. In the event a classroom was blended—comprised of both infants and toddlers—the chronological ages were calculated for each child. Per Early Achievers protocol, the final count in each age group (up to 15 months or 16-30 months of age) determined which version of the CLASS would be administered. For FCC homes, the team used FCCERS-R, Combined CLASS, LENA, and the ECDC.

After each data collection visit (nearly 600 in all), directors were asked to complete a post-visit survey to alert us immediately to any behavior outside of our protocol warranting a return visit. The survey asked directors questions regarding how well the researchers followed appropriate protocol (such as, “The researchers arrived during the dates/times I expected,” and “The researchers checked in as requested.”). The few questions answered with “disagree” (six occasions) tended to concern problems with scheduling or arrival time. Each problem was addressed in a timely fashion. Data collectors were provided with feedback and a return visit was conducted if deemed necessary. In each case, we determined that protocol was followed appropriately and a return visit was not necessary.

Descriptive statistics for classroom quality measures are shown in the following table. Note that three classrooms did not allow us to collect classroom quality data due to teachers feeling overwhelmed with other activities and observations. Therefore the table shows data for 152 of the original 155 classrooms in the study.

Table 6.3. Descriptive Statistics for Classroom Quality Measures				
	n	M	SD	Range
Infant CLASS				
Responsive Caregiving	14	4.58	.98	2.88-6.31
Toddler CLASS				
Emotional/Behavior	42	5.46	.81	3.60-6.75
Instructional/Engaged	42	2.69	.92	1.25-5.42
PK CLASS				
Emotional Support	75	5.96	.66	3.69-6.94
Classroom Organization	75	5.26	.77	2.50-6.67
Instructional Support	75	2.34	.71	1.08-4.50
Combined CLASS				
Emotional Support	21	5.37	.94	3.65-6.95
Classroom Organization	21	4.69	1.09	1.75-6.25
Instructional Support	21	2.36	.78	1.38-4.56
Environmental Rating Scales (ERS)				
ITERS-R	49	3.61	.84	1.85-5.10
ECERS –R	82	3.64	.68	2.20-5.31
FCCERS-R	21	3.26	.96	2.00-5.75
ERS Average	152	3.57	.77	1.85-5.75
Space & Furnishings	152	3.41	.80	1.83-6.00
Personal Care Routines	152	2.06	.61	1.00-4.83
Language & Reasoning	152	4.01	1.18	1.33-7.00
Activities	152	3.90	1.11	1.18-6.67
Interaction	152	4.32	1.48	1.40-7.00
Program Structure	152	4.29	1.36	1.33-7.00
LENA				
Words Per Hour	102	2934.39	992.14	577.65-5762.54
Conversational Turns	102	188.92	64.24	40.42-349.25

Individual child assessments

External assessors who had been trained to reliability on each measure conducted direct individual child assessments. The team assessed infants and toddlers up to 2 years and 11 months of age in the areas of receptive language, expressive language, fine motor, gross motor and visual reception. These scales also yield an overall cognitive composite. Preschool-age children (3 years and older) participated in assessments measuring language, letter word knowledge, early writing, early math, early science, and executive functioning. Social emotional skills were assessed via teacher report on a standardized measure. Additionally, we screened preschool children identified as having a primary language other than English for language proficiency with the Pre-LAS 2000. We administered three separate battery tracks to children (infant/toddler, English preschool, and Spanish preschool).

Following are the general areas of individual child assessments and the measures used in the validation study:

Infants and Toddlers:

- **Cognitive**. Infant and toddler children were administered the Mullen Scales of Early Learning (Mullen). The Mullen consists of five individual scales, four of which comprise an overall Early Learning Cognitive Composite, measuring development in the area of cognitive functioning.
- **Expressive language**. We administered the Mullen Expressive Language subscale to infants and toddlers. This is a direct assessment of children's ability to use language.
- **Fine motor.** We assessed infant and toddler's fine motor skills with the Mullen Fine Motor scale.
- **Gross motor**. We used the Mullen Gross Motor scale to measure gross motor skills for infants and toddlers up to 33 months of age.
- **Receptive language**. We administered the Mullen Receptive Language subscale to the infants and toddlers.
- **Social-emotional**. The Child Behavior Checklist (CBCL) yields Internalizing, Externalizing, and Total Problems scales as reported by parents and teachers/providers. This was collected for toddlers 12 months of age or older.

Preschoolers:

- **Early reading**. For preschool-age children, letter word knowledge was measured using the Woodcock–Johnson III Tests of Achievement (WJ III) Letter-Word Identification subtest, which assesses a child's ability to identify letters and words. For Spanish speaking children, we administered the *Batería III Woodcock-Muñoz*.
- **Early science**. The Lens on Science (LENS) is an adaptive computer-based instrument that assesses preschool children's content and processing skill knowledge in science.
- **Early writing**. The Early Writing Assessment (EWA) measures early writing development and asks preschool children to write their names (EWA Name) as well as two consonant-vowel-consonant words (EWA Word) from dictation.
- **Executive function**. We assessed preschool-age children's executive functioning using the Head Toes Knees and Shoulders (HTKS), a measure of behavior regulation, and effortful control specifically. Effortful control is the ability to stop doing something (inhibit a response) and do something else instead.
- **Early Math**. We assessed preschool children's early math knowledge and skills using the Tools for Early Assessment in Math (TEAM). Children participated in a short form version of the TEAM, which included 20 questions and a stop rule.
- **Receptive language**. The Peabody Picture Vocabulary Test, Fourth edition (PPVT-4) is an individually administered instrument measuring the receptive vocabulary of preschool children. The PPVT–4 measures understanding of the spoken word and thus assesses receptive vocabulary levels. For Spanish speaking children, we also administered the *Test de Vocabulario en Imagenes Peabody* (TVIP).
- **Social-emotional**. The Child Behavior Checklist (CBCL) yields Internalizing, Externalizing, and Total Problems scales as reported by parents and teachers/providers.

The PPVT-4 and WJ-Letter Word Identification are standardized instruments with a mean of 100 and a standard deviation of 15. The LENS is an adaptive measure with a mean of zero and standard deviation of one. The CBCL has a mean of 50 and standard deviation of 10. The LENS yields scores between -3 and 3 with a mean of zero and a standard deviation of one.

The remaining measures are not standardized and will be discussed relative to achieved raw scores. The HTKS is a three-part activity with 60 points possible. A measure of early math, the TEAM is scored on the total number of items answered correctly out of 20 possible items. The early writing rubric for the EWA Name task is scored on a scale of 0-8, while the range of possible scores on the EWA Word is 0-18.

The above constructs and measures are summarized in the following table:

Table 6.4. Validation Study Constructs and Individual Child Assessment Measures			
Construct	Measure	Battery	Measure Used in Other Published Studies
Letter word knowledge	Woodcock-Johnson III Tests of achievement (WJ-III) Letter Word ID	PK English	FACES 1997, 2000, 2003; Colorado QRIS
Science	Lens on Science (LENS)	PK English	No publications available, other studies in progress
Receptive vocabulary	Peabody Picture Vocabulary Test, 4th Edition (PPVT-4)	PK English and Spanish	FACES 1997, 2000, 2003; ECLS-B; QRIS (Colorado, Missouri, Minnesota, LA County)
Early math	Tools for Early Assessment in Math (TEAM)	PK English and Spanish	Short Form, adaptation of REMA used in Boston PK
Early writing	Early Writing Assessment (EWA)	PK English and Spanish	Adaptation of Puranik (2011, 2012)
Executive function	Head Toes Knees and Shoulders (HTKS)	PK English and Spanish	HTKS 2011 Cameron & McClelland; Cameron et al., (2012); Wanless et al (2011); Ponitz et al., (2009); Burrage et al., (2008)
Executive function and Emotion	Task Orientation Questionnaire (TOQ)	PK English and Spanish	Boston PK; LA County QRIS; etc.
Language proficiency	Pre-LAS 2000 (Simon Says & Art Show)	PK Spanish	FACES 2003; ECLS-K; First 5 LA
Receptive vocabulary in Spanish	*Test de Vocabulario en Imagenes Peabody (TVIP)*	PK Spanish	FACES 1997, 2000, 2003
Letter word knowledge in Spanish	*Batería III Woodcock-Muñoz-Identificacion de Letras y Palabras*	PK Spanish	FACES 1997, 2000, 2003
Cognitive, language, motor, visual Reception	Mullen Scales of Early Learning (Mullen)	I/T	Indiana QRIS
Social-emotional	Child Behavior Checklist (CBCL) Parent & Provider	PK English, Spanish and I/T	NICHD SECCYD; IHDP

Data collection procedures

We conducted individual child assessments throughout fall 2014 and again in spring 2015 to determine children's learning and development over time. Staff members, who visited sites in teams of two to three, were scheduled based on assessment needs per program type and composition (FCC/CCC, I-T/PK, English/Spanish). Teachers and providers guided staff to a well-lit and distraction-free area to engage in activities with randomly selected children. The study team administered to children individually, paying particular attention to level of engagement and providing breaks as needed. Before leaving the site, we offered all teachers and providers their choice of children's books to keep as a token of appreciation.

7. Child, Family, and Program Characteristics

We conducted parent surveys to gather information about **child and family characteristics** such as demographic data and child-rearing practices. In the current study, we examined child and family characteristics as potential moderators of children's learning outcomes. These included annual family income, subsidy status, and parent education level. We controlled for these prior to exploring the association between child care quality and early learning gains.

We used existing rating level and standard indictor data as well as independent observations of classroom quality to understand the association between **program quality** and child outcomes. We examined measures of program quality as potential predictors of children's rates of learning and development during their time in care after adjusting for child characteristics. We examined the influence of each measure of quality 1) global quality based on ERS scores, 2) teacher-child interactions based on CLASS domains, 3) Child Outcomes Standard area, 4) Family Engagement Standard area, 5) Curriculum and Staff Supports Standard area (a component of Facility Curriculum and Learning Environment and Interactions), and 6) Professional Development Standard area. Additionally, we investigated language modeling, engagement, and curriculum to explore the potential use of these measures in a future iteration of the Early Achievers standards.

8. Analysis

Because there were missing values for many of the variables of interest, we estimated data so that we could control for important family covariates (income, education, subsidy). There are a number of approaches to handle the imputation of missing data. We considered four approaches for our purposes: 1) Gradient Boosting Machine, 2) Random Forest, 3) OLS, and 4) Multivariate Imputation in Chained Equations (MICE). The extent of the missing data was moderate and multiple variables needed to be imputed at once, therefore, the following analyses utilized MICE single imputation (Bueren & Groothuis-Oudshoorn, 2011). See Appendix C for more information about our investigation of the four imputation techniques.

Sensitivity analysis

Our analysis examines relationships with regression techniques, an approach that has many advantages but is also known for being susceptible to the outlier problem. Because of this, we investigated whether our results are robust to this issue. Handling outliers is influenced by one's view of their cause, for example data collection or data processing errors. In some cases removing outliers from the analysis could be justified, but other causes may not justify such an action because this might plague the results. Our analysis indicated similarities across all regressions, convincing us that the outliers do not have a major impact on our results. See Appendix D for more information.

Analytic approach

To investigate the relationship of Early Achievers rating levels, standard indicators, and relevant observational measures of quality with child outcomes we chose the hierarchical linear modeling (HLM) analytic approach. HLM is used to analyze complex data structures with multiple levels. In this case, the children were nested within sites.

We constructed two-level models with the following level-1 factors as the controlling variables: annual family income, parent education level, child care subsidy, gender, age at pretest, and the children's baseline assessment on the targeted domains.

Parents reported their income and education levels in the parent survey. Income levels were listed in categories and the following codes were used: Income 1 = $10,000 or less, Income 2 = $11,000-$20,000, Income 3 = $21,000-$30,000, Income 4 = $31,000-$40,000, Income 5 = $41,000-$50,000, Income 6 = $51,000-$60,000, Income 7 = $61,000-$70,000, Income 8 = $71,000-$80,000, Income 9 = $81,000 or more.

Education level categories were given the following codes: 1 = Less than 9th grade, 2 = Some High School, 3 = GED, 4 = High School Diploma, 5 = Some College, 6 = Associate's Degree, 7 = Bachelor's Degree, 8 = Master's Degree or higher.

Some analyses used a variation of the controlling variables listed above; such instances are noted for each investigation. In the level-2 model, the level-1 regression coefficients are used as outcome variables and are related to each of the level-2 predictors.

We tested analytic models to examine the following:

- Association between Early Achievers' quality rating levels and children's learning and development.
- Association between the Early Achievers' quality standards and children's learning and development.
- Association between Early Achievers' observational measures of quality/standard components and children's learning and development.
- Association between language modeling, curriculum, and engagement with children's learning and development.

9. Study Results: Child Outcomes

In the following sections, we present results from the validation study, beginning with child outcomes from fall to spring.

Children who attended sites participating in this study made gains in almost every domain from fall to spring. On the standardized measures, average performance in the fall for all children was slightly above the national average in the areas of receptive language, letter word knowledge, and social-emotional skills.

To examine learning and development from fall to spring, we calculated mean (M) gain scores and standard deviations (SD) for child assessment data. The following tables provide descriptive statistics for child outcomes.

Table 9.1. Descriptive Statistics—Individual Child Assessment Scores

	n	M	SD
Preschool			
PPVT-Fall	579	101.25	16.78
PPVT-Spring	481	103.51	14.33
PPVT-Gains	467	1.48	12.38
WJ-LW Fall	590	101.79	15.31
WJ-LW Spring	484	103.40	14.79
WJ-LW Gains	479	1.48	9.23
PK CBCL-Fall	443	46.26	10.46
PK CBCL-Spring	273	46.34	10.25
PK CBCL-Gains	254	.22	8.12
LENS-Fall	277	.77	1.13
LENS-Spring	363	1.26	1.11
LENS-Gains	183	.67	0.87
TEAM-Fall	589	6.77	4.25
TEAM-Spring	476	8.74	4.00
TEAM-Gains	472	2.00	2.76
EWA-Name-Fall	598	4.72	2.87
EWA-Name-Spring	484	5.51	2.41
EWA-Name-Gains	483	.83	2.06
EWA-Word-Fall	597	6.02	4.15
EWA-Word-Spring	478	7.54	4.73
EWA-Word-Gains	476	1.44	3.96
HTKS-Fall	579	10.81	15.52
HTKS-Spring	475	18.80	18.27
HTKS-Gains	463	7.99	15.68
Infant/toddler			
I/T CBCL-Fall	196	49.56	10.57
I/T CBCL-Spring	142	48.24	10.65
I/T CBCL-Gains	124	-.04	8.19
Mullen Gross Motor-Fall	261	47.69	10.43
Mullen Gross Motor-Spring	187	45.07	10.73
Mullen Gross Motor-Gains	171	-2.74	11.51
Mullen Visual Reception-Fall	282	44.68	11.99
Mullen Visual Reception-Spring	236	45.47	11.77

Table 9.1. Descriptive Statistics—Individual Child Assessment Scores			
	n	M	SD
Mullen Visual Reception-Gains	216	1.23	12.75
Mullen Fine Motor-Fall	282	44.48	12.66
Mullen Fine Motor-Spring	239	45.08	12.15
Mullen Fine Motor-Gains	221	.76	15.81
Mullen Receptive Language-Fall	285	45.60	12.15
Mullen Receptive Language-Spring	238	45.58	11.77
Mullen Receptive Language-Gains	222	-.54	13.00
Mullen Expressive Language-Fall	266	43.52	11.89
Mullen Expressive Language- Spring	231	46.25	12.26
Mullen Expressive Language-Gains	198	2.32	12.28
Mullen Cognitive-Fall	226	89.06	17.36
Mullen Cognitive-Spring	231	92.49	17.51
Mullen Cognitive-Gains	169	2.85	17.04

The performance of children who attended Early Head Start, Head Start and ECEAP was also explored. Descriptive statistics for this subsample are presented below in table 9.2.

Table 9.2. Descriptive Statistics—EHS/HS/ECEAP			
	n	M	SD
Preschool			
PPVT – Fall	66	87.06	16.30
PPVT- Spring	55	89.87	13.99
PPVT – Gains	52	1.94	12.85
WJ-LW – Fall	66	94.06	15.79
WJ-LW – Spring	59	95.20	12.97
WJ-LW – Gains	57	1.91	9.63
PK CBCL – Fall	65	45.58	10.17
PK CBCL – Spring	31	46.19	11.50
PK CBCL – Gains	31	-1.87	8.75
LENS – Fall	42	0.16	0.88
LENS – Spring	51	0.61	0.85
LENS – Gains	31	0.56	0.79
TEAM – Fall	67	6.11	3.60
TEAM – Spring	54	8.19	3.47
TEAM – Gains	54	2.13	2.88
EWA - Name – Fall	68	4.96	2.30
EWA - Name – Spring	59	5.58	1.99
EWA - Name – Gains	58	0.55	1.97
EWA - Word – Fall	68	4.56	2.69
EWA - Word – Spring	59	7.00	4.77
EWA - Word – Gains	58	2.26	4.25
HTKS – Fall	66	6.26	10.73
HTKS – Spring	54	10.43	14.22
HTKS – Gains	54	4.15	13.83
Infant/toddler			
I/T CBCL – Fall	4	55	4.55
I/T CBCL – Spring	4	52.50	7.33
I/T CBCL – Gains	2	0	4.24
Mullen Gross Motor – Fall	6	56.33	10.25
Mullen Gross Motor – Spring	5	53	4.90
Mullen Gross Motor – Gains	5	-5.60	11.89
Mullen Visual Reception – Fall	6	41	11.71
Mullen Visual Reception – Spring	5	42.20	7.95
Mullen Visual Reception – Gains	5	1.2	10.08
Mullen Fine Motor – Fall	6	49.67	6.86
Mullen Fine Motor – Spring	5	45.40	12.72
Mullen Fine Motor – Gains	5	-5.00	10.56
Mullen Receptive Language – Fall	5	44.00	7.68
Mullen Receptive Language – Spring	5	39.80	11.9
Mullen Receptive Language – Gains	4	-4.50	17.02

Table 9.2. Descriptive Statistics—EHS/HS/ECEAP			
	n	M	SD
Mullen Expressive Language – Fall	6	44.67	6.22
Mullen Expressive Language – Spring	5	41.40	13.18
Mullen Expressive Language – Gains	5	-2.60	15.53
Mullen Cognitive – Fall	5	91.00	11.2
Mullen Cognitive – Spring	5	80.80	7.92
Mullen Cognitive – Gains	4	-8.75	13.57

Prior to participating in assessment activities, children identified as having a primary home language other than English were screened for language proficiency. Spanish-speaking children who did not achieve the predefined cut-score were then administered the Spanish assessment battery. Descriptive statistics for this subgroup of children are presented in the following table.

Table 9.3. Descriptive Statistics—Individual Child Assessment: Spanish Battery			
	n	M	SD
PPVT - Fall	33	56.42	14.05
PPVT- Spring	29	66.24	9.95
PPVT - Gains	26	9.15	11.63
TVIP - Fall	36	89.81	13.60
TVIP - Spring	30	88.00	12.09
TVIP - Gains	26	-0.54	14.71
Muñoz - Fall	30	94.67	10.37
Muñoz - Spring	30	92.80	10.53
Muñoz - Gains	23	0	9.97
TEAM - Fall	39	3.34	3.32
TEAM - Spring	32	5.69	3.95
TEAM - Gains	31	2.38	2.93
EWA - Name - Fall	39	4.26	2.63
EWA - Name - Spring	32	5.53	1.61
EWA - Name - Gains	31	1.06	2.49
EWA - Word - Fall	39	3.74	1.62
EWA - Word - Spring	32	3.50	1.85
EWA - Word - Gains	31	-0.23	2.91
HTKS - Fall	39	5.85	10.44
HTKS - Spring	32	5.12	6.90
HTKS - Gains	31	-1.74	10.26
CBCL - Fall	33	45.45	8.60
CBCL - Spring	18	43.11	6.82
CBCL - Gains	18	-4.83	8.93

Of central importance to Early Achievers is high-quality care that benefits children from low-income backgrounds including those who received child care subsidies (i.e., Working Connections) or were enrolled in Head Start or ECEAP. Means and standard deviations for the full sample, low-income sample, and middle to upper-income sample of preschool and infant/toddler children are presented below in tables 9.4 and 9.5, below.

Table 9.4. Preschool Full Sample Fall and Spring Scores by Assessment and Income Status

	Full			Low-income			Middle/upper-income		
PPVT	**n**	**M**	**SD**	**n**	**M**	**SD**	**n**	**M**	**SD**
Fall	579	101.25	16.78	126	93.48	16.60	357	104.18	15.67
Spring	481	103.51	14.33	107	95.59	14.42	312	106.52	12.91
WJ-LW									
Fall	590	101.79	15.31	130	96.54	16.13	363	103.87	14.56
Spring	484	103.40	14.79	108	97.29	14.49	315	105.90	14.02
TEAM									
Fall	589	6.77	4.25	129	5.88	3.97	362	7.24	4.23
Spring	476	8.74	4.00	102	7.91	3.98	312	9.21	3.79
HTKS									
Fall	579	10.81	15.52	128	7.85	13.41	353	12.70	16.20
Spring	475	18.80	18.27	103	12.75	15.96	311	21.01	18.74
EWA N									
Fall	598	4.72	2.86	131	4.31	2.81	367	4.85	2.95
Spring	484	5.51	2.41	108	5.28	2.41	314	5.68	2.38
EWA W									
Fall	597	6.02	4.15	131	4.77	3.23	366	6.48	4.30
Spring	478	7.54	4.73	108	6.67	4.67	308	7.83	4.70
CBCL									
Fall	443	46.26	10.46	98	47.52	10.49	299	45.63	10.52
Spring	273	46.34	10.25	59	48.47	10.69	195	45.43	10.00
LENS									
Fall	277	0.77	1.13	64	0.42	1.00	163	0.90	1.14
Spring	363	1.26	1.11	88	0.91	0.99	231	1.36	1.12

Table 9.5. Infant/Toddler Full Sample Fall and Spring Scores by Assessment and Income Status									
	Full			Low-income			Middle/Upper-income		
CBCL	n	M	SD	n	M	SD	N	M	SD
Fall	196	49.56	10.57	35	51.11	9.78	130	48.48	10.27
Spring	143	48.24	10.65	31	52.55	10.03	93	46.16	10.08
GM									
Fall	261	47.69	10.43	47	48.43	12.15	153	47.56	10.08
Spring	187	45.07	10.73	33	45.03	11.06	121	46.15	10.24
FM									
Fall	282	44.48	12.66	51	43.71	11.54	168	44.85	13.29
Spring	238	45.08	12.15	43	41.86	8.54	158	46.34	12.69
RL									
Fall	285	45.60	12.15	48	42.19	11.11	176	47.20	12.14
Spring	237	45.58	11.77	43	42.19	10.02	157	47.34	11.87
EL									
Fall	266	43.52	11.89	46	40.89	11.15	160	44.77	11.94
Spring	230	46.25	12.26	42	41.21	11.43	152	48.40	11.95
CC									
Fall	226	89.06	17.36	39	84.54	17.03	133	90.94	17.84
Spring	231	92.49	17.51	42	83.67	13.65	152	96.11	17.54
VR									
Fall	282	44.68	11.99	50	42.18	10.73	170	45.46	13.04
Spring	235	45.47	11.77	43	41.05	9.15	155	46.63	12.12

We conducted paired sample t-tests to determine if there were significant differences between fall and spring scores across measures. For the full sample, preschoolers demonstrated significant gains across most domains of learning, including: early writing (EWA), receptive language (PPVT-4), letter-word identification (WJ III Letter-Word Identification), early math (TEAM), executive function (HTKS), and early science (LENS). Statistically significant gains were not realized for social-emotional skills (CBCL). The following tables present these results.

Table 9.6. Preschool Full Sample Differences Across Fall and Spring Measures						
	N	M	SD	t	p	Cohen's d
PPVT	467	1.48	12.38	2.59	0.01	0.10
WJ-LW	479	1.48	9.23	3.50	0.00	0.10
TEAM	472	2.00	2.76	15.73	0.00	0.48
HTKS	463	7.99	15.68	10.96	0.00	0.47
EWA N	483	0.83	2.06	8.88	0.00	0.31
EWA W	476	1.44	3.96	7.92	0.00	0.32
CBCL	254	0.22	8.12	0.44	0.66	0.02
LENS	183	0.67	0.87	10.40	0.00	0.63

Change scores for the low-income subgroup of preschool children from families who received child care subsidies through Working Connections or who were in ECEAP or Head Start indicate that significant gains were made in all areas except receptive language (PPVT), letter word knowledge (WJ-III) and social-emotional skills (CBCL). The following table summarizes this information.

Table 9.7. Preschool Change Scores for Preschoolers from Low-income Families

	N	M	SD	t	p	Cohen's d
PPVT	103	1.68	12.85	1.33	0.19	0.11
WJ-LW	107	0.91	8.98	1.04	0.30	0.06
TEAM	102	2.01	2.68	7.55	0.00	0.50
HTKS	103	4.97	14.99	3.36	0.00	0.34
EWA N	107	0.95	2.13	4.64	0.00	0.36
EWA W	107	1.71	4.04	4.38	0.00	0.43
CBCL	52	-0.52	9.29	0.40	0.69	-0.05
LENS	47	0.62	0.76	5.59	0.00	0.68

For the full sample of infant-toddlers, significant gains were demonstrated in the areas of expressive language (EL) and cognitive (CC). Gross motor was also significant, though in an undesired direction. The following table summarizes this information.

Table 9.8. Gains for Full infant/toddler Sample

	N	M	SD	t	p	Cohen's d
CBCL	124	-0.04	8.19	0.05	0.96	0.00
GM	171	-2.74	11.51	3.11	0.00	-0.26
VR	216	1.23	12.75	1.42	0.16	0.10
FM	221	0.76	15.81	0.72	0.47	0.06
RL	222	-0.54	13.00	0.62	0.54	-0.04
EL	198	2.32	12.28	2.66	0.01	0.19
CC	169	2.85	17.04	2.17	0.03	0.16

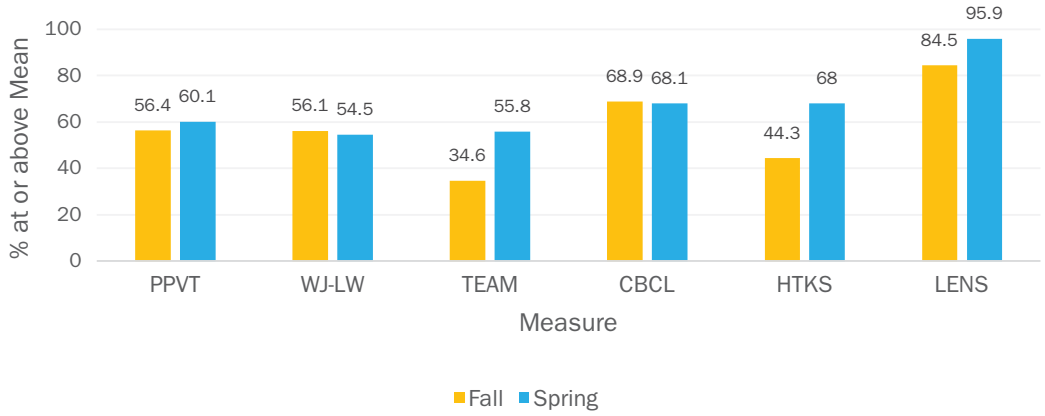
Change scores for the subgroup of infant/toddler children from low-income families who received child care subsidies or participated in Early Head Start were not significant in any areas

Table 9.9. Gains for infant/Toddler Children from Low-income Families

	N	M	SD	t	p	Cohen's d
CBCL	23	2.17	11.18	0.93	0.36	0.23
GM	31	-4.32	12.05	2.00	0.06	-0.35
VR	39	-1.87	12.06	0.97	0.34	-0.18
FM	41	-1.90	12.29	0.99	0.33	-0.18
RL	38	-1.55	11.98	0.80	0.43	-0.14
EL	36	0.86	11.57	0.45	0.66	0.08
CC	31	-1.19	14.43	0.46	0.65	-0.07

In addition to investigating learning outcomes for subgroups of children based on income status, we examined the extent to which children who were projected to transition into kindergarten (those 56 months or older) made gains toward expected age-based benchmarks and school readiness. Ideally, we would use WaKIDS data to explore this question, but it was not available to us at the time of publication. So, as a crude measure, we used children's post-test scores across the domains of learning to determine whether they met previously determined age expectations. For the standardized measures (PPVT, WJ, CBCL, LENS), we used the published (nationally normed) mean as the benchmark. For the TEAM and HTKS, we based the expected score on publisher-suggested score ranges. The following chart shows the results.

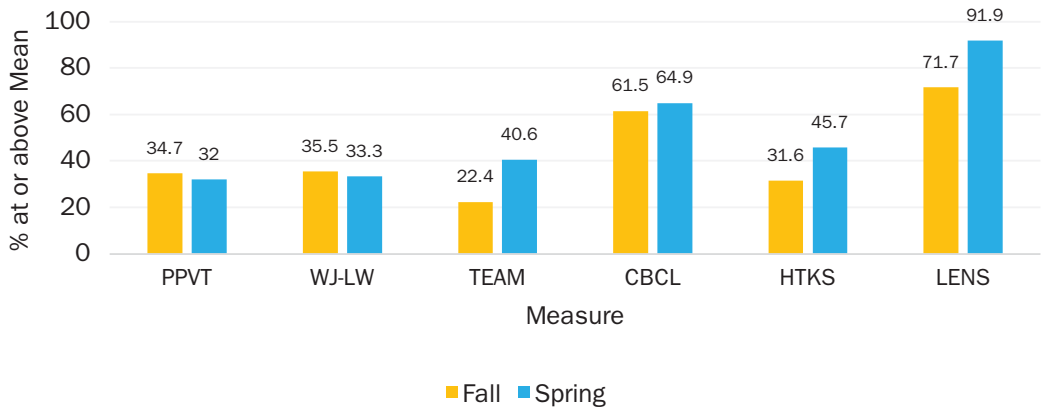
Figure 9.1. Percentage of Entering Kindergarten Children At or Above the Mean/Established Age-Expected Skill Level



In spring 2015, the majority of children were performing at or above the mean in early science (95.9%), social-emotional skills (68.1%), receptive language (60.1%), executive function (68%), early math (55.8%), and letter-word identification (54.5%).

We also examined this for children from low-income backgrounds, as shown below:

Figure 9.2. Percentage of Low-income Entering Kindergarten Children at or Above the Mean/Established Age-Expected Skill Level



For the subsample of low-income children, a different pattern emerges. The majority of children are performing at or above expectations in just two domains, early science (91.9%) and social-emotional skills (64.9%). Less than half the children met expectations in the areas of executive function (45.7%), early math (40.6%), letter word knowledge (33.3%), and receptive language (32%).

We included only those measures with established norms or defined parameters for expected scores. It should be noted that the science measure is very new and the expected age-based mean may change as the instrument's author completes further validation.

10. Study Results: Research Evaluation Questions

- Following are study results related to the three research evaluation questions addressed by the validation study.

Research Question #1: Do children who attend higher-rated Early Achievers sites show greater gains than children who attend lower-rated Early Achievers sites?

To evaluate the relationship between the Early Achievers rating and child outcomes, we employed a hierarchical linear model that accounts for the fact that observations on children are not independent from one another in a given site/facility. We constructed a two-level model with the following level-one factors as the controlling variables: annual family income, parent education level, child care subsidy, gender, chronological age at pretest, number of days between assessment, and pretest score on the targeted domains. The site/facility's Early Achievers rating level is utilized as the predictor. The score model can be found in Appendix E.

Early Achievers rating levels and infant/toddler development. Up to four infants/toddlers (two boys/two girls) were randomly selected for assessment. The infant/toddler outcomes included social-emotional learning, expressive language, receptive language, visual reception, gross motor, fine motor, and cognitive development. We used Early Achievers rating level as the predictor (Level 2, Level 3, and Level 4), with Level 3 identified as the reference group. We found that:

- Infant/toddler children in EA Level 4 rating made significantly greater gains than those in Level 3 in expressive language (p <.05).
- Infant/toddler children in EA Level 3 rating made gains significantly greater than those in Level 2 in fine motor (p <.05).
- While not statistically significant, children in EA Level 3 rating made gains greater than those in Level 2 in receptive language, a relationship of practical significance (p <.10).

Early Achievers rating levels and preschool development. We randomly selected up to eight preschool children (four boys/four girls) for assessment from each participating Early Achiever site/facility. The preschool child outcomes included receptive language, letter word knowledge, early math, early science, social-emotional learning, early writing, and executive function. We found that:

- Preschool children in Early Achiever Level 3 rating made gains greater than those in Level 2 in receptive language (p <.05).
- While not statistically significant, children in EA Level 4 rating made gains greater than those in Level 3 in receptive language, a relationship of practical significance (p <.10).

None of the remaining results were statistically significant. See Appendix E for more information.

Research Question #2: Are the Early Achievers' quality standards associated with children's learning?

The Early Achievers quality rating level is determined by the number of points earned across quality standard areas. These are: Child Outcomes, Curriculum and Staff Supports, Professional Development and Training, and Family Engagement. Points are determined by a variety of approaches including the use of published, standardized measures such as the ERS and CLASS. We examined measures of site/facility quality as potential predictors of children's rate of learning and development during their time in care after adjusting for certain child characteristics. This analysis investigated the relative contribution of the standard indicators to children's gains. We examined the influence of each quality standard area simultaneously.

To investigate the relationship between the standard areas and child outcomes, we chose the hierarchical linear modeling (HLM) analytic approach (Raudenbush & Bryk, 2002). We constructed a two-level model with the following level-one factors as the controlling variables: annual family income, number of days between assessment, parent's education level, child care subsidy, gender, age at pretest, and the child's pretest score on the targeted domains. Early Achievers quality standard areas were utilized as the level-two predictors. The score model can be found in Appendix E. Our findings suggest that:

- For infants and toddlers, overall, there was no significant relationship between any of the Early Achievers standard areas and children's learning and development.
- While there were no statistically significant findings for preschool children, the Professional Development standard area was positively related to letter word knowledge, an association of practical significance ($p < .10$).

None of the remaining results were statistically significant. See Appendix E for more information.

The above analysis examined the Early Achievers quality standard areas as continuous variables and treated total points per area based on Early Achiever data collection protocol. But each standard area includes numerous individual indicators that comprise the overall standard areas. (See Appendix A for the Early Achievers Standards). To this end, and to explore which indicators might be driving the relationship with child outcomes, we undertook additional analyses to answer the following two questions:

1. To what extent are the individual standard indicators working within each standard area?

We conducted a factor analysis to better understand how individual indicators group together and provide meaningful information. The objective of this analysis was to examine the item quality and understand the factor structure of the Early Achievers standard indicators (Child Outcomes, Curriculum and Staff Supports, and Family Engagement). To examine the item quality and predictive validity of the standards thoroughly, we engaged in the following procedures.

First, we used Item Response Theory (IRT; Mislevy, 1996) to evaluate the item parameters (i.e., difficulty and discrimination indices). For the purpose of this analysis, we 1) examined the difficulty and discrimination indices to see whether the items contributed differentially, and 2) evaluated the internal consistency (Cronbach, 1971) of each of the standards. We examined the factor structure's internal consistency (i.e., Child Outcomes, CO; Curriculum and Staff Support, CSS; and Family Engagement, FE).

We also conducted an exploratory factor analysis (EFA) to detect the underlying factor structures related to the items. Based on the findings of the EFA, we employed a confirmatory factor analysis (CFA) to further evaluate the factor structure. An internal consistency check was then run on the newly identified constructs.

Results of the IRT indicated that six items were identified as candidates for further exploration to better understand their contribution and the theory behind their inclusion. Based on these findings, the six items were removed for subsequent analyses. Results of the exploratory factor analysis on the remaining 29 items suggested both a 3 and a 4-factor model. We retained the 3-factor model after examining the model fit index from the CFA.

The objective of this analysis was to evaluate the item quality and factor structure of the indicators to identify individual EA standard indicators of importance. See Appendix F for more information.

2. How are the identified individual standard constructs related to child outcomes?

Based on the resulting factor analysis model, we restructured the items to create three new constructs and used hierarchical linear modeling to examine the relationships between these constructs and child outcomes.

The analytic approach was similar to the previous HLM analysis. We constructed a two-level model with the following level-one factors as the controlling variables: the children's family income, parent's education level, child care subsidy, gender, age at pretest, and the child's pretest score on the targeted domains. The newly identified individual standard constructs were utilized as the level-two predictors. See Appendix E for a representation of the score model.

For the preschool sample, one of the three newly created constructs was a significant predictor for receptive language (p <.05). This construct was comprised of seventeen Early Achievers standard indicators such as:

- Share individualized child data with parents
- Ongoing assessment of children's strengths to monitor progress (e.g., child portfolio/work sampling assessments) and inform instruction
- Evidence of family engagement, data sharing, and transition supports for individual children

All other results were not statistically significant. For the infant/toddler sample, we did not observe statistically significant relationships. See Appendix E for more information.

Research Question #3: What is the association between Early Achiever's observational measures of quality and children's learning?

We collected observational measures of quality used in Early Achievers independently as an additional source of information. We again employed a hierarchical linear model to test the association between children's gains and the following; 1) global quality based on the ERS, and 2) teacher-child interactions based on CLASS domains. We constructed a two-level model with the following level-one factors as the controlling variables: the children's family income, parent's education level, child care subsidy, gender, and age at pretest. The investigation of CLASS domains and ERS total scores includes all program types (for example, CLASS Instruction support includes children from CCCs, FCC homes, and ECEAP sites).

The predictors for the first model included each of the CLASS domain scores. The second model included the total score for the ERS. For this analysis, ERS and CLASS scores were considered as continuous variables, as recommended by instrument authors.

When we ran this model with CLASS domains and ERS total scores entered as continuous variables, there were few significant findings. We found that the following CLASS domains were associated with various domains of learning:

- CLASS PK Instructional Support was statistically significant in predicting receptive language (p <.05) and early writing (p <.05).
- CLASS Toddler Engaged Support for Learning was positively associated with fine motor, a relationship of practical significance (p <.10).

Unexpectedly, CLASS Toddler Emotional and Behavioral Support was significant in predicting social-emotional skills, though negatively.

No statistically significant relationships were found with ERS (ECERS-R, ITERS-R, FCCERS-R), and the remaining CLASS results were not statistically significant. See Appendix E for more information.

We collected infant CLASS data during the study, but the low numbers of infant-only classrooms rendered the sample size unfit for analysis in the hierarchical linear model. Therefore, we do not have results to report out for this measure.

In these analyses, the ERS and CLASS measures indicated few associations with children's learning. An examination of previously conducted QRIS validation studies suggests that the linear relationships between measures of quality and child outcomes is inconsistent, and when associations do exist, they are sometimes in unexpected directions (Elicker, Langhill, Ruprecht, Lewsader & Anderson, 2011; Tout et al., 2011; & Zellman et al., 2008).

Our findings are similar to the above, as well as to results from other studies examining relationships between these standardized measures and child outcomes (Burchinal Vernon-Feagans, Vitiello, & Greenberg, 2014; Peisner-Feinberg, Schaaf, Hildebrandt & Pan, 2015). But program quality is not always regarded to relate to child outcomes in a linear fashion (Burchinal, Vandergrift, Pianta & Mashburn, 2010). Instead, certain thresholds of quality may need to be reached to see gains in child outcomes (Burchinal et al., 2010; Sabol & Pianta, 2015). That is, there may be a lift-off of sorts at which point an existing relationship gets stronger once a certain threshold level of ERS and/or CLASS is achieved (Hatfield, Burchinal, Pianta & Sideris, 2015).

Indeed, Early Achievers quality levels are constructed with thresholds. We conducted additional analyses to examine the relationship between Early Achievers thresholds and child outcomes.

1. Are Early Achiever quality assessment thresholds related to gains in child outcomes?

We addressed this question in two ways. First, we examined the current Early Achievers thresholds for the CLASS and ERS. Second, we explored the possibility of additional or different thresholds of quality on CLASS and ERS necessary for positive gains in children's learning and development.

For the first investigation, we examined the current CLASS and ERS cut-points to understand the relationship with child outcomes. For this analysis, we utilized the existing Early Achievers cut-points as measured within the Classroom/FCC Home Environment and Interactions component of the Facility Curriculum and Learning Environment and Interactions Standard area (see Table 10.1 below).

Table 10.1: Early Achievers Classroom/FCC Home Environment and Interactions Component of the Facility Curriculum and Learning Environment and Interactions Standard Area

Measurement	Point range			
CLASS: Instructional Support/Engaged Support for Learning	0 to 1.9 (N/A)	2 to 3.4 (10 points)	3.5 to 4.4 (15 points)	4.5 & higher (20 points)
CLASS: Emotional Support & Classroom Organization/ Emotional and Behavioral Support	0 to 3.4 (N/A)	3.5 to 4.9 (10 points)	5.0 to 5.9 (15 points)	6.0 & higher (20 points)
ERS	0 to 2.9 (N/A)	3.0 (5 points)	5 (10 points)	6 (15 points)
Category code (EA Level)	1 (EA Level 2)	2 (EA Level 3)	3 (EA Level 4)	4 (EA Level 5)

When we ran this model as cut-points identified by the Early Achievers rating level structure (see category codes and corresponding EA levels in the table above), we found a few relationships with child outcomes. For example, the relationship between CLASS Instructional Support and letter word knowledge was statistically significant (p <.05). That is, children in CLASS Instructional Support category code 4 (scores of 4.5 & higher) made greater gains than those in CLASS Instruction Support category code 2 (scores between 2 and 3.4). Additional findings were:

- PK CLASS Instructional Support was a statistically significant predictor of early writing skills. That is, children in category 4 made greater gains than those in category 2 (p <.05)
- Toddler CLASS Engaged Support for Learning was a statistically significant predictor of fine motor skills. That is, children in category 3 made greater gains than both those in category 2, as well as those in category 1 (p <.05).

The remaining findings were not statistically significant, but the following associations were positive in nature:

- PK CLASS Instructional Support (category 3 greater than category 2 and category 2 greater than category 1) with receptive language (p <.10)
- PK CLASS Classroom Organization (category 4 greater than category 2) with early math (p <.10)
- PK CLASS Emotional Support (category 3 greater than category 2) with early writing (p <.10).

Unexpectedly, children in Toddler CLASS Engaged Support for Learning category 3 made greater gains in fine motor than those in category 4, a curious finding.

While not statistically significant, infant/toddler children in ERS category 3 made greater gains than those in ERS category 2 in the area of visual reception (p <.10).

There were no statistically significant findings for the remaining CLASS domains or the ERS total score cut-points. See Appendix E for more information on the EA cut-point category analysis.

For the second investigation, and because few measures were significantly related to child outcomes in the previous analysis, we chose a spline regression analytic approach to explore the following:

- Is there a minimum score necessary on quality measures before significant associations with positive gains are achieved?
- If a significant relationship exists between quality and child outcomes, is there a point at which these gains plateau?
- Is the slope different in each range of quality (lower quality vs. higher quality)?

After further examination of the current EA dataset, we determined that there were issues inherent to the sample potentially affecting the claims that could be made with this type of analysis (sample size and range of the predictor variables).

To address these issues, we incorporated a second data set to increase the sample size, include more children from low-income backgrounds, and increase the probability of sufficient data across all regions of the predictor variables. The subsequent analyses utilized a combined data set that included preschool children who attended both child care centers and family child care homes.

We wanted to discover whether additional thresholds beyond which investing in such classroom improvements begin to yield higher benefits, or alternatively, whether there are minimum classroom standards below which the effects do not materialize.

This exploratory analysis did not result in any additional convincing thresholds, nor did we see consistent patterns across the large number of spline graphs generated. Some of these graphs do show a lift-off, but when one considers the limitations of the dataset, we cannot make claims with confidence. The literature has suggested a possible convex relationship between classroom quality and child outcomes, but we have not found significant evidence to support this theory. See Appendix G for more information.

2. What is the relationship between Environmental Rating Scales (ERS) proportion scores and child outcomes?

There is an alternative way to score the ERS that may prove related to child outcomes. Used as designed the observer stops scoring once an indicator is missed—that is, score to failure. But the construction of the ERS is such that indicators related to teacher-child interactions reside at the higher ends of the scale. In this case, if a classroom lacked materials but the teacher engaged in high-quality interactions with a child, we would never know this because we stopped scoring at the materials indicator. If we score all indicators of the item we will know whether developmentally enhancing interactions are present. We call this scoring “all the way up.” Then we calculate a “proportion score”—that is, we determine the percentage of indicators that were present for each item. We sought to explore if proportion scoring is related to child outcomes and whether it could be a better measure of program quality.

For example, on Item 25 (Nature/Science) of the ECERS-R, an observation conducted with the standard scoring procedure would be discontinued, resulting in a score of 3 because of limited access to materials. But important interactions necessary to support science learning are not observed until 5.4. In this situation, the indicator related to domain-specific interactions would not be reflected in the score, as the following table shows:

Figure 10.1 ECERS-R Item 25 (Nature/Science)

(Note: Red=stop rule indicator; Green= included in alternate administration method)

Inadequate 1	**Minimal** 3	**Good** 5	**Excellent** 7
1.1 No games, materials, or activites for nature/ science accessible.	3.1 Some developmentally appropriate games, materials, or activites from two nature/ science categories accessible. 3.2 Materials accessible daily. 3.3 Children encouraged to bring in natural things to share with others or add to collections (for example, fall leaves in from playground, a pet).	5.1 Many developmentally appropriate games, materials, and activites from three categories accessible. 5.2 Materials are accessible for a substantial portion of the day. 5.3 Nature/science materials are well organized and in good condition (for example, collections stored in seperate containers, animals' cages clean). 5.4 Everyday events used as a basis for learning about nature/science (for example, talking about the weather, observing insects or birds, discussing the change of seasons, blowing bubbles or flying kites on a windy day, watching snow melt and freeze).	7.1 Nature/science activites requiring more input from staff are offered at least once every 2 weeks (for example, cooking, simple experiments such as measuring rainfall, field trips). 7.2 Materials are rotated to maintain interest (for example,teddy bear counters replaced by dinossaur counters, different objects to weigh).

We investigated the alternate administration and scoring method for the ERS measure to determine if it performs better with child outcomes. We used the alternate administration method and transformed the results into a proportion score. Intuitively, we would expect that more information is better and hence that administering the measure in full would provide meaningful information beyond the ERS findings referenced earlier in this section.

Additionally, we created a variable that excluded Personal Care Routines from the total score, as it is considered redundant with licensing requirements and contains little information about adult-child interactions.

We calculated proportion scores for each of the ERS subscales as well as the total scores. We utilized a hierarchical linear model to investigate the association between this alternate ERS method and child outcomes. We ran each of the three tools separately (ECERS-R, FCCERS-R, and ITERS-R) for total score achieved and also with each of the six subscales entered simultaneously. We constructed a two-level model with the following level-one factors as the controlling variables: annual family income, parent's education level, child care subsidy, gender, age at pretest, and the children's baseline assessment on the targeted domains. The independent variables for the first model included the sub-scales (i.e., space and furnishing, personal care routines, language-reasoning, activities, interaction, and program structure) of ERS with alternative scoring. The second model included the sum score of the six ERS sub-scales. The third model included the sum score of the six ERS sub-scales without personal care. The score models can be found in Appendix E.

ECERS-R Proportion Score. For the preschool sample, the following subscales were statistically significant (p <.05) predictors of the related outcomes:

- Space and furnishing with receptive language
- Personal care routines with early science.

The following subscales were positively related (p <.10) to the following outcomes:

- Program structure and early science
- Interaction and receptive language
- Interaction and executive functioning
- Space and furnishing and early writing
- Language and early writing
- Space and furnishing and letter word.

The sum ECERS-R total score significantly predicted receptive language (p <.05).

The remaining results were not statistically significant. See Appendix E for more information.

FCCERS-R Proportion Score. The analytic approach was similar to the ECERS-R analysis above, except that only family income, parent education, and subsidy status were included as covariates. We found some significant findings in the expected direction for both the sum FCCERS-R total score and related subscales across the learning domains. For the infant/toddler sample findings indicate:

- Interaction had a statistically significant positive relationship with visual reception (p <.05)
- Program structure was positively associated with gross motor (p <.10), a finding of practical significance
- The sum FCCERS-R total score with both six (p <.01) and five (p <.05) subscales based on the alternate method significantly predicted cognitive.
- The sum FCCERS-R total with both six and five subscales based on the alternate method significantly predicted visual reception (p <.01).
- The sum FCCERS-R total score with six subscales based on the alternate method had a positive relationship with fine motor (p <.10), an association of practical significance.

For the preschool sample, findings indicate:

- The space and furnishings subscale had a relationship of practical significance with early writing (p <.10).
- Unexpectedly, the Interaction subscale was negatively related to early math.

The remaining results were not statistically significant (see Appendix E).

ITERS-R Proportion Score. For the ITERS-R, we noted significant relationships for a few subscales across learning domains:

- Language and reasoning had a significant relationship with expressive language (p <.05).
- Language and reasoning had a significant positive association with social-emotional skills (p <.05).

Additionally, practical significance was noted for the following:

- Language and reasoning with receptive language (p <.10)
- Activities with expressive language (p <.10)
- Activities with visual reception (p <.10)
- Interactions with fine motor (p <.10).

Unexpectedly, activities had a significant negative relationship in the area of social-emotional skills. Program structure had a negative association with visual reception. Interestingly, personal care routines was negatively related to expressive language, visual reception, fine motor, and cognitive.

Neither of the aggregate ITERS-R total scores was significant in any of the learning domains. The remaining results were not statistically significant (see Appendix E).

Extended analyses

Additionally, we sought to explore the association of language modeling, curriculum, and engagement with children's learning and development. We investigated these additional measures as contributors to the early learning environment and subsequent children's gains. Finally, utilizing the information gleaned from the findings of the primary research questions, we re-weighted the Early Achievers quality components and created an example alternate rating structure. We then evaluated the resulting adjusted quality levels to determine their relationship with child outcomes.

LENA

In this analysis we examine the association between children's gains and LENA Words per Hour (WPH) and Conversational Turns. We again employed a hierarchical linear model to account for the nesting of children within sites, and we performed this analysis on a joint dataset from Early Achievers and similar pilot data. Therefore we considered only receptive language, early math, executive function, and letter word identification as outcomes. Additionally, subsidy status is the lone covariate in this analysis. The predictors for the model included LENA WPH and CT, entered as continuous variables.

We found no significant relationships between the number of words per hour or conversational turns per hour as measured by LENA (see Appendix H).

Curriculum

In this section we investigate the relationship of curriculum use (per teacher report) to child learning as well as possible interactions with CLASS PK Instructional Support. Instructional Support captures interactions of higher-order thinking, and therefore we hypothesized that when contextualized in curriculum, it would yield better outcomes for children. We used the same analytic approach, data set and covariate as in the LENA analysis above. Research-based curriculum was determined based on the Preschool Curriculum Consumer Reports (NCQTL 2015). We created a categorical variable to examine curriculum use:

- 0- No curriculum
- 1- Self-made curriculum
- 2- Other curriculum (published but not research-based)
- 3- Montessori
- 4- Research-based.

This analysis resulted in a significant finding with the interaction between research-based curriculum and CLASS PK Instructional Support. We found a positive significant relationship in the area of letter word knowledge (p <.05). Specifically, research-based curriculum improves the effect of CLASS PK Instructional Support on letter word knowledge. Additionally, we found an association between Montessori/CLASS PK Instructional Support and letter word knowledge (p <.05).

The remaining results were not statistically significant (see Appendix H).

Engagement

We sought to capture child engagement with materials, peers, and adults within the early learning environment and to confirm our hypothesis that children's engagement, as measured by the ECDC, would be related to positive child outcomes. If positive, results would have implications for new measures of examining quality in early learning settings. In this section we studied the effect of mastery engagement, where children are observed to demonstrate a growing mastery of activities consistent with task objectives. We again employed the hierarchical linear modeling approach with subsidy status as the covariate. We utilized mastery engagement as the predictor.

For the full preschool sample, we found a significant positive effect of mastery engagement on social-emotional skills (p <.05). Additionally, for non-subsidized children mastery engagement was significantly associated with early writing in the expected direction (p <.01). See Appendix H.

Alternate Early Achievers Rating Structure

Findings from this validation study prompted us to explore possible alternative Early Achievers rating structures. As proof of concept, we present an example rating structure, altering the representation of quality components within each rating level. Specifically this involved the inclusion and weighting of individual standard indicators, administration, and scoring of the ERS/CLASS thresholds as well as the overall Early Achievers point spread. We used a hierarchical linear model to test the association between this example of newly identified quality levels and children's gains.

We used the alternate Early Achievers rating level as the predictor (Level 2, Level 3, Level 4, and Level 5), with Level 3 identified as the reference group. Our findings, shown in table 10.2, were:

- Preschool children in EA Level 4 rating would make significantly greater gains than those in Level 3 in receptive language (p <.01).
- Infant/toddler children in EA Level 5 rating would make gains significantly greater than those in Level 3 in expressive language (p <.05).
- Infant/toddler children in EA Level 4 rating would also make gains significantly greater than those in Level 3 in expressive language (p <.05).
- While not statistically significant, children in EA Level 4 rating would make gains greater than those in Level 3 in early math and social-emotional skills, a positive relationship of practical significance (p <.10).

Table 10.2. Alternate Early Achievers Rating Structure

	Receptive Language	Early Math	Social-Emotional	Expressive Language	Receptive Language	Fine Motor
Current EA Level	3>2** 4>3*			4>3 **	3>2*	3>2 **
Restructured EA Level	4>3***	4>3*	4>3*	4>3 ** 5>3 **		

Note. *= significant at .10; **= significant at .05; ***= significant at .01.

None of the remaining results were statistically significant. See Appendix H for more information.

Note that the above reflects a hypothetical restructuring of the levels loosely based on findings from the Early Achievers Validation Study. More consideration is necessary for weighting of quality components and evaluating the relationship of the resulting quality levels with child outcomes across learning domains. It would be prudent to also consider potential unintended consequences of recalibrating the rating structure in early stages of Early Achievers. For example, changing the point distribution could interfere with the ability to evaluate quality improvements over time using a consistent metric.

11. Summary of Early Achievers and Child Outcomes

The analyses we conducted for the Statewide Internal Standards Validation Study of Early Achievers found relationships between program characteristics (EA rating levels, standards, and observational measures of quality) and children's developmental gains. But the relationship between the complex construct of classroom quality and resulting children's gains resulted in both informative findings and implications for further research. See Table 11.1 for a summary of relationships between measures and outcomes.

Our work reveals that:

- Children make gains in the expected direction across most domains in a relatively short period of time.
- Children make greater gains in sites with higher-level ratings than in sites with lower ratings in the learning domains of receptive language, expressive language, and fine motor skills.
- We found a relationship of practical significance between the Professional Development standard area and letter word knowledge. Additionally, a single factor comprised of 17 standard items was related to children's gains in receptive language.
- We found some associations between CLASS domains and child outcomes. The CLASS PK Instructional Support domain was positively related to receptive language and early writing. But Toddler CLASS Emotional and Behavioral Support was related in an unexpected direction to social emotional skills, a curious finding.
- When analyzed with the current Early Achievers threshold, significant positive relationships were found between CLASS PK Instructional Support and both early writing and letter word knowledge. Additionally, the Toddler CLASS Engaged Support for Learning domain was associated with fine motor skills.
- An alternate administration and proportion scoring method of the Environmental Rating Scales (ECERS-R, ITERS-R, FCCERS-R) family of tools showed positive associations with gains in receptive language, early science, expressive language, cognitive, and social-emotional skills.
- Classrooms implementing Montessori or research-based curriculum improved the effect of CLASS Instructional Support on letter word knowledge. Mastery engagement was associated with social-emotional and early writing skills.

Table 11.1. Summary Table: All Children in All Sites

EA Rating Level 3 vs. 2	PPVT & Mullen FM; Mullen RL*	None
EA Rating Level 4 vs. 3	Mullen EL; PPVT*	None
Child Outcomes Standard Area	None	None
Curriculum & Staff Support Standard Area	None	None
Family Engagement Standard Area	None	None
Professional Development Standard Area	WJ-LW*	None
New 17 Item Standard Indicator Construct	PPVT	None
CLASS PK Emotional Support	None	None
CLASS PK Classroom Organization	None	None
CLASS PK Instructional Support	PPVT & EWA	None
CLASS Toddler Emotional & Behavioral Support	None	CBCL
CLASS Toddler Engaged Support for Learning	Mullen FM*	None

Table 11.1. Summary Table: All Children in All Sites		
ERS	None	None
CLASS IS (EA cut-point)	WJ & EWA; PPVT*	None
CLASS ES (EA cut-point)	EWA*	None
CLASS CO (EA cut-point)	TEAM*	None
CLASS IE (EA cut-point)	Mullen FM	Mullen FM
CLASS EB (EA cut-point)	None	None
ERS (EA cut-point)	Mullen VR*	None
ECERS-R % total (6)	PPVT	None
ECERS-R % (5)	None	None
ECERS-R % Space & Furnishings	PPVT; EWA*, WJ-LW*	None
ECERS-R % Personal Care Routines	LENS	None
ECERS-R % Language	EWA*	None
ECERS-R % Activities	None	None
ECERS-R % Interactions	PPVT & HTKS*	None
ECERS-R % Program Structure	LENS*	None
FCCRS-R % total (6)	Mullen VR & CC; Mullen FM*	None
FCCRS-R % (5)	Mullen VR & CC	None
FCCRS-R % Space & Furnishings	EWA*	None
FCCRS-R % Personal Care Routines	None	None
FCCRS-R % Language	None	None
FCCRS-R % Activities	None	None
FCCRS-R % Interactions	Mullen VR	TEAM
FCCRS-R % Program Structure	Mullen GM*	None
ITERS-R % total (6)	None	None
ITERS-R % (5)	None	None
ITERS-R % Space & Furnishings	None	None
ITERS-R % Personal Care Routines	None	Mullen EL, CC, VR & FM
ITERS-R % Language	CBCL & Mullen EL; Mullen RL*	None
ITERS-R % Activities	Mullen EL & VR*	CBCL
ITERS-R % Interactions	Mullen FM*	None
ITERS-R % Program Structure	None	Mullen VR
LENA WPH	None	None
LENA CT	None	None
Research-based Curriculum & CLASS IS	WJ-LW	None
Montessori & CLASS IS	WJ-LW	
Mastery Engagement	CBCL & EWA	None
Note: *= .10 significance; %= proportion scoring		

12. Survey of Provider and Family Experiences in Early Achievers

Important stakeholders in the Early Achievers system include early learning professionals and the families of children enrolled in their sites. We collected survey information from both groups, with early learning professionals divided into teachers and CCC directors/FCC owners. Our purpose was to better understand their perspectives about child care and learn about their backgrounds.

In this section, we relate procedures and main findings for the survey research component of our study. Detailed results describe the experiences in early learning—both in Early Achievers and beyond—as reported by stakeholders. We also present basic demographics and information reported about individual and family activities and experiences outside of the classroom.

We begin with perceptions and experiences of **directors, owners, and teachers**.

Survey procedures

After teachers, directors, and FCC owners had completed all three data collection windows, we invited them to complete an online survey with questions regarding their experiences working in early childhood education, the kindergarten transition process, classroom practices, their own health and well-being, their experience participating in Early Achievers, and basic demographic information.

We distributed two different surveys: one written for teachers (or "early learning professionals") and one written for directors and FCC owners. The content of the questions for both surveys was very similar; the main difference was in the phrasing of the questions (referring to teachers vs. directors/owners).

We distributed web links for the surveys through email invitations to participate. We sent the teacher survey email to directors and asked them to distribute it to the teachers. The email explained that the survey was optional and that a paper copy of the survey could be provided if preferred. We offered both teachers and directors/FCC owners $20 cash for full completion of the survey.

All teacher and director/owner surveys were completed online; no paper copies were requested.
Of 131 total participating teachers, 64 (48.9%) either completed or partially completed the online survey. An additional 49 teachers from non-participating classrooms of the participating sites completed or partially completed the online survey as well, yielding a total of 113 teacher surveys across 39 different participating sites. Of the 91 total participating directors and FCC owners, 55 (60.4%) completed or partially completed their surveys online. Note that not all teachers and CCC directors completing the surveys were from the same program; some sites are represented in the teacher group that aren't in the director group, and vice-versa.

Demographics

We asked CCC directors, FCC owners, and teachers/providers from CCCs to provide information about their personal backgrounds, their experiences in the field of early childhood education, and their perceptions of participating in Early Achievers. The majority of directors, owners, and teachers/providers completing the survey were female, white, married, and spoke English as their primary language. Directors and owners completing the survey were mostly in the 41-60 year age range, while teachers/providers were mostly between 22 and 40 years old.

Sixty-five percent of directors and owners reported that they had worked in the field of early childhood education for more than 20 years. More than half of the teachers/providers had been in the field for 10 years or more, and 18% had been in the field for more than 20 years. But more than half of the teachers/providers had been working at their current program for five years or less, and 13% for less than 12 months.

Approximately 56% of directors and owners had a Bachelor's degree or higher, while 23% had an Associate's degree, 4% had a child development associate (CDA) credential, and 15% had a high school diploma or some college. Comparatively, about a third of teachers/providers had a Bachelor's degree while 22% had an Associate's degree, 10% had a CDA, and the remaining third had a high school diploma or some college. For those with a college degree, 63% of directors/owners and 46% of teachers/providers had one in the field of early childhood education. The following table presents this information.

Table 12.1. Directors/Owners/Teachers: Highest Education Level Completed

	Director/Owner Percentage (N)	Teacher/Provider Percentage (N)
High school diploma	1.9% (1)	7.8% (8)
CDA	3.8% (2)	9.8% (10)
Some college	13.2% (7)	25.5% (26)
Associate's degree	22.6% (12)	21.6% (22)
Bachelor's degree	41.5% (22)	30.4% (31)
Master's degree or higher	17.0% (9)	4.9% (5)
TOTAL	100% (55)	100% (102)

Note: 63.4% (45) of director/owner degrees and 53.9% (55) of teacher/provider degrees are in early childhood education or a related field.

Nearly half of directors and owners reported an annual salary of $40,000 or less, while for annual household income, nearly half reported more than $80,000—although this was primarily directors and not owners. Salaries varied among both directors and owners, but directors tended to earn slightly higher salaries on average than owners. For teachers/providers, the annual income of the majority was between $21,000 and $30,000, but no teachers/providers reported annual salaries higher than $50,000. See Table 12.2.

Table 12.2. Directors/Owners/Teachers: Current Annual Salary

	Director/Owner Percentage (N)	Teacher/Provider Percentage (N)
$10,000 or less	3.8% (2)	4.9% (5)
$11,000-$20,000	7.5% (4)	26.5% (27)
$21,000-$30,000	11.3% (6)	42.2% (43)
$31,000-$40,000	24.5% (13)	20.6% (21)
$41,000-$50,000	18.9% (10)	5.9% (6)
$51,000-$60,000	20.8% (11)	0.0% (0)
$61,000-$70,000	9.4% (5)	0.0% (0)
$71,000-$80,000	1.9% (1)	0.0% (0)
$81,000 or more	1.9% (1)	0.0% (0)
TOTAL	100% (53)	100% (102)

Experiences with children and families

Nearly all directors, owners, and teachers/providers indicated that communication with parents is easiest in person (at drop-off/pick-up or conferences). Likewise, verbal report was the most common method for sharing child information with parents, followed by portfolios/work samples.

In general, CCC directors were more likely than FCC owners to identify children for special services. They were also more likely to have children leave the program because of behavior. Specifically, 80% of directors had identified at least one child for special services within the past 12 months, compared to 33% of owners. Additionally, 26% of directors had children asked to leave because of behavior, while this was true for only 13% of owners. For teachers/providers, slightly less than half reported identifying at least one child for special services within the past 12 months, and 12% had children who were asked to leave their sites because of behavior.

We asked directors, owners, and teachers/providers to report the top three reasons for children leaving their sites in the past 12 months. All reported the family moving away and the family no longer being able to afford the program as the top two reasons. The family's commute being too far was commonly reported by CCC directors and teachers, and directors/owners also indicated the program's hours did not align with the parents' needs as a common reason. These responses are shown in the table below.

Table 12.3. CCC Directors'/FCC Owners/Teachers: Top Three Reasons Children Were Unenrolled in Past 12 Months

	Director Percentage (N)	Owner Percentage (N)	Teacher/Provider Percentage (N)
Parents/family move	84.2% (32)	50% (7)	76.2% (77)
Parents can no longer afford payment/tuition	36.8% (14)	35.7% (5)	41.6% (42)
Program does not offer the hours needed by parents	21.1% (8)	14.3% (2)	6.9% (7)
Commute to the program is too far	18.4% (7)	7.1% (1)	20.8% (21)
Child requires different programming than you can provide	10.5% (4)	14.3% (2)	9.9% (10)
Parents feel the child is having difficulty adjusting to the program	7.9% (3)	0.0% (0)	12.9% (13)
Children are asked to leave because of behavior	7.9% (3)	5.3% (1)	7.9% (8)
Program was temporarily closed	2.6% (1)	0.0% (0)	0.0% (0)
Parents disapprove of the program's Early Achievers rating	0.0% (0)	0.0% (0)	2.0% (2)
Other	34.2% (13)	42.9% (6)	21.8% (22)
TOTAL N (participants)	38	14	101

Note: Percentages in each cell reflect the number of participants selecting that option out of the total number of participants responding to this question.

Classroom practices

The majority of directors (76%) and owners (80%) used a curriculum in their sites, and 64% of teachers/providers used a curriculum in their classrooms. For directors and teachers/providers, the most commonly used curriculum was Creative Curriculum, followed by Montessori. It was more common for FCC owners to use their own, self-developed curriculum, however. Table 12.4 summarizes these responses.

Table 12.4. CCC Directors/FCC Owners/Teachers: Primary Curriculum in Classroom

	Director Percentage (N)	Owner Percentage (N)	Teacher/Provider Percentage (N)
Creative Curriculum	44.8% (13)	16.7% (2)	29.2% (19)
Montessori	13.8% (4)	0.0% (0)	10.8% (7)
Self-created	13.8% (4)	41.7% (5)	13.8% (9)
Emergent	6.9% (2)	16.7% (2)	9.2% (6)
Project Approach	3.4% (1)	0.0% (0)	9.2% (6)
High Scope	3.4% (1)	0.0% (0)	0.0% (0)
Handwriting Without Tears	0.0% (0)	0.0% (0)	4.6% (3)
Unsure	0.0% (0)	0.0% (0)	1.5% (1)
Other	13.8% (4)	25.0% (3)	21.5% (14)
TOTAL	100% (29)	100% (12)	100% (65)

The majority of directors and about half of teachers/providers indicated that 75%-100% of a typical day is spent on their curriculum, while most owners indicated spending less than 40% of the day on their curriculum.

For time spent on extra work for the curriculum, the majority of directors, owners, and teachers/providers felt that 75%-100% of that work was important.

Directors and owners varied in providing feedback to teachers on curriculum use; 76% of directors reported that feedback was provided to their staff at least once a month, while 33% of owners received feedback at least once a month, and 33% never received feedback. Teachers/providers overall felt supported implementing their curriculum—75% felt very or moderately supported, and just over 50% reported receiving feedback from a supervisor or coach at least once a month.

We asked directors who teach in the classroom, along with owners and teachers/providers to rate their confidence in teaching different skill areas. For directors and owners, the majority felt confident teaching children a variety of skills:

- Directors reported their highest levels of confidence were for teaching social-emotional skills, followed by literacy skills and language development.
- Owners reported their highest levels of confidence were for teaching social-emotional skills, followed by physical development and health, and early writing.
- Both directors and owners indicated lower confidence levels for teaching modified instruction for special needs, as well as science knowledge and skills and English language learning skills.

The majority of teachers/providers also felt confident teaching children a variety of skills:

- Teachers/providers indicated the highest levels of confidence for teaching social-emotional skills, followed by literacy skills and language development.
- Teachers/providers indicated lower confidence levels for teaching modified instruction for special needs, as well as science knowledge and skills.

Health and well-being

The majority of directors (71%), owners (73%), and teachers/providers (66%) rated their health status as "excellent" or "very good." Directors and teachers/providers reported receiving many benefits from their jobs, with the most common being paid leave/vacation, paid sick leave, and health insurance. But the majority of FCC owners (67%) reported not receiving any of the presented benefits.

While the physical health of most teachers had been good in the past month, about 50% of teachers reported that their mental health was not good for at least one day in the past month (with 15% reporting more than 10 days). Only about a fourth of directors and owners reported that their physical or mental health had not been good.

Both directors and owners reported that trying to balance work and family time was one of the most common factors interfering with their job performance. Directors also commonly reported workplace stressors, lack of sleep, and job expectations (such as trainings or assessments) as interferences, while owners commonly reported not having enough money, lack of access to materials/resources, and personal stressors as interferences. The most common barriers reported by teachers/providers overlapped with those reported by directors/owners: workplace stressors, not having enough money, job expectations, and lack of sleep.

Early Achievers participation

The majority of directors and owners reported that their program had received an Early Achievers rating (76%); 57% of teachers/providers reported having received a rating, and 24% did not know where their program was in the rating process. Directors and owners reported most frequently seeking support when needed from DEL, their Early Achievers coach/TA, Childcare Resource & Referral, and early childhood education conferences. Teachers/providers reported most frequently seeking support from friends who are also early learning providers, DEL, and early childhood education conferences.

When asked how they would rate their satisfaction with Early Achievers up to the current time, responses were mixed. The majority of teachers/providers reported feeling satisfied (46.1%), while 31.4% were somewhat satisfied, 12.7% were not satisfied, and 9.8% were very satisfied (see Table 12.5, below). Some teachers/providers elaborated on their responses in the following comments.

A comment from a teacher who was satisfied:

- "The Early Achievers rating is a wonderful tool, and I hope that our child care center will be able to stay on task, and qualify to be a representative of the system."

Some who were not as satisfied felt that the rating process was not accurate, as this teacher explained:

- "I feel that we are being docked points for things that are out of our control. Things like not enough materials or the ages we have in our classroom. Another issue we have is the staff to child ratio. It's too high. There are too many children in our classrooms to give quality care. Too many kids to make sure we are communicating with families."

Other teacher/providers expressed frustration with the requirements and the time that is taken away from children, for example:

- "There is so much to learn. We are not given enough time to practice before we are tested. I would have appreciated enough time to become the improved teacher."

Looking at directors and owners together, the majority indicated that they were somewhat satisfied with Early Achievers (37.7%). Directors alone most often chose somewhat satisfied (44.7%), but 26.3% were satisfied, 21.1% were very satisfied, and 7.9% were not satisfied. For the much smaller group of FCC owners, the majority were satisfied (33.3%), while 26.7% were not satisfied, 20% were somewhat satisfied, and 20% were very satisfied. The following table summarizes these responses.

Table 12.5. Teachers/Directors/Owners: Satisfaction with the Early Achievers Rating Process

	Director/Owner Percentage (N)	Teacher/Provider Percentage (N)
Not satisfied	13.2% (7)	12.7% (13)
Somewhat satisfied	37.7% (20)	31.4% (32)
Satisfied	28.3% (15)	46.1% (47)
Very satisfied	20.8% (11)	9.8% (10)
TOTAL	100% (53)	100% (102)

From a director/owner who felt satisfied:

- "At first we were a little intimidated by this process. My staff and I have been in this field for a long time. However, once we took part in this process we learned a lot and became more intentional with our teaching practices. We looked at this process as a challenge with the intent to increase children's outcomes. It has been very rewarding and I think it took us to a higher level in our daily interactions."

In common with teachers/providers, some directors and owners felt that EA did not produce accurate ratings, as evident in this statement:

- "The data collection process does not allow for an accurate representation of a child care program."

Some directors/owners described ways that Early Achievers could improve or what they wish had occurred. For example:

- "I would have liked more explanations of comments and scoring, so that we can improve for the future. A lot of questions still linger."

Finally, several directors and teachers/providers made comments about their program philosophy not aligning with Early Achievers, particularly Montessori programs, and how it unfairly affects their rating. For example:

- "Montessori schools should have their own category. I feel as though we lose points because we have a very different philosophy."

Directors, owners, and teachers/providers noticed positive changes in many of their own practices from the time of enrolling in Early Achievers. The most positive changes for directors and owners were indicated for classroom organization, instructional practices, and participation in training activities. For teachers/providers, the most positive changes were indicated for adult-child interactions, classroom organization, and ability to grow and develop in the field. The practice with the least positive changes noticed for all was peer group reflection time and mentoring practices. Teachers also noticed little change in their progress in monitoring/ developmental screening practices. Tables 12.6 and 12.7 summarize these responses.

Table 12.6. Directors/Owners: Positive Changes in Program Practices Since Early Achievers Enrollment

Areas of Improvement	1 Strongly disagree	2	3	4	5	6 Strongly agree
Instructional practices	3.8% (2)	5.7% (3)	7.5% (4)	34.0% (18)	28.3% (15)	20.8% (11)
Individualizing instruction for children	3.8% (2)	5.7% (3)	13.2% (7)	34.0% (18)	22.6% (12)	20.8% (11)
Emotional and behavioral support	3.8% (2)	7.5% (4)	11.3% (6)	30.2% (16)	32.1% (17)	15.1% (8)
Classroom organization	1.9% (1)	3.8% (2)	11.3% (6)	24.5% (13)	28.3% (15)	30.2% (16)
Understanding of child development	3.8% (2)	5.7% (3)	15.1% (8)	24.5% (13)	35.8% (19)	15.1% (8)
Assessment practices	3.8% (2)	11.3% (6)	11.3% (6)	24.5% (13)	32.1% (17)	17.0% (9)
Family engagement practices	3.8% (2)	5.7 (3)%	11.3% (6)	37.7% (20)	20.8% (11)	20.8% (11)
Adult-child interactions	3.8% (2)	5.7% (3)	11.3% (6)	30.2% (16)	28.3% (15)	20.8% (11)
Progress monitoring/ developmental screening	3.8% (2)	9.4% (5)	13.2% (7)	22.6% (12)	32.1% (17)	18.9% (10)
Participating in training activities	3.8% (2)	5.7% (3)	13.2% (7)	24.5% (13)	30.2% (16)	22.6% (12)
Mentoring practices	1.9% (1)	5.7% (3)	20.8% (11)	26.4% (14)	22.6% (12)	22.6% (12)
Peer group reflection time	5.8% (3)	5.8% (3)	26.9% (14)	23.1% (12)	25.0% (13)	13.5% (7)
Ability to grow and develop in this field	1.9% (1)	7.5% (4)	11.3% (6)	30.2% (16)	30.2% (16)	18.9% (10)
Relationships with staff	3.8% (2)	5.8% (3)	17.3% (9)	23.1% (12)	30.8% (16)	19.2% (10)
Other	16.7% (1)	0.0% (0)	16.7% (1)	0.0% (0)	16.7% (1)	50.0% (3)

Table 12.7. Teachers: Positive Changes in Program Practices Since Early Achievers Enrollment						
Areas of Improvement	1 Strongly disagree	2	3	4	5	6 Strongly agree
Instructional practices	13.3% (13)	5.1% (5)	18.4% (18)	25.5% (25)	24.5% (24)	13.3% (13)
Individualizing instruction for children	15.2% (15)	6.1% (6)	16.2% (16)	25.3 % (25)	22.2% (22)	15.2% (15)
Emotional and behavioral support	14.1% (14)	9.1% (9)	21.2% (21)	20.2% (20)	20.2% (20)	15.2% (15)
Classroom organization	12.0% (12)	7.0% (7)	14.0% (14)	23.0% (23)	23.0% (23)	21.0% (21)
Understanding of child development	13.3% (13)	8.2% (8)	18.4% (18)	18.4% (18)	28.6% (28)	13.3% (13)
Assessment practices	16.0% (16)	8.0% (8)	21.0% (21)	16.0% (16)	25.0% (25)	14.0% (14)
Family engagement practices	16.2% (16)	11.1% (11)	17.2% (17)	24.2% (24)	21.2% (21)	10.1% (10)
Adult-child interactions	16.0% (16)	5.0% (5)	10.0% (10)	22.0% (22)	28.0% (28)	19.0% (19)
Progress monitoring/developmental screening	17.0% (17)	14.0% (14)	19.0% (19)	22.0% (22)	19.0% (19)	9.0% (9)
Participating in training activities	16.0% (16)	10.0% (10)	15.0% (15)	21.0% (21)	20.0% (20)	18.0% (18)
Mentoring practices	21.0% (21)	14.0% (14)	14.0% (14)	22.0% (22)	20.0% (20)	9.0% (9)
Peer group reflection time	22.2% (22)	14.1% (14)	21.2% (21)	19.2% (19)	16.2% (16)	7.1% (7)
Ability to grow and develop in this field	16.0% (16)	8.0% (8)	11.0% (11)	22.0% (22)	26.0% (26)	17.0% (17)
Relationships with staff	14.1% (14)	11.1% (11)	14.1% (14)	23.2% (23)	23.2% (23)	14.1% (14)
Other	42.1% (8)	10.5% (2)	26.3% (5)	15.8% (3)	0% (0)	5.3% (1)

See Appendix I for detailed Director/FCC owner survey information and Appendix J for detailed teacher/provider survey information.

In the following section, we discuss perceptions and experiences of **parents and families** with Early Achievers.

Procedures

We began distributing parent surveys to directors and FCC owners in December 2014, with instructions to send one survey packet home with each participating child. Parents and guardians received a packet that included: a cover letter inviting them to participate in a survey about their experiences with child care in Washington State; a paper copy of the survey in English or Spanish (the Spanish version was sent to those families whose primary language, according to the program, was Spanish; all other families received the English version); a prepaid business reply envelope; and one $5 bill. We told parents that survey participation was optional and that they could keep the $5 regardless of whether they completed the survey. The cover letter explained that the survey could be completed either by paper, and then mailed back to us with the prepaid envelope, or online (a web link was provided). Of 936 parent surveys sent, 527 were completed and returned via mail, and 75 were completed through the online survey, yielding a total of 599 returned surveys (a 64.0% response rate).

Parent backgrounds and demographics

Any parent or guardian of a participating child could complete the parent/family survey. Of the 599 parents/guardians who completed the survey, 84.5% were mothers of the child, 11.6% were fathers, 1.5% were foster parents, 1.3% were grandparents, and the remaining 1.1% included other types of relations, including aunt and step parent.

The majority of these parents/guardians had a Bachelor's degree or higher, while 16.7% had a high school diploma/GED or less. Forty-five percent of parents had an annual household income of more than $80,000, and about a third had an income of $50,000 or less. Of this "low-income" group, the majority did not have a Bachelor's degree or higher. The following two tables summarize these responses.

Table 12.8. Parents/Guardians: Highest Level of Education Completed

	Percentage (N)
Less than 9th grade	3.4% (20)
Some high school	2.4% (14)
GED	1.7% (10)
High school diploma	9.1% (53)
Some college	15.7% (91)
Associate's degree	12.6% (73)
Bachelor's degree	29.5% (171)
Master's degree or higher	25.5% (148)
Total	100% (580)

Table 12.9. Parents/Guardians: Highest Level of Education Completed (Low-income Group Only)

	Percentage (N)
Less than 9th grade	9.1% (18)
Some high school	6.1% (12)
GED	4.5% (9)
High school diploma	20.7% (41)
Some college	23.2% (46)
Associate's degree	16.2% (32)
Bachelor's degree	13.1% (26)
Master's degree or higher	7.1% (14)
Total	100% (198)

Most parents were married (72.2%) and employed full-time (68.7%). Eighty-one percent indicated that there are two parents (either biological or adoptive) living at home caring for their child, while 16.9% indicated just one parent. Out of these single parents, 80% were low-income (annual income of $50,000 or less). Nearly 50% of parents reported that their child had lived in only one residence since birth (applies to all ages). Of the parents reporting that their child had lived in more than three residences since birth, 65% were low-income.

The primary language spoken at home was predominately English, but among the non-English primary home languages, 23 were reported, with Spanish being the most common. Of the non-English speakers, 71% were low-income ($50,000 or less).

Most parents (98.3%) indicated that their child had never been diagnosed with a developmental disability.

Child care use and selection

Nearly 50% of parents have had their child in out-of-home care starting from the first year of life, and approximately 60% of parents had kept their child at the same child care program since they first enrolled (applies to children of all age groups).

We asked parents to identify the three most important reasons for selecting their current child care program from a list of possible reasons. The most commonly selected reason was that the program was close to home (40.9% of all responses). The next four most commonly selected reasons were: toured facility and felt right for my child (30.5%); a friend, neighbor, or parent recommended it (28.4%); program has a reputation of high quality (27.0%); and program was close to place of employment (21.0%). Least commonly selected reasons included the program offers special needs programming (1.2%); the caregiver speaks their home language (1.5%); the DEL website (1.5%); affiliation with their place of worship (2.0%); and the program's Early Achievers rating (2.2%). Table 12.10 provides more information.

Table 12.10. Parents/Guardians: Most Important Reasons for Selecting Child Care Program

	Parents/Guardians (N = 596)	Percent
It was close to my home.	244	40.9%
Toured facility and it felt right for my child.	182	30.5%
A friend, neighbor, or other parent recommended it.	169	28.4%
It has reputation of being high quality.	161	27.0%
It was close to place of employment.	125	21.0%
My child's older sibling attended/attends.	122	20.5%
Hours/days of operation matched my work schedule.	114	19.1%
I could afford it.	113	19.0%
Types of daily activities provided.	101	16.9%
Curriculum used.	75	12.6%
Providers' years of experience.	48	8.1%
Teacher: child ratio.	39	6.5%
Program accepts subsidies (e.g., Working Connections).	25	4.2%
Transportation provided.	24	4.0%
Internet reviews and recommendations.	22	3.7%
Providers' education level.	22	3.7%
Only program available to us.	19	3.2%
Located on site of a sibling's elementary school.	13	2.2%
Early Achievers rating.	13	2.2%
It was affiliated with my place of worship.	12	2.0%
DEL website.	9	1.5%
Caregiver speaks my home language.	9	1.5%
Special needs programming.	7	1.2%

Note: A total of 596 parents/guardians responded to this question. Percentages reflect the number of parents/guardians selecting that option out of the total number of respondents (596).

Parents were asked about the last time their child was sick and unable to attend child care; most reported that they used paid sick leave in this situation (39.6%) or had their child stay home with a relative, friend, or neighbor (31%). Use of unpaid sick leave was reported by 14.4% of parents.

Program experiences and satisfaction

Overall, parents indicated satisfaction and positive experiences with their child's program. Eighty percent reported feeling comfortable and connected with their child's program and teacher/provider. Seventy-two percent had children who were excited nearly every day to attend. Approximately 80% strongly agreed or agreed that they have noticed positive changes in their child's language, physical, and social-emotional skills since enrollment.

We asked parents to rate how important it was for their child's teacher/provider to demonstrate particular practices and characteristics on a 6-point scale (1 = extremely unimportant, 6 = extremely important). The majority of parents rated all of the program practices/characteristics as extremely important, with the exception of the teacher/provider having a Bachelor's degree—more parents (26.6%) selected a "4" for this characteristic, indicating a small amount of importance, while only 14.4% selected extremely important (6). See the table below.

Table 12.11. Parent Ratings of Importance of Teacher/Provider Practices

How important is it for your child's teacher/ provider to:	Extremely unimportant	2	3	4	5	Extremely important
Talk to me.	9 (1.5%)	18 (3.1%)	62 (10.6%)	106 (18.1%)	122 (20.9%)	268 (45.8%)
Use a curriculum.	8 (1.4%)	11 (1.9%)	33 (5.7%)	101 (17.4%)	175 (30.1%)	253 (43.5%)
Teach my child behavioral skills.	1 (0.2%)	2 (0.3%)	5 (0.9%)	32 (5.5%)	136 (23.3%)	408 (69.9%)
Teach my child academic skills.	4 (0.7%)	12 (2.1%)	20 (3.4%)	58 (10.0%)	158 (27.1%)	330 (56.7%)
Track progress.	6 (1%)	11 (1.9%)	20 (3.4%)	82 (14.1%)	165 (28.4%)	297 (51.1%)
Be fluent.	23 (4.0%)	14 (2.4%)	40 (6.9%)	70 (12.1%)	131 (22.7%)	300 (51.9%)
Have BA.	67 (11.7%)	71 (12.3%)	111 (19.3%)	153 (26.6%)	90 (15.7%)	83 (14.4%)
Engage in training.	7 (1.2%)	11 (1.9%)	25 (4.3%)	76 (13.1%)	181 (31.3%)	278 (48.1%)

Following this question, parents were asked to indicate whether they had observed these practices/characteristics in their child's teacher/provider. Most parents selected "yes" for all options: 77% or more parents indicated that their child's teacher/provider talks to them, uses a curriculum, teaches their child both behavioral/social/emotional and academic skills, tracks their child's progress, is fluent in their child's primary home language, and engages in training opportunities. Similar to the previous importance questions, fewer parents (49%) indicated that their child's teacher/provider had a Bachelor's degree. The Bachelor's degree and training opportunities items had the greatest numbers of missing responses, potentially suggesting that these are two characteristics/practices that are not as well known to parents. See the following table.

Table 12.12. Parents' Observations of Teacher/Provider Practices

Do the following statements describe your child's teacher/provider accurately?	No (1)	Yes (2)
Talks to me.	96 (16.5%)	487 (83.5%)
Uses a curriculum.	45 (7.9%)	524 (92.1%)
Teaches my child behavioral skills.	15 (2.6%)	567 (97.4%)
Teaches my child academic skills.	34 (5.9%)	543 (94.1%)
Tracks progress.	69 (12.2%)	495 (87.8%)
Is fluent.	39 (6.7%)	545 (93.3%)
Has BA.	143 (32.3%)	300 (67.7%)
Engages in training	34 (6.7%)	473 (93.3%)

When asked about participation in particular program activities, the majority of parents indicated that they had never volunteered in or gone on a field trip with their child's classroom, while most indicated that they talk with their child's teacher more than once a week at drop-off/pickup.

Eighty percent of parents reported (strongly agreed or agreed) that they had received feedback from their program about their child's performance, 79% had received work samples, 60% had received assessment results, and 65% knew about the curriculum that was used.

Parents at home

Parents engaged in a variety of activities during a typical week with their children at home, some more frequently than others. More frequent activities included reading books, singing songs, tickling, household chores, playing with toys, and talking about numbers and/or shapes. The responses are summarized in the following table.

Table 12.13. Frequency of Parent Participation in Activities with their Children

How often do you do the following activities with your child?	Not at all	1-2 times per week	3-6 times per week	Every day	Total
Read books to your child.	0.7% (4)	14.8% (86)	28.6% (166)	55.9% (324)	100% (580)
Tell stories to your child.	6.1% (35)	28.4% (164)	31.0% (179)	34.5% (199)	100% (577)
Sing songs with your child.	1.9% (11)	16.2% (94)	31.3% (182)	50.7% (295)	100% (582)
Tickle your child.	2.6% (15)	13.2% (76)	27.7% (160)	56.5% (326)	100% (577)
Help your child to do arts and crafts.	9.5% (55)	49.0% (283)	29.4% (170)	12.1% (70)	100% (578)

Table 12.13. Frequency of Parent Participation in Activities with their Children					
Involve your child in household chores (e.g., cooking, cleaning, setting the table, or caring for pets).	6.1% (35)	22.7% (131)	32.1% (185)	39.2% (226)	100% (577)
Take your child on errands with you (e.g., grocery store, post office).	0.9% (5)	25.9% (150)	42.2% (245)	31.0% (180)	100% (580)
Play peeking/hiding games with your child.	11.2% (65)	39.6% (230)	27.4% (159)	21.9% (127)	100% (581)
Play toys with your child.	1.2% (7)	24.1% (139)	32.8% (189)	41.8% (241)	100% (576)
Play board games with your child.	32.2% (185)	44.4% (255)	17.1% (98)	6.3% (36)	100% (574)
Watch TV with your child.	10.6% (61)	34.4% (198)	30.3% (174)	24.7% (142)	100% (575)
Play video games with your child.	70.5% (407)	20.3% (117)	5.4% (31)	3.8% (22)	100% (577)
Do puzzles with your child.	18.3% (106)	52.6% (304)	22.1% (128)	6.9% (40)	100% (578)
Talk about numbers and/or shapes with your child.	2.3% (13)	18.4% (106)	41.6% (240)	37.8% (218)	100% (577)
Talk about nature or do science projects with your child.	13.1% (76)	41.0% (237)	28.7% (166)	17.1% (99)	100% (578)
Build something or play construction toys with your child.	8.3% (48)	41.2% (238)	35.4% (204)	15.1% (87)	100% (577
Take your child to the library.	50.6% (288)	44.0% (251)	3.0% (17)	2.6% (15)	100% (571)
Go for a walk or play outside with your child.	1.6% (9)	32.7% (183)	44.7% (250)	20.9% (117)	100% (559)
Other activity.	19.6% (36)	29.9% (55)	23.9% (44)	26.6% (49)	100% (184)

Less frequent activities included arts and crafts, visiting the library, playing board games, doing puzzles, conducting nature/science projects, and playing with construction toys. Nearly 60% of parents indicated that their child views between 0 and 2 hours of screen time (TV, computer, cell phone) on a typical weekday, and 45% view between 2 and 4 hours of screen time on a typical weekend day.

See Appendix K for detailed parent survey information.

13. Study Limitations

Our analysis of the Early Achievers program standards provides information consistent with and builds upon other studies of QRIS standards and associated child outcomes. There are a number of important limitations to consider, however.

First, the dataset is small in regards to the number of participating sites, classrooms, and children. Because the classrooms vary by the age of the children served, observations decrease even further depending on the separate analyses conducted per classroom type. These low numbers result in sample sizes (especially for infant and toddler classrooms) that raise concerns about the generalizability of the results of these analyses.

A second limitation is missing data, especially at level two, which affects the opportunity to investigate all classrooms on each of the predictor variables. Because HLM requires complete data at the highest level of the model, this affected overall statistical power. As a result, certain classrooms were not included in all analyses. Missing data was an issue at both levels of the hierarchy. Important family and child demographic variables were successfully imputed, however, not all variables were accounted for. Missing data at level-1 on important covariates, for example, limited our ability to investigate our hypotheses fully (attendance, hours of the day, etc.).

Third, the range of values on the independent variable is a concern. For example, most ERS observations are clustered in the 2.5–4.5 range, with the 4.5–5.5 range having only about six observations. This complicated the effort to run important analyses (e. g., spline fit) to explore whether the relationship between child outcomes and classroom quality changes within the ranges of the observed data. Specifically, this rendered the use of piecewise (spline) regression analyses problematic. The idea behind spline is that every sub-range of the independent variable is taken separately, and regression is estimated using only that subset of data. In our analysis, some non-linearity arises, but there are little data available, and these estimations are also easily influenced by existing outliers. The imbalance of quality levels, especially regarding the absence of high levels of Instructional Support and ERS, was concerning. The final sample was skewed in terms of classroom quality levels as proposed by the CLASS and ERS authors.

Another limitation is that this is an observational study, not a randomized controlled trial. This makes it more difficult to establish causality (Angrist & Pischke, 2010) as opposed to mere correlation. We are observing children whose parents chose these programs, which means there could be an issue of self-selection (Heckman, 1979). We include demographic information in the analysis to somewhat mitigate this issue, but given the sample size the inclusion of additional variables decreases the confidence we have in the estimates. Further, taking measure to include demographic information still falls short of conducting a randomized controlled trial, the gold standard of research design. A definitive evaluation of Early Achievers' causal impact on child outcomes would consist of an experimental design with random assignment of children to QRIS levels. The lack of a control group made it difficult to determine if gains reflect child maturation or are due to other characteristics.

A final limitation concerns the short time frame from pre- to post-direct child assessments. There was on average 150 days between the baseline and post-assessment. Ideally, we would follow children over their time in care and have enough data points to understand individual children's growth curves. Finding positive changes in expected directions from baseline to post-assessment is encouraging for certain, but extending toward longitudinal studies and tracking children into kindergarten and using WaKIDS scores would be optimal.

Due to these limitations, we advise caution when interpreting the results of our study and discerning existing patterns in the association of Early Achievers rating levels, standard areas, and quality components with child outcomes. In general, we found a number of positive results that support and build upon the existing literature base. But unexpected findings proved contradictory and require further investigation.

14. Recommendations from the Statewide Internal Standards Validation Study of Early Achievers

1. Results indicate that children are making positive but modest gains across most developmental domains. Strengthening the focus of teaching and learning across all domains—especially in sites serving children from low-income backgrounds—could enhance learning and development. Specifically, in the year before kindergarten, children were not as strong in early math and letter word identification compared to other domains. More than half of low-income children entering kindergarten were below the mean or established age expected score on standardized measures in receptive vocabulary, letter word identification, executive function, and early math. We recommend considering the results from the analyses of children's developmental gains to inform professional development for early learning professionals.
2. Noting that the sample of dual language learners was very small, our results indicate that children made marked receptive language gains in English, but they did not gain equally in Spanish. This suggests the children could be learning English at the expense of becoming bilingual. We recommend considering professional development for child care professionals in supporting bilingual learners.
3. Our results suggest links between the use of research-based curriculum and children's learning. We recommend considering incentivizing and providing support for the uptake and use of research-based curriculum in Early Achievers sites. Support could include efforts to reduce the costs of curriculum to the providers, training, and ongoing coaching to fidelity.
4. We found some positive linkages between quality assessments and child outcomes, but not for all domains and most linkages are lost when the assessments are summed to Early Achievers quality levels. We recommend exploring domain specific quality assessments. Future work could involve simulations for the inclusion and alternative weighting of quality measures and standard areas that may strengthen linkages to child outcomes.
5. Alternative scoring of the Environmental Rating Scales using a proportion score was related to child outcomes across more developmental domains than traditional scoring. Scoring "all the way up" captures developmentally enhancing interactions within the context of a safe and engaging environment. Results yielded from proportion scoring also provide more helpful links to tailor information for coaching and professional development goals. We recommend considering using the alternative scoring method of ERS. Additionally, Washington State is currently engaged in an effort to validate the ECERS-3, which has a similar approach to the proportion score and might be a viable measure for QRIS. We recommend exploring alternative administration and scoring methods of ERS, as well as considering the new ECERS-3 tool as future options.
6. Early Achievers data collection is extensive and can be overly time-consuming. We recommend exploring ways to increase the efficiency of data collection in Early Achievers. Validating short forms of quality instruments, collecting data on tablets to streamline data entry, and eliminating duplicative measures are all viable options.
7. More than 25% of directors reported asking a child to leave their centers due to challenging behavior. Child care expulsion is a concerning event and indicates providers need more support to care for all children. We recommend considering system-wide and focused professional development on positive behavioral support for young children.
8. Providers reported stress, and they experience depressive symptoms at higher rates than the general public. Caring for children is demanding physical and mental work and even more difficult to do when one feels stressed or depressed. We recommend considering system-wide and focused support for child care professionals' health and well-being.
9. Limitations in this study were mostly related to sample characteristics due to voluntary recruitment during a less-than-optimal time in the evolution of Early Achievers. But ongoing study of the Early Achievers program is essential to continued quality improvement of the program to optimize child outcomes—especially for vulnerable children. Continued evaluation efforts of Early Achievers in its current structure may be beneficial in understanding future refinement needs of the rating system and the differentiation of quality rating levels. We recommend requiring or rewarding participation in future, ongoing evaluation of all Early Achiever sites.

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Appendix A

Early Achievers Standard Areas

Child Outcomes/ 10 points

Component	Sub-Component One	Sub-Component Two	Total Points
Developmental screening is conducted within 90 days of enrollment and results are shared with parents	Records Review (1 point)		1 point
Daily Individual Child Experience of Quality			2 points
Ongoing assessment of children's strengths and needs to monitor progress (e.g., child portfolio/work sampling assessments) and inform instruction	Records Review (1 point)	Focal Child Analysis (1 point)	2 points
Share individualized child data with parents			1 point
Evidence of family engagement, data sharing, and transition supports for individual children (as measured by Focal Child)			1 point
Use of WaKIDS Assessment Tool or demonstration/documentation of alignment to WaKIDS Assessment process			1 point
Individualized Instruction for all children			1 point
Periodic review and use of child assessment data for continuous program improvement (e.g. analyze group patterns and behaviors)			1 point

Facility Curriculum, Learning Environment, Interactions/ 70 points

Classroom/FCC Home Environment/ 55 points

Measurements	Point range options, based on average facility score		
CLASS: Instructional Support/Engaged Support for Learning	2 to 3.4 (**10 points**)	3.5 to 4.4 (**15 points**)	4.5 & higher (**20 points**)
CLASS: Emotional Support & Classroom Organization/ Emotional and Behavioral Support	3.5 to 4.9 (**10 points**)	5.0 to 5.9 (**15 points**)	6.0 & higher (**20 points**)
ERS	3 (**5 points**)	5 (**10 points**)	6 (**15 points**)

Each assessed facility/family home child care must score at least a 2 on Instructional Support/Engaged Support for Learning in the CLASS, a 3.5 on Emotional Support and Classroom Organization/Emotional and Behavioral Support in the CLASS and a 3.0 on the ERS to achieve a Level 3 to 5 rating.

Curriculum and Staff Supports/ 15 points

Component	Sub-Component One	Sub-Component Two	Total Points
Curriculum Profile	Show evidence of Program Curriculum Philosophy (1 point)	Demonstrate alignment with Washington State Early Learning and Development Guidelines (2 point)	3 points
Training	Lead Teaching Staff ** or FCC Owner trained on Program Curriculum Philosophy (2 points)	Lead Teaching Staff ** or FCC Owner trained on Washington State Early Learning and Development Guidelines (3 points)	5 points
Ongoing mentoring of teaching staff ** to support improvement in curriculum and teacher child interactions			3 points
Dedicated time for teaching staff** planning time on a weekly basis			2 points
Dedicated time for teaching staff** to engage in reflective practice with peer group on a monthly basis			2 points

* Includes FCC assistants

** Includes FCC primary educator/care provider

Professional Development and Training/ 10 points		
Center Director or Program Supervisor		
AA in ECE or related field	Level 3 of the Core Competencies for the Early Care and Education Professionals	1 point
BA in ECE or related field	Level 4 of the Core Competencies for the Early Care and Education Professionals	2 points
MA in ECE or related field	Level 5 of the Core Competencies for Early Care	4 points
Center Designated Lead Teaching Staff		
25% have CDA or approved certificate or credential (12 credits or higher)	Level 2 of the Core Competencies for the Early Care and Education Professionals	1 point
25% have AA or higher in ECE related field	Level 3 of the Core Competencies for the Early Care and Education Professionals	2 points
25%have BA or higher in ECE related field	Level 4 of the Core Competencies for the Early Care and Education Professionals	3 points
Center- All Other Teaching Staff (assistants and aides)		
25% have CDA or approved certificate or credential (12 credits or higher)	Level 2 of the Core Competencies for the Early Care and Education Professionals	1 point
50% have CDA or approved certificate or credential (12 credits or higher)	Level 2 of the Core Competencies for the Early Care and Education Professionals	2 points
25% have AA or higher in ECE related field	Level 3 of the Core Competencies for the Early Care and Education Professionals	3 points
Family Child Care Provider or Primary Worker		
CDA or approved certificate or credential (12 credits or higher)	Level 2 of the Core Competencies for the Early Care and Education Professionals	3 points
AA in ECE or related field	Level 3 of the Core Competencies for the Early Care and Education Professionals	5 points
BA in ECE or related field	Level 4 of the Core Competencies for the Early Care and Education Professionals	7 points
MA in ECE or related field	Level 5 of the Core Competencies for the Early Care and Education Professionals	10 points

Family Engagement and Partnership/ 10 points	
Component	**Total Points**
Complete modified Strengthening Families Self-Assessment (Director/Owner)	1 point
Develop a Plan of Action based on Strengthening Families Self-assessment	1 point
Provide evidence of continuous feedback and improvement (Plan of Action)	1 point
Have a parenting support and education program in place (e.g. Incredible Years, Triple P Parenting, CSEFEL Parenting Modules, Parents as Teachers etc.)	1 point
Provide information about community based programs available for parents in languages represented in the facility (e.g. community mental health, child nutrition, physical fitness, food banks, Child Find, medical/dental resources etc.)	1 point
Evidence of transition plans/policies in place for changes in settings and providers	3 points
Partner with parents to determine perception of child strengths and needs	2 points

Appendix B

Evaluations of QRIS Ratings and Child Developmental Outcomes (adapted from Karoly, 2014)

Study / Location / QRIS	Settings / Sample	Methods	Measures of Child Development	Key Findings
Zellman et al. (2008) / Colorado Qualistar	1,3868 preschool-age children enrolled in QRIS-rated centers or FCCHs in Wave 1; 829 children in Wave 2; 619 children in Wave 3	• Longitudinal (3 points in time) • Family background controls (parent survey) • Primary data	Independent assessment • PPVT-4 • WJ-III Letter Word Identification • WJ-III Passage Comprehension • WJ-III Applied Problems Teacher Assessment • Child Behavior Inventory (CBI) Parent assessment • Strength and Difficulties Questionnaire (SDQ) (Wave 3 only)	• QRIS ratings were not associated with improvement in child outcomes for either centers or FCCHs • Individual components of the QRIS ratings (e.g., average class ration, parent survey, head teacher educational attainment) were not associated with any improvement in child outcomes • Subgroup analyses did not show that low-income children were more likely to benefit from highly rated centers
Tout et al. (2010) / Minnesota / Parent Aware	421 preschool-age children in two cohorts (2008-2009 and 2009-2010) enrolled in 84 QRIS-rated centers or FCCHs	• Longitudinal (fall to spring) • Child level • Family background controls (parent survey) • Primary data	Independent assessment • PPVT-4 • Individual Growth and Development Indicators (IGDI) Picture Naming • Test of Preschool Early Literacy (TOPEL) Phonological Awareness and Print Knowledge • WJ-III Applied Problems • WJ-III Quantitative Concepts Teacher assessment • Social Competence and Behavior Evaluation short form (SCBE-30) • Preschool Learning and Behavior Scale (PLBS) Persistence subscale	• There were no definitive patterns of linkages between quality rating categories and children's developmental gains • Only two statistically significant effects in the expected direction were found for components of the QRIS (Parent Aware): Tracking Learning predicted PPVT change scores and Teacher Training and Education predicted WJ-III Quantitative Concepts change scores • For some measures, Parent Aware subscale scores negatively predicted child outcomes
Tout et al. (2011) / Minnesota / Parent Aware	701 preschool-age children in three cohorts (2008-2009, 2009-2010, and 2010-2011) enrolled in 138 QRIS-rated centers or FCCHs	• Longitudinal (fall to spring) • Child level • Family background controls (parent survey) • Primary data	Independent assessment • PPVT-4 • Individual Growth and Development Indicators (IGDI) Picture Naming • Test of Preschool Early Literacy (TOPEL) Phonological Awareness and Print Knowledge • WJ-III Applied Problems • WJ-III Quantitative Concepts Teacher assessment • Social Competence and Behavior Evaluation short form (SCBE-30) Preschool Learning and Behavior Scale (PLBS) Persistence subscale	• Children overall and children in poverty in programs at different quality rating levels did not differ systematically from each other in their developmental gains from fall to spring • There was some evidence for differences in children's receptive vocabulary (PPVT) across star levels, but these findings were not robust to variations in models

Thornburg et al. (2009) / Missouri / Missouri Quality Rating System	350 preschool-age children in 66 classrooms enrolled full-time (25+ hours) in 32 licensed centers and 6 licensed FCC homes (excluded non-English speakers and those with severe disabilities)	• Longitudinal (fall to spring) • Child level • Family background controls (parent survey) • Primary data	Independent assessment • PPVT-4 • TERA-3 Reading Quotient • TERA-3 Alphabet subtest • TERA-3 Conventions subtest • TERA-3 Meaning subtest • WJ-III Applied Problems • Shape identification • Color identification • Uppercase alphabet • Fine motor • Gross motor • DECA Total Protective Factors • DECA Initiative scale • DECA Self-control scale • DECA Attachment scale DECA Behavioral Concerns	For all children by rating tier, statistically significant greater gains were found for the following outcomes (effect sizes in parentheses): • High (4-5 stars) versus low (1-2 stars): overall social and behavioral skills (0.80), motivation (0.79), self-control (0.65), and positive adult relationships (0.45) • Medium (3 stars) versus low (1-2 stars): overall social and behavioral skills (0.36) and motivation (0.43) For children not in poverty by rating tier, statistically significant greater gains were found for the following: • High versus low: overall social and behavioral skills (0.79), motivation (0.78), and vocabulary (0.74) • Medium versus low: vocabulary (0.64) • High versus medium: self-control (0.61) For children not in poverty by rating tier, statistically significant greater gains were found for the following: • High versus low: overall social and behavioral skills (0.79), motivation (0.79), and self-control (0.66) • Medium versus low: overall social and behavioral skills (0.49), motivation (0.57), and positive adult relationships (0.33)
Joseph & Soderberg, (2015) / Washington / Early Achievers	After attrition 761 children in 100 Level 2-4 rated programs (CCC, FCC, HS & ECEAP) • 522 ages 36-60 months • 239 children ages 6-35 months 155 classrooms	• Longitudinal (fall to spring) • Child level • Family background controls (parent survey) • Primary data	Independent assessment • PPVT-4 • WJ –III Letter Word Identification • TEAM • LENS on Science • Early Writing Assessment • HTKS (Executive Functioning) • Mullen Parent Assessment • CBCL (Social-Emotional) Teacher Assessment CBCL (Social-Emotional)	• Children in higher rated programs did better in receptive language, expressive language & fine motor than children in lower rated programs • Certain EA standard indicators were found to load together and predict receptive language • ERS and CLASS scores were not consistently associated with child outcomes in a linear fashion (only CLASS IS with early writing & receptive language). When entered into the model at EA thresholds, CLASS IS was related to early writing & letter word knowledge and CLASS IE was related to fine motor • An alternate administration and scoring method of ERS was related to receptive language, early science, expressive language, cognitive and social-emotional skills • An interaction effect was found with CLASS IS and the use of research-based curriculum, significantly related to letter word knowledge • Mastery engagement was associated with early writing and social-emotional skills • For some measures, significant results were found in an unexpected direction

Appendix C

Imputation

In this report we focus primarily on the imputation of missing information on income, subsidies and education. We have 947 children in the sample. We have 947 observations for gender, 575 observations for education, 565 for income, 777 for subsidy, most demographic information is provided by not much more than 60% of the households. The purpose of this section is to impute the missing information for income, education and subsidies.

Table C.1 provides additional information. There are 553 cases when all the three variables (income, education and subsidy) are present (non-missing). There are 14 cases where only income is missing etc. There are 162 cases where all three variables are missing. This means that there are 947 - 162 observations where at least one of the variables is present. This means that there are 553 where we have all variables and additional 205 + 1 + 5 + 7 + 14 cases where we can use at least one of these three to predict the others.

Table C.1: Information about Missing Observations in the Three Main Variables of Interest

	PS_SubsidyYN	Education_Parent	Income_Parent	Missing Columns
553	1	1	1	0
14	1	1	0	1
7	0	1	1	1
5	1	0	1	1
1	0	1	0	2
205	1	0	0	2
162	0	0	0	3
	170	372	382	924

One challenge encountered is that demographic information is partly missing and when one piece is missing for a household another piece might be present. Consequently, the more variables one looks at the fewer completely available rows one has to work with (see Table C.2). Since the predictors have many missing observations one may be drawn to the conclusion that it is necessary to use as many predictors as possible to form a decent forecast/imputation of the dependent variable. This, however, may take us to another peril that is discussed in the next paragraph on overfitting/ shrinkage.

Table C.2: Descriptive Statistics

Statistic	Non-Missing	Mean	St. Dev.	Min	Max
relationship_to_child	595	1.313	1.125	1	9
spss_code	952	481.393	278.818	1	966
ParentSurvey	947	0.627	0.484	0	1
Income_code	496	0.657	0.475	0	1
PeduBA	506	0.549	0.498	0	1
Parents_inhome	570	1.439	0.837	1	4
Mobility	565	1.888	1.127	1	7
Discipline	247	1.980	0.141	1	2
Disability_PS	568	1.982	0.132	1	2
Education_Parent	575	6.144	1.790	1	8
Income_Parent	565	6.575	2.817	1	9
Maritalstat_Parent	571	1.996	0.718	1	5
PeduHS	506	0.838	0.369	0	1
PeduAA	506	0.676	0.469	0	1
Primary_Lang	937	1.338	4.994	0	33
SubsCat	947	1.882	1.437	0	4
PS_PayChildcare	566	2.594	2.490	1	46
PS_SubsidyYN	777	0.272	0.445	0	1
Mobility_code	565	1.228	0.420	1	2
Dosage_DPW	581	3.471	0.947	0.696	5.000
Dosage_HPW	355	27.132	11.013	3.217	48.952
Dosage_HPD	355	5.702	2.529	0.652	28.583
employment_status	583	1.521	4.350	-99	6

Single Imputation

There are a number of ways to approach the problem of the imputation of missing data. One naive approach would be to take every single variable, estimate moments of the observed data on this variable and randomly generate the missing values from this distribution. This particular example would add noise to the data and the resulting analysis would be less efficient in a sense that it would not provide the unbiased estimator with the lowest variance. Another issue is that this would not take into account correlations with other variables in the dataset and potentially would distort these correlations in later analyses. Single imputation takes care of the issue of efficiency and correlations by using a regression model to estimate missing values. We will explore some possible approaches in this section.

Overfitting

To perform single imputation we need to choose the right model to predict the missing values in the data. Like in any prediction problem we need to trade-off bias versus variance of such a prediction. Erring on the side of low variance may result in overfitting and increased bias. As we use more variables the sample size decreases and we also use up more degrees of freedom in the estimation of the parameters for every variable included. This is especially so for variables with many levels (ethnicity, language) where every level requires a parameter to be estimated and hence a degree of freedom to be used. This is a known problem and in the literature is referred to as shrinkage (Tibshirani, 1996). The issue manifests itself in better in-sample fit and worse out-of-sample prediction performance. The problem is that every sample is generated by general laws as well as specific peculiarities. We usually try to model the general laws which is why sometimes perfect in-sample fit is not desired. We try to abstract from the particulars and extract a general relationship that we believe manifests itself in more general class of cases than the particular dataset we are working with. This is the empirical analog for why we contract theories that sometimes simplify reality (because we try to capture only that part of reality that plays out in many different contexts, to make general conclusions). To find general laws of nature is the purpose of science, to find general laws in our data is the purpose of forecasting. Overfitting distracts us from those general laws (signal) by obfuscating them with particular idiosyncrasies of a given sample (noise). The goal is to avoid this.

Mindful of the challenges of this imputation problem we are looking for techniques that are robust to overfitting, are able to handle missing observations on the predictors or both. We have identified and employed several such techniques and compared their performance. The overfitting issue also motivates us to rely heavily on out-of-sample prediction performance of our models rather than in-sample measures of fit (MSE, RMSE, etc). Kohavi (1995) recommend 10-fold cross validation as a measure of out-of-sample prediction accuracy.

Cross Validation

Cross validation is a technique to assess out-of-sample performance of forecasting models. Cross validation takes the data we have and splits it into what is called a training sample (that we use to fit our model) and the test sample (where we assess the model's performance out of sample). Several variations of this approach have been developed. Leave-one-out-cross validation (LOOCV) takes a dataset of size n and forms $n-1$ datasets by leaving one of the n observations as a test sample and using the rest to train the model. This means that we can perform $n-1$ such out-of-sample tests and average the results. In general, these variations differ in how much data we keep for training data and how much data we set aside for testing. (Kohavi, 1995) has studied these variations and their test show that the 10-fold cross validation is the most robust measure. The notion is that we divide our data in ten parts, use 9/10 for fitting the model and the rest for testing. This means that we can construct 10 such splits and average the results so obtained. We will use this measure in our model selection process.

Candidate 1: Gradient Boosting Machine

The first model considered has an excellent reputation for predictive accuracy and robustness against overfitting. It is called Gradient Boosting Machine (Friedman, 2002). This model has a reputation for performance close to that of random forest while explicitly modeling missing observations in the predictors. We can see that this model addresses both of our concerns, missing data and overfitting. We show the results of the gradient boosting model (GBM) fit to education, income and subsidies in Table C.3, Table C.4 and Table C.5. GBM operates with notions of relative influence which stands for the improvement of the fit over modeling unconditional mean of the dependent variable brought about by including a specific predictor. One can see in the tables below that the predictors add up to somewhere around 90% in terms of overall improvement in fit which is very reasonable performance.

Table C.3: Relative Influence of Predictors in the Gradient Boosting Model Fit of Income

variable	rel.inf (percentages)
PS_SubsidyYN	34.2625051
Parents_inhome	20.117107
SubsCat	14.3832396
screen_time_weekday	10.6589185
PS_PayChildcare	9.8816034
Maritalstat_Parent	5.9391214
as.numeric(Ethnicity_1)	2.495613
Mobility	0.8160544
relationship_to_child	0.7794575
Primary_Lang	0.6663802

Table C.4: Relative Influence of Predictors in the Gradient Boosting Model Fit of Education

variable	rel.inf
screen_time_weekday	38.1537934
Primary_Lang	12.2811834
Ethnicity	11.3027647
PS_PayChildcare	10.9677981
Maritalstat_Parent	9.625498
PS_SubsidyYN	7.0769459
SubsCat	5.3393076
Parents_inhome	2.9479067
Mobility	1.3104299
relationship_to_child	0.9943723

Table C.5: Relative Influence of Predictors in the Gradient Boosting Model Fit of Subsidies

variable	rel.inf
Parents_inhome	45.0525407
Maritalstat_Parent	32.4220671
screen_time_weekday	15.452136
relationship_to_child	6.0885561
as.numeric(Ethnicity_1)	0.6816597
Primary_Lang	0.3030404
Mobility	0

Candidate 2: Random Forest

Random forest (Liaw & Wiener, 2002) does not specialize in handling missing data but has an excellent reputation for its forecasting performance in many classes of problems. This makes it a natural contender for us.

Candidate 3: OLS

Ordinary least squares model, the workhorse of statistics/econometrics for more than a century will serve as a useful benchmark for the performance of the other models.

Multiple Imputation

In the section above we have reviewed a number of approaches for single imputation. As we have noted this single imputation method has a number of favorable properties like incorporating information about correlations in the data, being easy to work with etc. As we will discuss in this section, however, it still has some unfavorable properties. The primary issue with single imputation is that we are imputing values and afterwards treating them as if they were not imputed but simply recorded. In the actual analysis we are treating imputed values in the same manner as the data from the respondents. In doing so we are inflating the information content of the data, pretending that the sample size is bigger than it actually is. The imputed data should have higher variance than the data from the respondents because they come from the same population and have the additional variance of the prediction. Multiple imputation technique improves on single imputation by eliminating these issues.

Multiple imputation is the technique that replaces each missing or deficient value with two or more acceptable values representing a distribution of possibilities (every prediction has a variance or standard error associated with it). The advantage compared to single imputation is akin to a robustness analysis where the final analysis (in our case analysis of relationship between quality measures and child outcomes) could be performed with several different possible imputed values. The final estimates from this analysis are pooled together to provide robustness against sensitivity to different imputed values as well as realistically reflects this possible sensitivity in the reported standard errors of the estimates. Dempster, Laird, & Rubin (1977) originally proposed this technique with a productive period of follow-up research (Rubin, 2004). We require an imputation technique that allows standard complete-data methods to be used (for example HLM), produces estimates that adjust for observed differences between respondents and non-respondents, produce standard errors that reflect the reduced sample size, as well as the adjustment for observed respondent-nonrespondent differences (Rubin, 2004). Multiple imputation is a technique that satisfies all of these requirements.

Candidate 4: Multivariate Imputation by Chained Equations (MICE)

At the beginning of this section the general idea behind imputing multiple datasets to be later used for analysis was described. In this paragraph we describe a specific implementation of this framework called

Multivariate Imputation by Chained Equations that uses Markov Chain Monte Carlo and Gibbs Sampler to estimate conditional marginal distributions of the variable in the data and subsequently to generate predictions for the missing values. Multivariate Imputation by Chained Equations (Buuren & Groothuis-Oudshoorn, 2011) is specifically designed to impute missing data and to impute multiple variables at the same time. MICE starts with a certain variable and imputes its missing data, then it moves on to another variable and imputes the missing data there. As it goes along it uses the predicted values to make predictions on other variables. Since the first variable's prediction model used only a subset of the data (no missing values were imputed yet) this prediction is performed again in the second round and so on until there is convergence and every variable in the imputation process was modeled using all units of observations in the dataset.

Results

Table C.6 provides the 10-fold cross validation results on forecasting performance of the four models mentioned above in this section. The success rate is expressed as the proportion of cases in which a given model has successfully forecasted the variable of interest, for example correctly identified a person from a given income bracket as actually belonging in that income bracket without this person being in the training sample. The 10-fold cross validation measure also helped us navigate through the extensive variety of predictors we had available for our analysis. We trained the models on 4 different sets of predictors (using all predictors would result in extreme overfitting). In the end, the best predictor of income was Gradient Boosting Machine with 50.71% accuracy. Subsidies were best predicted by Random Forest with 53.47% accuracy. Education was best predicted by Gradient Boosting Machine with 35% accuracy. Unfortunately, MICE did not win in any of those categories. However, it's not far behind and it has the attractive property that in later analysis we can use it to incorporate the prediction uncertainty into the analysis of estimators of interest. We can make use of all of these techniques depending on the particular application. See Table C.7 and Table C.8 for a review of the distribution of demographics before and after imputation. Tables C.7 and C.8 suggest that most people not reporting demographic information came from the lower and upper income groups with most diligent demographic reporting coming from the middle income groups.

Table C.6: Out-of-sample Predictive Accuracy Using 10-fold Cross Validation

	Model	Success Rate	Dep. var.	Predictor Set
1	gbm	50.71%	Income_Parent	1
2	mice	43.3%	Income_Parent	1
3	ols	32.98%	Income_Parent	1
4	randomForest	38.26%	Income_Parent	1
5	gbm	19.82%	PS_SubsidyYN	1
6	mice	43.18%	PS_SubsidyYN	1
7	ols	40.58%	PS_SubsidyYN	1
8	randomForest	52.22%	PS_SubsidyYN	1
9	gbm	33.57%	Education_Parent	1
10	mice	29.39%	Education_Parent	1
11	ols	31.48%	Education_Parent	1
12	randomForest	32.48%	Education_Parent	1
13	gbm	50.54%	Income_Parent	2
14	mice	42.68%	Income_Parent	2
15	ols	38.81%	Income_Parent	2
16	randomForest	43.97%	Income_Parent	2
17	gbm	21.11%	PS_SubsidyYN	2
18	mice	44.85%	PS_SubsidyYN	2
19	ols	41.36%	PS_SubsidyYN	2
20	randomForest	53.47%	PS_SubsidyYN	2
21	gbm	34.43%	Education_Parent	2
22	mice	29.13%	Education_Parent	2
23	ols	30.09%	Education_Parent	2
24	randomForest	32.91%	Education_Parent	2
25	gbm	50.54%	Income_Parent	3
26	mice	46.96%	Income_Parent	3
27	ols	32.62%	Income_Parent	3
28	randomForest	39.15%	Income_Parent	3
29	gbm	12.48%	PS_SubsidyYN	3
30	mice	44.59%	PS_SubsidyYN	3
31	ols	32.9%	PS_SubsidyYN	3
32	randomForest	46.88%	PS_SubsidyYN	3
33	gbm	36%	Education_Parent	3
34	mice	32.35%	Education_Parent	3
35	ols	25.74%	Education_Parent	3
36	randomForest	29.83%	Education_Parent	3
37	gbm	50.36%	Income_Parent	4
38	mice	25.18%	Income_Parent	4
39	ols	35.42%	Income_Parent	4
40	randomForest	45%	Income_Parent	4
41	gbm	20.33%	PS_SubsidyYN	4
42	mice	10.17%	PS_SubsidyYN	4
43	ols	28.44%	PS_SubsidyYN	4
44	randomForest	45.21%	PS_SubsidyYN	4
45	gbm	34.09%	Education_Parent	4
46	mice	17.04%	Education_Parent	4
47	ols	32.81%	Education_Parent	4
48	randomForest	41.22%	Education_Parent	4

Table C.7: Demographic Information Before Imputation

	Level	N	%
Income_Parent	1	32	3.4
	2	32	3.4
	3	61	6.4
	4	43	4.5
	5	32	3.4
	6	24	2.5
	7	36	3.8
	8	37	3.9
	9	268	28.3
	<Missing>	382	40.3
PS_SubsidyYN	0	566	59.8
	1	211	22.3
	<Missing>	170	18.0
Education_Parent	1	20	2.1
	2	13	1.4
	3	10	1.1
	4	53	5.6
	5	90	9.5
	6	73	7.7
	7	171	18.1
	8	145	15.3
	<Missing>	372	39.3

Table C.8: Demographic Information After Imputation

	Level	N	%
Income_Parent	1	73	7.7
	2	67	7.1
	3	112	11.8
	4	76	8.0
	5	63	6.7
	6	33	3.5
	7	60	6.3
	8	56	5.9
	9	407	43.0
PS_SubsidyYN	0	684	72.2
	1	263	27.8
Education_Parent	1	55	5.8
	2	32	3.4
	3	17	1.8
	4	102	10.8
	5	152	16.1
	6	119	12.6
	7	250	26.4
	8	220	23.2

Appendix D

Sensitivity Analysis

Analyses utilizing regression techniques have many advantages but are also known for being susceptible to the outlier problem. In this section we will investigate whether our results are robust to this issue or an artifact of it. The issue of outliers is a contentious one. Handling the outlier problem is influenced by one's view of their cause. One possibility is that outliers could be extreme values generated because the data generating process as a whole happens to be governed by an extreme value probability density function. Another possibility is that the data generating process is not modeled correctly, a model misspecification problem. An additional reason for outliers could be simply noisy data or errors in data collection or processing. This latter case would most likely justify removing outliers from the analysis. The preceding causes may not justify such an action because removing outliers might plague our results.

We have performed regression diagnostics with regards to possible outliers and their impact on the regression results – QQ plot, Scale-Location plot and leverage/Cook's distance of the observations in the data. We are omitting the graphs from this analysis here for the purposes of brevity. The results from this analysis show that some observations have extreme values yet low leverage and vice versa. Consequently, we conclude that outliers are not an issue in our data in this particular analysis.

The results are very similar across all five regressions. We see some observations having large residuals but these observations have low leverage and low Cook's distance and hence we have a reason to believe that they do not have a major impact on our regression results. If this is not enough to convince us that we are not facing an outlier problem we can run a robust regression (Rousseeuw & Leroy, 2005). We have done exactly that and the results are presented below in Table D.1 and Table D.2. The signs of the estimated parameters have not changed compared to their OLS benchmarks even if the magnitude changes somewhat. In Table D.1 we note that we are losing the significance on the positive estimates for CLASS IS we obtained with OLS. The positive effect of ERS on TOQ scores we saw with OLS survived in Table D.2. Many results were not significant to begin with and the robust regression still shows them as not significant.

Table D.1: Robust Regression of Child Outcomes on Classroom Quality (Joint Dataset)

	Dependent variable:	
	WJ	PPVT
IS_CLASS	7.095	10.004
	(4.336)	(6.195)
ES_CLASS	-11.294	6.458
	(10.573)	(15.272)
CO_CLASS	6.947	-5.985
	(6.182)	(8.889)
ERS	1.362	-0.378
	(7.064)	(10.116)
CT_ERS	-0.005	0.008
	(0.009)	(0.013)
WPH_ERS	-0.002	-0.003
	(0.002)	(0.003)
PS_SubsidyYN	-2.211	0.558
	(1.460)	(2.162)
I(ERS-square)	-0.264	0.270
	(0.946)	(1.357)
I(IS_CLASS-square)	-1.178	-1.473
	(0.767)	(1.096)
I(ES_CLASS-square)	0.765	-0.933
	(0.954)	(1.382)
I(CO_CLASS-square)	-0.544	0.815
	(0.661)	(0.953)
I(WPH_ERS-square)	0.00000	0.00000
	(0.00000)	(0.00000)
I(CT_ERS-square)	0.00000	-0.00001
	(0.00001)	(0.00001)
Constant	14.348	-7.399
	(24.449)	(35.008)
Observations	97	95
Residual Std. Error	3.914 (df = 83)	6.140 (df = 81)
Note:	*p<0.1; **p<0.05; ***p<0.01	

Table D.2: Robust Regression of Child Outcomes on Classroom Quality (Joint Dataset)

	Dependent variable:		
	TOQ	TEAM	Total
IS_CLASS	-1.631	0.213	15.068*
	(2.710)	(0.419)	(8.609)
ES_CLASS	4.919	0.716	-3.870
	(6.607)	(1.033)	(21.221)
CO_CLASS	-3.316	-1.075*	1.676
	(3.904)	(0.601)	(12.482)
ERS	8.444*	-0.447	11.588
	(4.510)	(0.682)	(14.352)
CT_ERS	0.002	0.0003	0.011
	(0.006)	(0.001)	(0.019)
WPH_ERS	-0.0001	0.0001	-0.006
	(0.001)	(0.0002)	(0.004)
PS_SubsidyYN	-1.625*	-0.127	-3.020
	(0.912)	(0.143)	(3.004)
I(ERS-square)	-1.135*	0.053	-1.334
	(0.603)	(0.091)	(1.921)
I(IS_CLASS-square)	0.323	-0.031	-2.209
	(0.479)	(0.074)	(1.523)
I(ES_CLASS-square)	-0.340	-0.066	-0.134
	(0.596)	(0.093)	(1.920)
I(CO_CLASS-square)	0.263	0.115*	0.149
	(0.417)	(0.064)	(1.336)
I(WPH_ERS-square)	-0.000	-0.000	0.00000
	(0.00000)	(0.00000)	(0.00000)
I(CT_ERS-square)	-0.00000	0.00000	-0.00001
	(0.00001)	(0.00000)	(0.00002)
Constant	-18.567	0.756	-18.111
	(15.668)	(2.369)	(49.881)
Observations	96	96	94
Residual Std. Error	2.341 (df = 82)	0.361 (df = 82)	6.949 (df = 80)
Note:			*p<0.1; **p<0.05; ***p<0.01

Appendix E

$$
\begin{aligned}
SpringOutcome = \alpha &+ \beta_1 * DaysBetweenAssessment + \\
&+ \beta_2 * Education \\
&+ \beta_3 * Subsidy \\
&+ \beta_4 * Income \\
&+ \beta_5 * Age \\
&+ \beta_6 * Gender \\
&+ \beta_7 * FallOutcome \\
&+ \beta 8 * I(SpringRatingLevel2) \\
&+ \beta 9 * I(SpringRatingLevel4)
\end{aligned}
\tag{E.1}
$$

Table E.1: Early Achievers Rating Levels

	Dependent variable:			
	PPVT	WJ-LW	TEAM	LENS
Days_x_assess	0.11***	0.018	0.003	0.002
	(0.004)	(0.576)	(0.696)	(0.605)
Education_Parent2	4.793	-4.331	-0.827	-0.128
	(0.291)	(0.243)	(0.447)	(0.762)
Education_Parent3	2.218	-6.032*	-0.326	-0.264
	(0.579)	(0.094)	(0.76)	(0.543)
Education_Parent4	4.522	-1.335	0.189	0.293
	(0.108)	(0.599)	(0.805)	(0.373)
Education_Parent5	3.583	-1.025	0.585	0.492
	(0.183)	(0.671)	(0.43)	(0.121)
Education_Parent6	3.328	-0.292	0.295	0.491
	(0.241)	(0.908)	(0.706)	(0.115)
Education_Parent7	2.9	-1.736	0.463	0.521
	(0.301)	(0.489)	(0.548)	(0.109)
Education_Parent8	3.03	0.033	0.494	0.52
	(0.283)	(0.99)	(0.52)	(0.108)
Gender1	2.144**	-0.13	-0.313	0.198
	(0.034)	(0.882)	(0.232)	(0.136)
Income_Parent2	2.252	1.278	-0.762	-0.356
	(0.466)	(0.635)	(0.33)	(0.374)
Income_Parent3	4.314	1.865	0.663	0.02
	(0.109)	(0.425)	(0.337)	(0.951)
Income_Parent4	3.171	1.627	-0.652	-0.112
	(0.279)	(0.524)	(0.391)	(0.753)
Income_Parent5	4.069	2.343	-0.053	-0.066
	(0.159)	(0.354)	(0.944)	(0.854)
Income_Parent6	1.929	-1.493	0.069	0.007
	(0.558)	(0.612)	(0.935)	(0.984)
Income_Parent7	7.977**	2.327	0.107	-0.584
	(0.012)	(0.391)	(0.894)	(0.158)
Income_Parent8	2.147	2.314	-0.994	0.11
	(0.545)	(0.44)	(0.27)	(0.803)
Income_Parent9	5.673**	1.865	0.015	-0.084
	(0.035)	(0.427)	(0.983)	(0.797)
(Intercept)	30.04***	23.121***	4.291***	0.403
	(0)	(0)	(0.004)	(0.601)
preage	-0.119	0.057	-0.199*	-0.075
	(0.771)	(0.872)	(0.05)	(0.149)
prescore	0.484***	0.756***	0.691***	0.61***
	(0)	(0)	(0)	(0)
PS_SubsidyYN1	-2.663*	-1.088	-0.427	0.368**
	(0.086)	(0.421)	(0.275)	(0.043)
SpringRating2	-4.171**	-0.868	-0.652	-0.319
	(0.038)	(0.6)	(0.117)	(0.12)
SpringRating4	2.872*	0.279	0.458	-0.324
	(0.092)	(0.838)	(0.184)	(0.187)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.2: Early Achievers Rating Levels

	Dependent variable:		
	CBCL	EWA Name	EWA Word
(Intercept)	6.359	2.968***	3.215
	(0.479)	(0.006)	(0.148)
Days_x_assess	0.021	-0.001	0.002
	(0.69)	(0.89)	(0.899)
Education_Parent2	5.243	-0.586	0.978
	(0.275)	(0.393)	(0.539)
Education_Parent3	-2.234	-0.794	-1.291
	(0.646)	(0.232)	(0.408)
Education_Parent4	0.724	-0.4	-0.135
	(0.81)	(0.385)	(0.9)
Education_Parent5	-0.155	-0.62	-0.163
	(0.958)	(0.167)	(0.875)
Education_Parent6	0.716	-0.979**	-0.447
	(0.809)	(0.037)	(0.683)
Education_Parent7	0.502	-0.911**	0.708
	(0.866)	(0.05)	(0.514)
Education_Parent8	1.264	-0.95**	0.419
	(0.675)	(0.04)	(0.7)
Gender1	-1.3	0.341**	0.507
	(0.168)	(0.035)	(0.192)
Income_Parent2	1.08	-0.193	-0.922
	(0.741)	(0.689)	(0.421)
Income_Parent3	1.846	0.392	0.076
	(0.506)	(0.352)	(0.939)
Income_Parent4	2.297	0.141	-0.02
	(0.43)	(0.762)	(0.985)
Income_Parent5	0.438	0.989**	-0.203
	(0.885)	(0.032)	(0.851)
Income_Parent6	5.206*	-0.108	-0.289
	(0.097)	(0.837)	(0.816)
Income_Parent7	0.736	0.512	0.353
	(0.811)	(0.3)	(0.764)
Income_Parent8	2.883	1.248**	0.791
	(0.383)	(0.025)	(0.549)
Income_Parent9	3.018	0.614	0.341
	(0.274)	(0.151)	(0.735)
preage	0.661	0.078	-0.154
	(0.116)	(0.239)	(0.315)
prescore	0.71***	0.56***	0.667***
	(0)	(0)	(0)
PS_SubsidyYN1	2.911*	-0.136	0.386
	(0.087)	(0.581)	(0.502)
SpringRating2	-0.579	0.06	0.025
	(0.842)	(0.864)	(0.969)
SpringRating4	-3.766	-0.255	0.159
	(0.109)	(0.373)	(0.767)
Note:		*p<0.1; **p<0.05; ***p<0.01	

Table E.3: Early Achievers Rating Levels

	Dependent variable:			
	HTKS	ITCBCL	GM	VR
Days_x_assess	0.137**	0.039	-0.08	0.199*
	(0.015)	(0.745)	(0.481)	(0.053)
Education_Parent2	-4.166	-5.565	2.671	-4.052
	(0.507)	(0.554)	(0.668)	(0.525)
Education_Parent3	5.136	-4.227	-5.086	-4.627
	(0.417)	(0.684)	(0.488)	(0.485)
Education_Parent4	-1.733	-4.214	-8.162	-1.171
	(0.691)	(0.653)	(0.15)	(0.83)
Education_Parent5	4.008	0.235	-4.626	-2.287
	(0.339)	(0.98)	(0.39)	(0.664)
Education_Parent6	-3.187	1.437	-3.769	-1.925
	(0.462)	(0.875)	(0.488)	(0.718)
Education_Parent7	-1.491	-2.939	-5.667	-4.444
	(0.729)	(0.749)	(0.298)	(0.401)
Education_Parent8	-1.06	-3.597	-7.079	-2.872
	(0.805)	(0.7)	(0.214)	(0.603)
Gender1	1.088	0.401	-1.149	2.763*
	(0.459)	(0.806)	(0.514)	(0.08)
Income_Parent2	0.637	10.114*	-10.398*	-1.107
	(0.887)	(0.083)	(0.051)	(0.825)
Income_Parent3	0.915	4.382	-7.56*	-2.99
	(0.815)	(0.361)	(0.099)	(0.503)
Income_Parent4	-2.298	0.959	-3.082	-4.427
	(0.59)	(0.857)	(0.507)	(0.32)
Income_Parent5	4.808	0.695	-8.206	-0.936
	(0.254)	(0.896)	(0.204)	(0.853)
Income_Parent6	2.584	7.396	-3.598	3.619
	(0.599)	(0.224)	(0.499)	(0.513)
Income_Parent7	-2.449	2.138	3.46	-2.519
	(0.589)	(0.73)	(0.561)	(0.654)
Income_Parent8	0.555	3.702	-6.475	0.1
	(0.912)	(0.537)	(0.245)	(0.985)
Income_Parent9	2.085	4.576	-2.019	0.121
	(0.594)	(0.396)	(0.688)	(0.979)
(Intercept)	-4.803	10.246	50.997***	-1.421
	(0.614)	(0.629)	(0.006)	(0.93)
preage	-1.241**	-0.66	-1.058	-0.573
	(0.037)	(0.298)	(0.168)	(0.375)
prescore	0.615***	0.645***	0.431***	0.475***
	(0)	(0)	(0)	(0)
PS_SubsidyYN1	-2.62	4.878	-2.74	-1.535
	(0.246)	(0.104)	(0.338)	(0.572)
SpringRating2	-1.915	-0.067	-3.713	-3.201
	(0.522)	(0.985)	(0.108)	(0.215)
SpringRating4	2.9	1.13	-0.91	1.278
	(0.243)	(0.729)	(0.731)	(0.673)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.4: Early Achievers Rating Levels

	Dependent variable:		
	FM	RL	EL
(Intercept)	25.481	17.936	26.806
	(0.191)	(0.277)	(0.134)
Days_x_assess	0.022	0.032	-0.025
	(0.858)	(0.757)	(0.827)
Education_Parent2	4.586	-4.01	-0.238
	(0.557)	(0.552)	(0.972)
Education_Parent3	3.508	6.893	8.242
	(0.659)	(0.354)	(0.267)
Education_Parent4	3.464	2.903	4.59
	(0.601)	(0.611)	(0.425)
Education_Parent5	2.842	1.072	5.075
	(0.654)	(0.85)	(0.368)
Education_Parent6	8.651	0.222	1.187
	(0.175)	(0.969)	(0.831)
Education_Parent7	5.835	-0.605	2.567
	(0.36)	(0.914)	(0.648)
Education_Parent8	4.194	-1.854	0.177
	(0.529)	(0.75)	(0.976)
Gender1	2.517	1.829	1.005
	(0.177)	(0.283)	(0.563)
Income_Parent2	1.195	2.921	9.674*
	(0.845)	(0.583)	(0.072)
Income_Parent3	-0.711	-2.017	-1.991
	(0.895)	(0.687)	(0.669)
Income_Parent4	0.082	-0.547	-4.063
	(0.988)	(0.913)	(0.385)
Income_Parent5	-4.393	6.954	2.303
	(0.484)	(0.222)	(0.67)
Income_Parent6	-2.069	4.52	-3.969
	(0.755)	(0.446)	(0.495)
Income_Parent7	0.431	2.591	2.377
	(0.948)	(0.669)	(0.673)
Income_Parent8	-2.902	3.975	1.769
	(0.64)	(0.48)	(0.746)
Income_Parent9	0.335	4.215	2.612
	(0.954)	(0.422)	(0.593)
preage	-0.024	-0.172	-0.068
	(0.975)	(0.8)	(0.922)
prescore	0.283***	0.441***	0.467***
	(0)	(0)	(0)
PS_SubsidyYN1	-2.677	-0.813	-5.411*
	(0.4)	(0.777)	(0.053)
SpringRating2	-6.741**	-3.675*	-2.344
	(0.031)	(0.097)	(0.385)
SpringRating4	-2.563	0.877	7.206**
	(0.487)	(0.743)	(0.024)
Note:	*p<0.1; **p<0.05; ***p<0.01		

$$
\begin{aligned}
SpringOutcome = \alpha \\
&+ \beta_1 * DaysBetweenAssessment \\
&+ \beta_2 * Education \\
&+ \beta_3 * Subsidy \\
&+ \beta_4 * Income \\
&+ \beta_5 * Age \\
&+ \beta_6 * Gender \\
&+ \beta_7 * FallOutcome \\
&+ \beta_8 * CO \\
&+ \beta_9 * CSS \\
&+ \beta_{10} * FE \\
&+ \beta_{11} * PD
\end{aligned}
\tag{E.2}
$$

Table E.5: Early Achievers Standard Areas with Preschool Outcomes

	Child Outcomes	Curriculum Staff Supports	Family Engagement	Professional Development
PPVT	-0.85	0.45	0.55	-0.51
	-0.53	-0.27	-0.43	-1.11
WJ-LW	0.31	-0.09	-0.05	0.63**
	-0.43	-0.22	-0.34	-0.1
TEAM	-0.05	0.07	-0.08	-0.09
	-0.11	-0.06	-0.09	-0.22
LENS	-0.06	0.01	-0.02	-0.06
	-0.07	-0.04	-0.06	-0.1
CBCL	-0.66	0.43	-0.83	-0.72
	-0.75	-0.4	-0.57	-0.74
EWA Name	-0.08	0.02	-0.02	-0.28
	-0.09	-0.05	-0.08	-0.62
EWA Word	-0.08	0.06	-0.08	0.09
	-0.18	-0.1	-0.15	-0.39
HTKS	0.58	-0.65	0.19	-0.48
	-0.68	-0.37	-0.57	-1.22

Note: *p<0.1; **p<0.05; ***p<0.01

Table E.6: Early Achievers Standard Areas with Infant/toddler Outcomes

	Child Outcomes	Curriculum Staff Supports	Family Engagement	Professional Development
CBCL	1.64	-1.25	-1.35	1.17
	-1.33	-0.59	-0.81	-1.29
Gross Motor	-0.81	1.03	-0.9	-2.2
	-1.6	-0.75	-0.88	-1.86
Fine Motor	-1.02	-0.01	0.9	-2.05
	-2.21	-0.98	-1.26	-2.49
Receptive Language	-1.3	0.48	0.37	-2.94
	-1.94	-0.89	-1.09	-2.19
Expressive Language	-0.69	0.93	0.16	-2.72
	-1.95	-1.01	-1.12	-2.31
Cognitive	-6.27	2.08	1.39	-3.3
	-3.71	-1.76	-1.88	-4.19

$$
\begin{aligned}
SpringOutcome = \alpha & \\
& + \beta_1 * DaysBetweenAssessment \\
& + \beta_2 * Education \\
& + \beta_3 * Subsidy \\
& + \beta_4 * Income \\
& + \beta_5 * Age \\
& + \beta_6 * Gender \\
& + \beta_7 * FallOutcome \\
& + \beta_8 * Factor1 \\
& + \beta_9 * Factor2 \\
& + \beta_{10} * Factor3
\end{aligned}
\tag{E.3}
$$

Table E.7: New Individual Standard Indicator Constructs with Preschool outcomes

	Factor 1		Factor 2	Factor 3
PPVT	3.47	**	-0.67	-0.26
	-1.82		-1.42	-1.21
WJ-LW	0.18		0.06	0.07
	-0.15		-0.11	-0.1
TEAM	-0.42		0.3	-0.1
	-0.26		-0.2	-0.24
LENS	0.18		0.06	0.07
	-0.15		-0.11	-0.1
CBCL	-0.85		0.45	0.55
	-0.53		-0.27	-0.43
EWA Name	-0.08		0.02	-0.02
	-0.09		-0.05	-0.08
EWA Word	-0.08		0.06	-0.08
	-0.18		-0.1	-0.15
HTKS	-0.2		0.54	-0.65
	-0.68		-0.37	-0.57

Note: *p<0.1; **p<0.05; ***p<0.01

Table E.8: New Individual Standard Indicator Constructs with Infant/toddler Outcomes

	Factor 1	Factor 2	Factor 3
CBCL	1.64	-1.25	-1.35
	1.33	0.59	0.81
GM	-0.81	1.03	-0.9
	1.6	0.75	0.88
FM	-1.02	-0.01	0.9
	2.21	0.98	1.26
VR	0.48	0.38	0.68
	-0.13	-0.15	0.11
RL	-1.3	0.48	0.37
	1.94	0.89	1.09
EL	-0.69	0.93	0.16
	1.95	1.01	1.12
CC	-6.27	2.08	1.39
	3.71	1.76	1.88

$$\begin{aligned} OutcomeGains = \alpha + \\ + \beta_1 * Education \\ + \beta_2 * Subsidy \\ + \beta_3 * Income \\ + \beta_4 * Age \\ + \beta_5 * Gender \\ + \beta_6 * CLASSEB \\ + \beta_7 * CLASSIE \end{aligned} \tag{E.4}$$

Table E.9: CLASS Toddler Domains as Continuous Variables

	Dependent variable:			
	ITCBCLgains	GMgains	VRgains	FMgains
EB_CLASS	5.997**	0.12	1.477	-1.73
	(2.499)	(2.149)	(2.549)	(2.603)
Education_Parent2	-14.152	-4.584	-3.074	4.378
	(10.776)	(8.821)	(8.829)	(10.245)
Education_Parent3	-12.024	-16.92*	-1.601	2.63
	(11.053)	(9.331)	(9.044)	(10.286)
Education_Parent4	-12.047	-13.872*	1.469	11.105
	(9.879)	(7.758)	(7.643)	(8.954)
Education_Parent5	-3.597	-10.954	5.213	12.018
	(9.816)	(7.239)	(7.337)	(8.432)
Education_Parent6	-8.021	-8.283	-1.361	7.342
	(9.419)	(7.952)	(7.597)	(8.723)
Education_Parent7	-12.08	-9.112	1.058	9.057
	(9.877)	(8.044)	(7.784)	(8.926)
Education_Parent8	-13.925	-14.23	1.644	2.386
	(10.104)	(8.58)	(8.102)	(9.222)
Gender1	-1.864	-0.124	1.658	2.832
	(1.881)	(2.627)	(2.165)	(2.568)
IE_CLASS	-2.03	-0.276	-0.325	4.444*
	(1.95)	(1.955)	(2.265)	(2.329)
Income_Parent2	11.371**	4.15	-2.46	0.976
	(5.527)	(6.574)	(5.597)	(6.641)
Income_Parent3	6.788	-7.231	-4.919	-5.271
	(5.167)	(5.772)	(5.567)	(6.461)
Income_Parent4	0.596	-1.71	-8.308	0.917
	(5.667)	(5.983)	(5.774)	(6.934)
Income_Parent5	9.09	-0.712	-2.018	1.045
	(5.766)	(7.103)	(6.055)	(7.168)
Income_Parent6	11.8*	0.298	1.792	-9.137
	(6.962)	(7.062)	(6.846)	(8.188)
Income_Parent7	12.185	9.708	-8.963	4.058
	(7.691)	(8.35)	(8.977)	(8.821)
Income_Parent8	3.268	2.537	0.834	0.785
	(6.505)	(7.104)	(6.445)	(7.536)
Income_Parent9	8.862	1.498	-4.335	-0.196
	(5.566)	(6.376)	(5.801)	(6.835)
(Intercept)	-21.784*	6.436	-4.382	-6.376
	(12.8)	(12.43)	(13.663)	(14.75)
preage	-0.665	0.322	0.432	-0.905
	(0.758)	(1.086)	(0.93)	(1.071)
PS_SubsidyYN1	2.863	-1.263	2.193	-1.842
	(2.953)	(4.068)	(3.5)	(4.058)

Note: *p<0.1; **p<0.05; ***p<0.01

Table E.10: CLASS Toddler Domains as Continuous Variables

	Dependent variable:		
	RLgains	ELgains	CCgains
EB_CLASS	-0.264	-1.844	-1.503
	(1.898)	(2.25)	(2.558)
Education_Parent2	6.022	-0.551	5.278
	(8.931)	(8.225)	(10.74)
Education_Parent3	7.727	-4.773	2.2
	(9.051)	(8.336)	(10.996)
Education_Parent4	6.995	2.897	11.915
	(7.644)	(7.035)	(9.487)
Education_Parent5	4.715	-1.452	9.984
	(7.415)	(6.913)	(9.079)
Education_Parent6	2.626	-2.894	2.074
	(7.895)	(7.134)	(9.853)
Education_Parent7	5.314	-4.135	5.738
	(7.842)	(7.241)	(9.579)
Education_Parent8	3.656	-4.049	1.229
	(8.186)	(7.607)	(10.167)
Gender1	1.609	-0.537	3.824
	(2.336)	(2.106)	(3.1)
IE_CLASS	-0.117	0.926	2.629
	(1.775)	(2.033)	(2.353)
Income_Parent2	0.013	3.699	4.626
	(5.795)	(5.327)	(7.664)
Income_Parent3	-2.56	2.285	-5.825
	(5.905)	(5.422)	(7.799)
Income_Parent4	-0.888	-3.183	-0.309
	(6.122)	(5.492)	(7.993)
Income_Parent5	8.981	6.229	9.477
	(6.353)	(5.813)	(8.253)
Income_Parent6	5.651	-5.567	-2.804
	(7.104)	(6.341)	(8.932)
Income_Parent7	-0.519	0.748	9.173
	(8.383)	(7.12)	(11.367)
Income_Parent8	5.54	12.533*	13.841
	(6.929)	(6.334)	(9.389)
Income_Parent9	0.977	1.589	5.463
	(6.282)	(5.472)	(8.125)
(Intercept)	-2.817	9.644	-4.168
	(11.626)	(12.26)	(15.613)
preage	-0.6	0.821	-0.276
	(0.921)	(0.87)	(1.207)
PS_SubsidyYN1	2.77	-1.117	0.903
	(3.591)	(3.104)	(4.531)
Note:			*p<0.1; **p<0.05; ***p<0.01

$$
\begin{aligned}
OutcomeGains = \alpha + & \\
& + \beta_1 * Education \\
& + \beta_2 * Subsidy \\
& + \beta_3 * Income \\
& + \beta_4 * Age \\
& + \beta_5 * Gender \\
& + \beta_6 * CLASSCO \\
& + \beta_7 * CLASSIS \\
& + \beta_8 * CLASSES
\end{aligned}
\tag{E.5}
$$

Table E.11: CLASS PK Domains as Continuous Variables

	Dependent variable:			
	PPVTgains	WJ-LWgains	TEAMgains	LENSgains
CO_CLASS	-0.351	0.221	0.302	-0.115
	(1.419)	(0.959)	(0.266)	(0.168)
Education_Parent2	-2.017	-3.64	-0.568	0.157
	(5.567)	(3.866)	(1.155)	(0.444)
Education_Parent3	-4.265	-5.516	-0.065	-0.348
	(4.77)	(3.659)	(1.104)	(0.438)
Education_Parent4	-2.194	-4.148	0.013	0.132
	(3.307)	(2.545)	(0.784)	(0.33)
Education_Parent5	-3.745	-2.41	0.584	0.18
	(3.121)	(2.407)	(0.746)	(0.311)
Education_Parent6	-2.86	-1.976	0.489	0.497
	(3.247)	(2.499)	(0.775)	(0.316)
Education_Parent7	-3.796	-2.522	0.737	0.482
	(3.226)	(2.489)	(0.771)	(0.327)
Education_Parent8	-4.974	-2.234	0.815	0.347
	(3.224)	(2.486)	(0.769)	(0.319)
ES_CLASS	-1.377	-0.943	-0.643*	0.302
	(1.767)	(1.184)	(0.328)	(0.208)
Gender1	-0.434	-0.685	-0.539**	0.122
	(1.149)	(0.867)	(0.26)	(0.138)
Income_Parent2	5.168	-0.014	-0.386	-0.668*
	(3.486)	(2.599)	(0.764)	(0.393)
Income_Parent3	5.928*	0.654	0.324	-0.226
	(3.046)	(2.272)	(0.676)	(0.313)
Income_Parent4	5.206	1.449	-0.605	-0.186
	(3.317)	(2.475)	(0.734)	(0.347)
Income_Parent5	6.284*	0.722	-0.691	-0.296
	(3.298)	(2.455)	(0.733)	(0.345)
Income_Parent6	1.807	-2.055	-0.259	-0.168
	(3.757)	(2.863)	(0.826)	(0.378)
Income_Parent7	7.556**	-0.141	-0.623	-0.656
	(3.618)	(2.644)	(0.785)	(0.409)
Income_Parent8	3.04	-0.651	-2.204***	-0.2
	(3.68)	(2.665)	(0.787)	(0.419)
Income_Parent9	5.251*	-0.224	-0.972	-0.337
	(3.024)	(2.239)	(0.658)	(0.312)
(Intercept)	2.078	6.144	4.064***	-0.45
	(7.197)	(5.038)	(1.427)	(0.738)
IS_CLASS	2.492**	0.892	0.344	0.001
	(1.226)	(0.799)	(0.219)	(0.127)
preage	0.822*	0.211	-0.052	-0.067
	(0.46)	(0.341)	(0.1)	(0.053)
PS_SubsidyYN1	-1.559	-1.08	-0.188	0.216
	(1.762)	(1.312)	(0.388)	(0.182)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.12: CLASS PK Domains as Continuous Variables

	Dependent variable:		
	PKCBCLgains	EWANgains	EWAWgains
CO_CLASS	-1.098	-0.151	-0.094
	(1.53)	(0.24)	(0.387)
Education_Parent2	4.539	-0.552	1.375
	(4.972)	(0.849)	(1.637)
Education_Parent3	-2.443	-0.318	-1.699
	(5.009)	(0.798)	(1.558)
Education_Parent4	1.579	-0.517	-0.605
	(2.952)	(0.556)	(1.07)
Education_Parent5	-1.756	-0.345	-0.688
	(2.939)	(0.534)	(1.019)
Education_Parent6	-0.782	-0.696	-1.154
	(2.905)	(0.55)	(1.06)
Education_Parent7	-1.037	-0.689	0.198
	(2.912)	(0.548)	(1.057)
Education_Parent8	-0.041	-0.754	-0.606
	(2.938)	(0.547)	(1.057)
ES_CLASS	1.228	-0.01	0.127
	(2.096)	(0.299)	(0.476)
Gender1	-1.622*	0.12	0.133
	(0.897)	(0.186)	(0.373)
Income_Parent2	-0.629	-0.219	-0.628
	(3.243)	(0.554)	(1.09)
Income_Parent3	0.361	-0.01	0.481
	(2.809)	(0.487)	(0.95)
Income_Parent4	1.152	0.165	0.632
	(2.944)	(0.536)	(1.042)
Income_Parent5	-0.263	0.55	0.155
	(3.038)	(0.534)	(1.029)
Income_Parent6	2.433	-0.431	0.204
	(3.023)	(0.605)	(1.185)
Income_Parent7	0.026	0.065	0.818
	(3.055)	(0.574)	(1.126)
Income_Parent8	2.683	0.165	0.248
	(3.137)	(0.585)	(1.134)
Income_Parent9	0.953	0.313	0.773
	(2.736)	(0.488)	(0.943)
(Intercept)	-0.961	0.82	-0.07
	(8.236)	(1.219)	(2.065)
IS_CLASS	-0.577	0.301	0.702**
	(1.472)	(0.205)	(0.322)
preage	0.401	0.125*	-0.217
	(0.396)	(0.075)	(0.145)
PS_SubsidyYN1	0.877	0.131	0.572
	(1.56)	(0.284)	(0.551)
Note:			*p<0.1; **p<0.05; ***p<0.01

Table E.13: CLASS PK Domains as Continuous Variables

	Dependent variable:
	HTKSgains
CO_CLASS	1.318
	(1.79)
Education_Parent2	-5.535
	(6.631)
Education_Parent3	3.545
	(6.497)
Education_Parent4	-2.646
	(4.496)
Education_Parent5	2.404
	(4.259)
Education_Parent6	-0.023
	(4.37)
Education_Parent7	-2.338
	(4.364)
Education_Parent8	0.493
	(4.352)
ES_CLASS	-1.34
	(2.226)
Gender1	0.087
	(1.465)
Income_Parent2	0.704
	(4.379)
Income_Parent3	-0.671
	(3.871)
Income_Parent4	-3.818
	(4.189)
Income_Parent5	4.929
	(4.176)
Income_Parent6	-0.644
	(4.824)
Income_Parent7	-5.007
	(4.488)
Income_Parent8	-2.733
	(4.565)
Income_Parent9	-1.65
	(3.815)
(Intercept)	13.881
	(9.146)
IS_CLASS	-0.297
	(1.513)
preage	-0.501
	(0.582)
PS_SubsidyYN1	-3.626
	(2.225)
Note:	*p<0.1; **p<0.05; ***p<0.01

$$
\begin{aligned}
OutcomeGains = \alpha + & \\
& + \beta_1 * Education \\
& + \beta_2 * Subsidy \\
& + \beta_3 * Income \\
& + \beta_4 * Age \\
& + \beta_5 * Gender \\
& + \beta_6 * ERS
\end{aligned}
\tag{E.6}
$$

Table E.14: ERS Total Score as Continuous Variable

	Dependent variable:			
	PPVTgains	WJ-LWgains	TEAMgains	LENSgains
Education_Parent2	-2.142	-3.694	-0.643	0.054
	(5.565)	(3.846)	(1.154)	(0.446)
Education_Parent3	-3.883	-5.196	0.056	-0.379
	(4.772)	(3.647)	(1.104)	(0.438)
Education_Parent4	-2.241	-4.192*	-0.04	0.1
	(3.313)	(2.536)	(0.784)	(0.334)
Education_Parent5	-3.391	-2.289	0.609	0.162
	(3.122)	(2.395)	(0.745)	(0.312)
Education_Parent6	-2.633	-1.843	0.564	0.456
	(3.251)	(2.487)	(0.775)	(0.316)
Education_Parent7	-3.806	-2.593	0.711	0.467
	(3.231)	(2.479)	(0.771)	(0.33)
Education_Parent8	-4.845	-2.132	0.851	0.321
	(3.227)	(2.477)	(0.769)	(0.321)
ERS	0.024	-0.519	-0.094	0.01
	(1.078)	(0.7)	(0.195)	(0.125)
Gender1	-0.426	-0.763	-0.568**	0.087
	(1.147)	(0.863)	(0.26)	(0.137)
Income_Parent2	4.983	-0.028	-0.415	-0.655
	(3.489)	(2.591)	(0.765)	(0.396)
Income_Parent3	5.963*	0.729	0.338	-0.196
	(3.054)	(2.268)	(0.678)	(0.32)
Income_Parent4	5.193	1.522	-0.629	-0.179
	(3.326)	(2.472)	(0.736)	(0.35)
Income_Parent5	6.098*	0.653	-0.783	-0.212
	(3.301)	(2.442)	(0.731)	(0.35)
Income_Parent6	1.947	-2.034	-0.17	-0.18
	(3.751)	(2.844)	(0.824)	(0.378)
Income_Parent7	7.386**	-0.033	-0.609	-0.699*
	(3.625)	(2.64)	(0.787)	(0.412)
Income_Parent8	3.468	-0.394	-2.117***	-0.092
	(3.681)	(2.652)	(0.787)	(0.424)
Income_Parent9	5.344*	-0.185	-0.946	-0.333
	(3.019)	(2.224)	(0.657)	(0.317)
(Intercept)	-1.951	5.726	3.038***	0.669
	(5.609)	(3.933)	(1.151)	(0.574)
preage	0.767*	0.206	-0.064	-0.054
	(0.458)	(0.338)	(0.1)	(0.053)
PS_SubsidyYN1	-1.546	-1.063	-0.176	0.234
	(1.762)	(1.305)	(0.388)	(0.182)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.15: ERS Total Score as Continuous Variable

	Dependent variable:		
	PKCBCLgains	EWANgains	EWAWgains
Education_Parent2	4.318	-0.528	1.4
	(4.978)	(0.847)	(1.641)
Education_Parent3	-2.635	-0.309	-1.575
	(5.015)	(0.796)	(1.561)
Education_Parent4	1.467	-0.525	-0.597
	(2.957)	(0.555)	(1.075)
Education_Parent5	-1.54	-0.324	-0.517
	(2.936)	(0.532)	(1.023)
Education_Parent6	-1.024	-0.661	-1.054
	(2.912)	(0.549)	(1.063)
Education_Parent7	-1.186	-0.705	0.063
	(2.92)	(0.547)	(1.06)
Education_Parent8	-0.238	-0.734	-0.6
	(2.946)	(0.546)	(1.061)
ERS	0.553	0.112	0.449
	(1.242)	(0.177)	(0.295)
Gender1	-1.651*	0.125	0.104
	(0.895)	(0.185)	(0.372)
Income_Parent2	-0.657	-0.244	-0.772
	(3.242)	(0.553)	(1.091)
Income_Parent3	0.323	-0.014	0.314
	(2.81)	(0.486)	(0.954)
Income_Parent4	1.082	0.145	0.453
	(2.942)	(0.536)	(1.048)
Income_Parent5	-0.118	0.53	0.132
	(3.034)	(0.532)	(1.032)
Income_Parent6	2.5	-0.436	0.123
	(3.019)	(0.602)	(1.183)
Income_Parent7	0.139	0.021	0.664
	(3.055)	(0.573)	(1.13)
Income_Parent8	2.879	0.189	0.352
	(3.132)	(0.583)	(1.138)
Income_Parent9	1.187	0.275	0.663
	(2.73)	(0.486)	(0.944)
(Intercept)	-2.899	0.3	0.342
	(5.737)	(0.923)	(1.665)
preage	0.465	0.12	-0.219
	(0.394)	(0.075)	(0.145)
PS_SubsidyYN1	0.818	0.135	0.521
	(1.559)	(0.283)	(0.552)
Note:			*p<0.1; **p<0.05; ***p<0.01

Table E.16: ERS Total Score as Continuous Variable

	Dependent variable:			
	HTKSgains	ITCBCLgains	GMgains	VRgains
Education_Parent2	-5.734	-6.673	-5.822	-3.37
	(6.604)	(9.399)	(7.325)	(7.948)
Education_Parent3	3.497	-6.939	-20.577***	-4.345
	(6.48)	(10.259)	(7.763)	(7.716)
Education_Parent4	-2.685	-10.193	-11.188*	2.183
	(4.483)	(9.192)	(6.178)	(6.428)
Education_Parent5	2.311	-1.052	-11.951**	-0.639
	(4.241)	(9.08)	(5.658)	(6.036)
Education_Parent6	-0.05	-4.789	-8.302	-1.175
	(4.359)	(8.83)	(5.76)	(6.079)
Education_Parent7	-2.321	-7.082	-10.783*	-2.565
	(4.35)	(9.027)	(5.807)	(6.169)
Education_Parent8	0.261	-8.196	-13.085**	-1.216
	(4.339)	(9.174)	(5.943)	(6.336)
ERS	0.539	1.5	0.835	1.256
	(1.327)	(1.146)	(1.181)	(1.359)
Gender1	0.15	-0.472	-0.149	2.61
	(1.46)	(1.456)	(1.868)	(1.737)
Income_Parent2	0.637	8.58*	-0.991	0.502
	(4.369)	(4.977)	(5.364)	(5.208)
Income_Parent3	-0.757	6.863	-2.148	0.55
	(3.869)	(4.687)	(4.372)	(4.73)
Income_Parent4	-3.909	2.788	-1.022	-5.469
	(4.185)	(4.987)	(4.91)	(5.075)
Income_Parent5	4.899	5.796	-1.997	1.029
	(4.16)	(4.969)	(6.414)	(5.377)
Income_Parent6	-0.315	9.095*	-1.467	1.142
	(4.799)	(5.331)	(5.624)	(5.963)
Income_Parent7	-5.005	4.994	-0.363	0.831
	(4.483)	(5.532)	(5.756)	(5.822)
Income_Parent8	-2.722	4.66	-3.017	3.017
	(4.549)	(5.538)	(5.635)	(5.505)
Income_Parent9	-1.302	7.436	0.028	0.749
	(3.793)	(4.892)	(4.974)	(4.958)
(Intercept)	10.357	-5.625	3.605	-6.437
	(7.106)	(9.166)	(7.577)	(8.381)
preage	-0.551	-0.142	0.877	0.929
	(0.577)	(0.594)	(0.754)	(0.694)
PS_SubsidyYN1	-3.678*	3.246	-2.266	0.482
	(2.217)	(2.618)	(2.964)	(2.918)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.17: ERS Total Score as Continuous Variable

	Dependent variable:		
	FMgains	RLgains	ELgains
Education_Parent2	-4.142	-5.241	-2.893
	(9.856)	(8.148)	(7.629)
Education_Parent3	-4.119	-1.669	-1.823
	(9.527)	(8.252)	(7.677)
Education_Parent4	-0.984	-0.014	0.585
	(8.023)	(6.552)	(6.117)
Education_Parent5	-1.584	-5.683	-0.979
	(7.431)	(6.25)	(5.882)
Education_Parent6	0.199	-6.701	-2.179
	(7.442)	(6.356)	(5.91)
Education_Parent7	2.715	-4.904	-1.427
	(7.608)	(6.348)	(5.97)
Education_Parent8	-3.414	-8.795	-4.847
	(7.776)	(6.459)	(6.126)
ERS	0.853	0.161	-0.146
	(1.61)	(1.097)	(1.328)
Gender1	2.268	2.264	0.259
	(2.166)	(1.835)	(1.762)
Income_Parent2	2.005	2.82	4.26
	(6.585)	(5.454)	(5.369)
Income_Parent3	2.81	1.944	0.391
	(5.928)	(5)	(4.817)
Income_Parent4	1.938	1.813	-4.353
	(6.33)	(5.389)	(5.088)
Income_Parent5	0.596	10.768*	3.957
	(6.899)	(5.78)	(5.639)
Income_Parent6	-3.897	-0.202	-2.131
	(7.408)	(6.15)	(5.873)
Income_Parent7	-1.316	1.445	1.631
	(7.235)	(6.098)	(5.735)
Income_Parent8	-2.074	6.234	5.028
	(6.848)	(5.754)	(5.529)
Income_Parent9	2.07	1.335	0.514
	(6.26)	(5.301)	(5.049)
(Intercept)	-3.248	0.581	0.529
	(10.204)	(8.02)	(8.015)
preage	0.043	0.237	1.022
	(0.867)	(0.704)	(0.687)
PS_SubsidyYN1	-2.822	-2.397	-1.74
	(3.528)	(2.979)	(2.714)
Note:			*p<0.1; **p<0.05; ***p<0.01

Table E.18: ERS Total Score as Continuous Variable

	Dependent variable:
	CCgains
Education_Parent2	-7.011
	(10.942)
Education_Parent3	-4.48
	(10.934)
Education_Parent4	3.194
	(8.978)
Education_Parent5	-2.432
	(8.58)
Education_Parent6	-1.677
	(8.954)
Education_Parent7	0.348
	(8.728)
Education_Parent8	-5.572
	(8.942)
ERS	1.052
	(1.939)
Gender1	6.065**
	(2.711)
Income_Parent2	5.473
	(8.258)
Income_Parent3	2.037
	(7.433)
Income_Parent4	-1.824
	(8.297)
Income_Parent5	5.354
	(8.646)
Income_Parent6	-3.934
	(9.003)
Income_Parent7	3.148
	(9.256)
Income_Parent8	2.251
	(8.883)
Income_Parent9	1.556
	(8.132)
(Intercept)	-10.016
	(11.938)
preage	2.101**
	(1.035)
PS_SubsidyYN1	-2.756
	(4.204)
Note:	*p<0.1; **p<0.05; ***p<0.01

$$
\begin{aligned}
OutcomeGains = \alpha + & \\
& + \beta_1 * Education \\
& + \beta_2 * Subsidy \\
& + \beta_3 * Income \\
& + \beta_4 * Age \\
& + \beta_5 * Gender \\
& + \beta_6 * CLASSEBLevel2 \\
& + \beta_7 * CLASSEBLevel4 \\
& + \beta_8 * CLASSIELevel1 \\
& + \beta_9 * CLASSIELevel2 \\
& + \beta_{10} * CLASSIELevel4
\end{aligned}
\tag{E.7}
$$

Table E.19: CLASS Toddler as EA Cut-Point Category

	Dependent variable:			
	ITCBCLgains	GMgains	VRgains	FMgains
EB_CLASS_code2	-3.917	4.116	-1.469	1.52
	(3.949)	(3.224)	(3.937)	(3.786)
EB_CLASS_code4	8.014*	5.865	2.455	-2.14
	(4.209)	(3.836)	(4.307)	(4.255)
Education_Parent2	-10.827	-6.667	-3.287	3.666
	(11.095)	(8.863)	(9.042)	(10.261)
Education_Parent3	-11.991	-18.59*	-1.741	3.751
	(11.552)	(9.217)	(9.158)	(10.184)
Education_Parent4	-11.515	-13.837*	1.243	12.16
	(10.244)	(7.751)	(7.787)	(8.924)
Education_Parent5	-1.834	-11.097	4.708	14.141*
	(10.185)	(7.152)	(7.484)	(8.408)
Education_Parent6	-6.451	-8.42	-1.945	9.594
	(9.806)	(7.871)	(7.765)	(8.75)
Education_Parent7	-11.1	-11.099	0.451	11.748
	(10.235)	(7.99)	(7.967)	(8.967)
Education_Parent8	-11.931	-16.604*	1.261	4.117
	(10.46)	(8.476)	(8.282)	(9.244)
Gender1	-1.437	0.072	1.772	1.75
	(1.911)	(2.568)	(2.197)	(2.543)
IE_CLASS_code1	8.7	-0.877	3.452	-15.022**
	(6.261)	(4.904)	(5.95)	(5.77)
IE_CLASS_code2	3.372	-1.68	1.7	-11.234**
	(4.502)	(3.937)	(4.543)	(4.585)
IE_CLASS_code4	-1.576	-8.373	5.397	-23.113**
	(8.116)	(7.988)	(10.239)	(10.126)
Income_Parent2	13.515**	4.711	-1.806	-0.18
	(6.065)	(6.651)	(5.784)	(6.7)
Income_Parent3	7.877	-7.079	-4.804	-4.884
	(5.32)	(5.723)	(5.676)	(6.462)
Income_Parent4	1.847	-1.523	-8.211	3.134
	(5.909)	(6.015)	(5.894)	(6.978)
Income_Parent5	10.69*	2.976	-1.205	-0.935
	(6.18)	(7.432)	(6.242)	(7.203)
Income_Parent6	12.654*	1.861	1.921	-9.828
	(7.194)	(6.997)	(6.976)	(8.139)
Income_Parent7	12.433	11.847	-8.96	3.573
	(8.069)	(8.389)	(9.133)	(8.816)
Income_Parent8	3.702	3.674	1.443	0.146
	(6.959)	(7.069)	(6.621)	(7.571)
Income_Parent9	10.09*	3.029	-3.697	-2.624
	(5.841)	(6.39)	(5.947)	(6.887)
(Intercept)	-2.234	5.207	0.388	7.36
	(10.789)	(10.366)	(10.209)	(11.477)
preage	-0.733	0.133	0.442	-1.137
	(0.795)	(1.102)	(0.943)	(1.065)
PS_SubsidyYN1	2.224	-1.571	1.77	-1.646
	(3.106)	(4.088)	(3.582)	(4.097)

Note: *p<0.1; **p<0.05; ***p<0.01

Table E.20: CLASS Toddler as EA Cut-Point Category

	Dependent variable:		
	RLgains	ELgains	CCgains
EB_CLASS_code2	1.084	0.542	1.112
	(2.947)	(3.581)	(4.063)
EB_CLASS_code4	-3.175	-3.793	-3.741
	(3.312)	(3.899)	(4.6)
Education_Parent2	7.231	-0.593	6.364
	(9.161)	(8.405)	(11.083)
Education_Parent3	8.047	-4.484	3.219
	(9.104)	(8.416)	(11.123)
Education_Parent4	7.485	2.559	13.196
	(7.766)	(7.153)	(9.67)
Education_Parent5	5.112	-2.017	12.421
	(7.506)	(7.05)	(9.321)
Education_Parent6	3.054	-3.554	3.538
	(7.992)	(7.33)	(10.058)
Education_Parent7	6.157	-4.554	8.186
	(7.988)	(7.429)	(9.872)
Education_Parent8	3.864	-4.464	3.037
	(8.306)	(7.768)	(10.364)
Gender1	1.741	-0.448	3.081
	(2.32)	(2.13)	(3.08)
IE_CLASS_code1	-4.909	-1.833	-9.452
	(4.458)	(5.397)	(6.351)
IE_CLASS_code2	-2.206	-3.74	-7.003
	(3.516)	(4.203)	(5.031)
IE_CLASS_code4	-1.017	7.073	-10.738
	(9.539)	(9.141)	(12.1)
Income_Parent2	-1.195	4.308	4.241
	(5.941)	(5.534)	(8.014)
Income_Parent3	-2.332	2.65	-3.819
	(5.995)	(5.524)	(8.016)
Income_Parent4	-0.117	-1.909	3.872
	(6.264)	(5.612)	(8.54)
Income_Parent5	8.588	6.809	9.313
	(6.482)	(5.996)	(8.414)
Income_Parent6	4.956	-5.123	-2.252
	(7.167)	(6.45)	(9)
Income_Parent7	-0.064	1.988	10.286
	(8.464)	(7.268)	(11.587)
Income_Parent8	5.427	13.326**	14.075
	(6.998)	(6.478)	(9.514)
Income_Parent9	0.654	1.966	4.929
	(6.353)	(5.637)	(8.263)
(Intercept)	-1.52	5.526	0.784
	(9.875)	(9.449)	(12.423)
preage	-0.641	0.814	-0.487
	(0.929)	(0.885)	(1.241)
PS_SubsidyYN1	2.692	-1.376	1.424
	(3.651)	(3.18)	(4.65)
Note:		*p<0.1; **p<0.05; ***p<0.01	

Table E.21: CLASS PK as EA Cut-Point Category

	Dependent variable:			
	PPVTgains	WJ-LWgains	TEAMgains	LENSgains
CO_CLASS_code1	1.848	-1.095	0.362	0.005
	(3.794)	(2.534)	(0.722)	(0.456)
CO_CLASS_code3	-0.794	1.803	0.497	0.017
	(2.126)	(1.399)	(0.405)	(0.235)
CO_CLASS_code4	0.444	0.781	0.992*	-0.016
	(2.998)	(1.93)	(0.556)	(0.316)
Education_Parent2	-1.466	-3.899	-0.601	0.088
	(5.649)	(3.908)	(1.176)	(0.466)
Education_Parent3	-3.978	-5.57	0.01	-0.386
	(4.783)	(3.654)	(1.106)	(0.444)
Education_Parent4	-1.715	-4.276*	0.011	0.12
	(3.345)	(2.558)	(0.793)	(0.34)
Education_Parent5	-3.541	-2.288	0.506	0.137
	(3.135)	(2.399)	(0.749)	(0.322)
Education_Parent6	-2.218	-2.183	0.553	0.437
	(3.259)	(2.493)	(0.779)	(0.326)
Education_Parent7	-3.306	-2.453	0.724	0.429
	(3.251)	(2.492)	(0.777)	(0.342)
Education_Parent8	-4.387	-2.336	0.798	0.269
	(3.249)	(2.489)	(0.775)	(0.334)
ES_CLASS_code3	0.922	-2.999*	-0.149	-0.039
	(2.681)	(1.783)	(0.508)	(0.324)
ES_CLASS_code4	-1.663	-3.719*	-1.031*	0.249
	(3.188)	(2.084)	(0.595)	(0.373)
Gender1	-0.422	-0.573	-0.522**	0.104
	(1.153)	(0.869)	(0.26)	(0.141)
Income_Parent2	4.835	0.278	-0.485	-0.625
	(3.498)	(2.604)	(0.766)	(0.407)
Income_Parent3	5.585*	0.693	0.289	-0.208
	(3.058)	(2.275)	(0.678)	(0.322)
Income_Parent4	4.933	1.155	-0.582	-0.191
	(3.328)	(2.474)	(0.737)	(0.356)
Income_Parent5	6.03*	0.489	-0.732	-0.285
	(3.307)	(2.447)	(0.734)	(0.356)
Income_Parent6	1.378	-2.157	-0.247	-0.19
	(3.768)	(2.864)	(0.829)	(0.389)
Income_Parent7	7.352**	-0.417	-0.672	-0.636
	(3.623)	(2.639)	(0.786)	(0.422)
Income_Parent8	2.704	-0.587	-2.147***	-0.134
	(3.697)	(2.662)	(0.791)	(0.447)
Income_Parent9	5.029*	-0.397	-0.977	-0.343
	(3.022)	(2.224)	(0.658)	(0.322)
(Intercept)	-0.765	5.994*	2.754***	0.643
	(4.816)	(3.52)	(1.05)	(0.503)
IS_CLASS_code1	-3.675*	-1.48	-0.176	0.019
	(1.907)	(1.266)	(0.36)	(0.198)
IS_CLASS_code3	4.887*	-0.132	0.708	-0.079
	(2.906)	(1.823)	(0.528)	(0.349)
IS_CLASS_code4	-2.135	6.832**	0.877	-0.079
	(5.711)	(3.4)	(0.963)	(0.965)
preage	0.87*	0.24	-0.036	-0.063
	(0.462)	(0.341)	(0.101)	(0.056)
PS_SubsidyYN1	-1.629	-0.86	-0.203	0.216
	(1.779)	(1.321)	(0.393)	(0.19)

Note: *p<0.1; **p<0.05; ***p<0.01

$$
\begin{aligned}
OutcomeGains = {} & \alpha + \\
& + \beta_1 * Education \\
& + \beta_2 * Subsidy \\
& + \beta_3 * Income \\
& + \beta_4 * Age \\
& + \beta_5 * Gender \\
& + \beta_6 * CLASSCOLevel1 \\
& + \beta_7 * CLASSCOLevel3 \\
& + \beta_8 * CLASSCOLevel4 \\
& + \beta_9 * CLASSESLevel3 \\
& + \beta_{10} * CLASSESLevel4 \\
& + \beta_{11} * CLASSISLevel1 \\
& + \beta_{12} * CLASSISLevel3 \\
& + \beta_{13} * CLASSISLevel4
\end{aligned}
\tag{E.8}
$$

Table E.22: CLASS PK as EA Cut-Point Category

	Dependent variable:		
	PKCBCLgains	EWANgains	EWAWgains
CO_CLASS_code1	-4.847	0.43	-0.632
	(4.135)	(0.654)	(1.039)
CO_CLASS_code3	-4.524	0.546	-0.52
	(2.964)	(0.366)	(0.569)
CO_CLASS_code4	-3.59	0.573	-0.748
	(3.939)	(0.513)	(0.787)
Education_Parent2	4.312	-0.642	1.835
	(5.028)	(0.861)	(1.659)
Education_Parent3	-2.102	-0.382	-1.509
	(5.045)	(0.801)	(1.554)
Education_Parent4	1.547	-0.588	-0.253
	(2.981)	(0.561)	(1.078)
Education_Parent5	-1.69	-0.387	-0.434
	(2.95)	(0.536)	(1.017)
Education_Parent6	-0.719	-0.691	-0.98
	(2.915)	(0.553)	(1.059)
Education_Parent7	-0.927	-0.76	0.504
	(2.935)	(0.551)	(1.059)
Education_Parent8	0.08	-0.812	-0.359
	(2.967)	(0.551)	(1.059)
ES_CLASS_code3	4.106	-0.299	1.327*
	(3.27)	(0.463)	(0.727)
ES_CLASS_code4	5.553	-0.515	1.313
	(4.114)	(0.549)	(0.851)
Gender1	-1.589*	0.122	0.127
	(0.907)	(0.187)	(0.373)
Income_Parent2	-1.129	-0.243	-0.705
	(3.284)	(0.557)	(1.091)
Income_Parent3	-0.447	0.003	0.435
	(2.853)	(0.489)	(0.951)
Income_Parent4	0.869	0.155	0.665
	(2.975)	(0.539)	(1.042)
Income_Parent5	-0.546	0.521	-0.032
	(3.082)	(0.536)	(1.026)
Income_Parent6	2.186	-0.441	0.032
	(3.05)	(0.607)	(1.184)
Income_Parent7	0.174	0.018	0.688
	(3.09)	(0.576)	(1.123)
Income_Parent8	2.594	0.171	0.097
	(3.167)	(0.587)	(1.133)
Income_Parent9	0.984	0.291	0.596
	(2.755)	(0.489)	(0.937)
(Intercept)	-2.621	0.697	1.017
	(5.096)	(0.815)	(1.478)
IS_CLASS_code1	2.564	-0.051	-0.454
	(2.578)	(0.331)	(0.518)
IS_CLASS_code3	0.267	0.742	0.537
	(2.81)	(0.491)	(0.756)
IS_CLASS_code4	-7.874	-0.472	3.28**
	(7.274)	(0.897)	(1.388)
preage	0.432	0.121	-0.212
	(0.4)	(0.076)	(0.145)
PS_SubsidyYN1	0.887	0.145	0.628
	(1.598)	(0.287)	(0.555)
Note:			*p<0.1; **p<0.05; ***p<0.01

Table E.23: CLASS PK as EA Cut-Point Category

	Dependent variable:
	HTKSgains
CO_CLASS_code1	0.959
	(4.906)
CO_CLASS_code3	-0.386
	(2.77)
CO_CLASS_code4	-0.861
	(3.848)
Education_Parent2	-5.576
	(6.766)
Education_Parent3	3.777
	(6.545)
Education_Parent4	-2.364
	(4.557)
Education_Parent5	2.495
	(4.299)
Education_Parent6	0.083
	(4.414)
Education_Parent7	-2.135
	(4.413)
Education_Parent8	0.567
	(4.4)
ES_CLASS_code3	0.64
	(3.452)
ES_CLASS_code4	-0.088
	(4.1)
Gender1	0.072
	(1.476)
Income_Parent2	0.696
	(4.416)
Income_Parent3	-0.846
	(3.903)
Income_Parent4	-3.994
	(4.227)
Income_Parent5	4.921
	(4.209)
Income_Parent6	-0.471
	(4.86)
Income_Parent7	-4.926
	(4.52)
Income_Parent8	-2.672
	(4.612)
Income_Parent9	-1.48
	(3.833)
(Intercept)	12.461**
	(6.319)
IS_CLASS_code1	-1.287
	(2.481)
IS_CLASS_code3	-1.216
	(3.607)
IS_CLASS_code4	2.808
	(6.93)
preage	-0.487
	(0.588)
PS_SubsidyYN1	-3.631
	(2.264)
Note:	*p<0.1; **p<0.05; ***p<0.01

$$
\begin{aligned}
OutcomeGains = \alpha + & \\
& + \beta_1 * Education \\
& + \beta_2 * Subsidy \\
& + \beta_3 * Income \\
& + \beta_4 * Age \\
& + \beta_5 * Gender \\
& + \beta_6 * ERSLevel0 \\
& + \beta_7 * ERSLevel2
\end{aligned}
\tag{E.9}
$$

Table E.24: ERS as EA Cut-Point Category

	Dependent variable:			
	PPVTgains	WJ-LWgains	TEAMgains	LENSgains
Education_Parent2	-2.144	-3.671	-0.582	0.056
	(5.571)	(3.851)	(1.153)	(0.443)
Education_Parent3	-4.068	-5.183	-0.047	-0.382
	(4.784)	(3.653)	(1.104)	(0.433)
Education_Parent4	-2.318	-4.146	-0.105	0.177
	(3.324)	(2.545)	(0.785)	(0.331)
Education_Parent5	-3.445	-2.234	0.508	0.209
	(3.139)	(2.411)	(0.748)	(0.31)
Education_Parent6	-2.765	-1.666	0.424	0.544*
	(3.278)	(2.514)	(0.781)	(0.318)
Education_Parent7	-3.872	-2.573	0.643	0.512
	(3.244)	(2.489)	(0.772)	(0.327)
Education_Parent8	-4.894	-2.13	0.788	0.367
	(3.237)	(2.485)	(0.77)	(0.32)
ERS_code0	0.133	-0.122	0.408	-0.255
	(1.876)	(1.248)	(0.343)	(0.203)
ERS_code2	2.397	-1.981	0.832	-0.61
	(4.834)	(2.872)	(0.821)	(0.556)
Gender1	-0.386	-0.765	-0.556**	0.089
	(1.15)	(0.865)	(0.26)	(0.137)
Income_Parent2	4.949	-0.049	-0.371	-0.739*
	(3.504)	(2.602)	(0.767)	(0.4)
Income_Parent3	5.933*	0.669	0.398	-0.29
	(3.075)	(2.285)	(0.682)	(0.325)
Income_Parent4	5.217	1.389	-0.551	-0.258
	(3.343)	(2.485)	(0.739)	(0.353)
Income_Parent5	6.034*	0.666	-0.687	-0.314
	(3.331)	(2.467)	(0.738)	(0.358)
Income_Parent6	1.944	-1.957	-0.133	-0.242
	(3.755)	(2.847)	(0.823)	(0.38)
Income_Parent7	7.353**	-0.065	-0.601	-0.799*
	(3.643)	(2.655)	(0.79)	(0.417)
Income_Parent8	3.405	-0.333	-2.104***	-0.198
	(3.697)	(2.67)	(0.791)	(0.424)
Income_Parent9	5.334*	-0.164	-0.891	-0.42
	(3.034)	(2.24)	(0.661)	(0.322)
(Intercept)	-1.904	3.918	2.614***	0.802*
	(4.099)	(3.097)	(0.93)	(0.407)
preage	0.775*	0.188	-0.06	-0.056
	(0.459)	(0.339)	(0.1)	(0.052)
PS_SubsidyYN1	-1.563	-1.045	-0.206	0.233
	(1.766)	(1.308)	(0.388)	(0.182)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.25: ERS as EA Cut-Point Category

	Dependent variable:		
	PKCBCLgains	EWANgains	EWAWgains
Education_Parent2	4.384	-0.516	1.303
	(4.985)	(0.847)	(1.645)
Education_Parent3	-2.418	-0.29	-1.473
	(5.022)	(0.797)	(1.565)
Education_Parent4	1.596	-0.559	-0.519
	(2.967)	(0.556)	(1.079)
Education_Parent5	-1.369	-0.372	-0.383
	(2.945)	(0.534)	(1.03)
Education_Parent6	-0.759	-0.725	-0.946
	(2.929)	(0.553)	(1.077)
Education_Parent7	-1.033	-0.741	0.185
	(2.925)	(0.548)	(1.066)
Education_Parent8	-0.096	-0.761	-0.479
	(2.95)	(0.547)	(1.065)
ERS_code0	-1.343	0.327	-0.663
	(2.331)	(0.316)	(0.528)
ERS_code2	-1.11	0.127	0.408
	(3.982)	(0.716)	(1.244)
Gender1	-1.682*	0.117	0.094
	(0.897)	(0.185)	(0.373)
Income_Parent2	-0.59	-0.205	-0.843
	(3.246)	(0.554)	(1.097)
Income_Parent3	0.32	0.045	0.229
	(2.817)	(0.488)	(0.961)
Income_Parent4	1.062	0.208	0.403
	(2.946)	(0.537)	(1.054)
Income_Parent5	-0.121	0.585	-0.022
	(3.042)	(0.535)	(1.044)
Income_Parent6	2.463	-0.429	0.03
	(3.024)	(0.603)	(1.185)
Income_Parent7	0.19	0.085	0.603
	(3.062)	(0.575)	(1.137)
Income_Parent8	2.871	0.223	0.248
	(3.137)	(0.585)	(1.146)
Income_Parent9	1.173	0.312	0.535
	(2.735)	(0.488)	(0.952)
(Intercept)	-0.671	0.632	2.069
	(3.82)	(0.679)	(1.318)
preage	0.459	0.125*	-0.215
	(0.395)	(0.075)	(0.145)
PS_SubsidyYN1	0.853	0.123	0.556
	(1.561)	(0.283)	(0.553)
Note:			*p<0.1; **p<0.05; ***p<0.01

Table E.26: ERS as EA Cut-Point Category

	Dependent variable:			
	HTKSgains	ITCBCLgains	GMgains	VRgains
Education_Parent2	-5.71	-6.664	-2.504	-2.171
	(6.6)	(9.482)	(7.249)	(7.876)
Education_Parent3	3.992	-7.721	-18.393**	-3.473
	(6.492)	(10.359)	(7.72)	(7.699)
Education_Parent4	-2.23	-10.165	-9.379	2.195
	(4.488)	(9.274)	(6.172)	(6.408)
Education_Parent5	2.806	-1.491	-10.353*	-0.079
	(4.251)	(9.174)	(5.607)	(6.015)
Education_Parent6	0.612	-4.949	-6.889	-0.781
	(4.387)	(8.894)	(5.696)	(6.045)
Education_Parent7	-1.901	-7.402	-9.105	-2.051
	(4.356)	(9.105)	(5.726)	(6.123)
Education_Parent8	0.676	-8.55	-11.796**	-0.889
	(4.342)	(9.257)	(5.896)	(6.292)
ERS_code0	-1.903	-2.655	2.741	0.184
	(2.315)	(2.187)	(2.06)	(2.447)
ERS_code2	-4.494	-2.452	9.227	12.875*
	(5.358)	(4.224)	(8.558)	(6.826)
Gender1	0.079	-0.716	-0.301	2.588
	(1.464)	(1.458)	(1.86)	(1.73)
Income_Parent2	0.475	9.435*	-1.605	0.357
	(4.384)	(5.081)	(5.354)	(5.197)
Income_Parent3	-0.954	6.675	-1.306	0.541
	(3.896)	(4.698)	(4.381)	(4.723)
Income_Parent4	-4.169	3.368	1.259	-5.421
	(4.201)	(5.019)	(4.933)	(5.077)
Income_Parent5	4.641	5.303	-1.759	0.722
	(4.196)	(4.973)	(6.361)	(5.347)
Income_Parent6	-0.511	9.928*	-2.886	0.475
	(4.8)	(5.393)	(5.698)	(5.958)
Income_Parent7	-5.011	5.146	-1.199	0.511
	(4.501)	(5.561)	(5.694)	(5.762)
Income_Parent8	-2.686	5.418	-3.141	2.195
	(4.569)	(5.602)	(5.61)	(5.502)
Income_Parent9	-1.497	7.635	-0.095	0.409
	(3.805)	(4.93)	(4.922)	(4.916)
(Intercept)	12.612**	0.657	3.797	-2.831
	(5.298)	(8.641)	(6.864)	(7.161)
preage	-0.574	-0.14	0.952	0.979
	(0.577)	(0.596)	(0.753)	(0.692)
PS_SubsidyYN1	-3.575	3.519	-2.752	0.562
	(2.219)	(2.636)	(2.962)	(2.918)

Note: *p<0.1; **p<0.05; ***p<0.01

Table E.27: ERS as EA Cut-Point Category

	Dependent variable:		
	FMgains	RLgains	ELgains
Education_Parent2	-4.128	-4.84	-2.577
	(9.85)	(8.125)	(7.582)
Education_Parent3	-4.099	-1.411	-1.466
	(9.557)	(8.282)	(7.685)
Education_Parent4	-0.881	0.122	0.264
	(8.052)	(6.571)	(6.124)
Education_Parent5	-1.561	-5.539	-0.936
	(7.446)	(6.256)	(5.877)
Education_Parent6	0.326	-6.532	-2.067
	(7.446)	(6.339)	(5.891)
Education_Parent7	2.788	-4.737	-1.171
	(7.609)	(6.323)	(5.949)
Education_Parent8	-3.391	-8.664	-4.828
	(7.786)	(6.447)	(6.108)
ERS_code0	-1.484	0.28	1.135
	(2.961)	(2.033)	(2.397)
ERS_code2	-4.826	0.67	7.635
	(8.263)	(5.23)	(6.283)
Gender1	2.155	2.237	0.447
	(2.168)	(1.836)	(1.766)
Income_Parent2	2.439	2.725	3.599
	(6.638)	(5.493)	(5.403)
Income_Parent3	2.641	2.065	0.397
	(5.953)	(5.049)	(4.828)
Income_Parent4	1.871	2.034	-4.494
	(6.363)	(5.424)	(5.103)
Income_Parent5	0.297	10.8*	3.9
	(6.899)	(5.809)	(5.6)
Income_Parent6	-3.397	-0.23	-2.237
	(7.463)	(6.191)	(5.876)
Income_Parent7	-1.301	1.368	1.362
	(7.239)	(6.088)	(5.72)
Income_Parent8	-1.734	6.193	4.09
	(6.888)	(5.782)	(5.584)
Income_Parent9	2.095	1.345	0.08
	(6.279)	(5.323)	(5.05)
(Intercept)	0.109	0.88	-0.454
	(9.002)	(7.458)	(6.938)
preage	0.058	0.236	1.052
	(0.87)	(0.706)	(0.687)
PS_SubsidyYN1	-2.546	-2.45	-1.976
	(3.563)	(2.992)	(2.722)
Note:			*p<0.1; **p<0.05; ***p<0.01

Table E.28: ERS as EA Cut-Point Category

	Dependent variable:
	CCgains
Education_Parent2	-5.263
	(10.82)
Education_Parent3	-3.071
	(10.955)
Education_Parent4	4.107
	(8.976)
Education_Parent5	-1.346
	(8.562)
Education_Parent6	-0.575
	(8.851)
Education_Parent7	1.73
	(8.657)
Education_Parent8	-4.517
	(8.886)
ERS_code0	0.72
	(3.48)
ERS_code2	13.153
	(10.838)
Gender1	6.336**
	(2.717)
Income_Parent2	4.57
	(8.28)
Income_Parent3	1.863
	(7.422)
Income_Parent4	-1.029
	(8.292)
Income_Parent5	4.67
	(8.55)
Income_Parent6	-4.331
	(8.985)
Income_Parent7	1.792
	(9.17)
Income_Parent8	0.694
	(8.957)
Income_Parent9	0.324
	(8.068)
(Intercept)	-6.969
	(10.266)
preage	2.035*
	(1.036)
PS_SubsidyYN1	-3.058
	(4.222)
Note:	*p<0.1; **p<0.05; ***p<0.01

$$
\begin{aligned}
SpringOutcome = \alpha + & \\
& + \beta_1 * FallOutcome \\
& + \beta_2 * Education \\
& + \beta_3 * Subsidy \\
& + \beta_4 * Income \\
& + \beta_5 * Age \\
& + \beta_6 * Gender \\
& + \beta_7 * ERSwithoutPCR
\end{aligned}
\tag{E.10}
$$

$$
\begin{aligned}
SpringOutcome = \alpha + & \\
& + \beta_1 * FallOutcome \\
& + \beta_2 * Education \\
& + \beta_3 * Subsidy \\
& + \beta_4 * Income \\
& + \beta_5 * Age \\
& + \beta_6 * Gender \\
& + \beta_7 * ERSTotalScore
\end{aligned}
\tag{E.11}
$$

$$
\begin{aligned}
SpringOutcome = \alpha + & \\
& + \beta_1 * FallOutcome \\
& + \beta_2 * Education \\
& + \beta_3 * Subsidy \\
& + \beta_4 * Income \\
& + \beta_5 * Age \\
& + \beta_6 * Gender \\
& + \beta_7 * ERSSubscale_1 \\
& + \ldots \\
& + \beta_{12} ERSSubscale_6
\end{aligned}
\tag{E.12}
$$

Table E.29: ECERS-R Proportion Score (Total Score)

	PPVT	WJ	TEAM	LENS	EWA Name	EWA Word	HTKS	CBCL
ERS %	1.69**	0.26	0.19	0.02	0.02	0.12	0.12	0.3
	-0.81	-0.66	-0.18	-0.1	-0.1	-0.15	-0.3	-1.23

Note: *p<0.1; **p<0.05; ***p<0.01

Table E.30: ECERS-R Proportion Score (Total Score without PCR)

	PPVT	WJ-LW	TEAM	LENS	EWA Name	EWA Word	HTKS	CBCL
ERS% no PCR	0.02	-0.02	0.01	0	0.04	0.61	-0.19	0.1
	-0.01	-0.13	-0.04	-0.03	-0.03	-0.06	-0.24	-0.15

Table E.31: ECERS-R Proportion Score (Subscales)

	PPVT	WJ-LW	TEAM	LENS	CBCL	EWA Name	EWA Word	HTKS
Space Furnishings	2.77**	1.37*	0.13	-0.11	-0.79	-0.03	0.43*	-1.49
	-0.71	-0.72	-0.15	-0.11	-1.09	-0.14	-0.25	-1.08
Personal Care	0.08	-0.07	0.02	0.28**	-0.08	-0.01	0.05	-0.02
	-0.09	-0.07	-0.02	-0.01	-0.15	-0.02	-0.03	-0.13
Language	0.11	-0.01	0.01	0	0.03	0.04*	0.02	0.03
	-0.07	-0.06	-0.02	-0.01	-0.13	-0.02	-0.03	-0.11
Activities	0.05	-0.05	0	-0.01	0.06	0	0	0.07
	-0.09	-0.07	-0.02	-0.01	-0.14	-0.02	-0.03	-0.13
Interaction	0.12*	0.04	0.02	0	-0.06	0.01	0.02	0.04
	-0.06	-0.05	-0.01	-0.01	-0.1	-0.01	-0.02	-0.09
Program Structure	0.1	0.04	0.01	0.02*	0.03	0.02	0.04	0.02
	-0.08	-0.06	-0.02	-0.01	-0.1	-0.01	-0.03	-0.01

Note: *p<0.1; **p<0.05; ***p<0.01

$$\begin{aligned} SpringOutcome = \alpha + \\ &+ \beta_1 * FallOutcome \\ &+ \beta_2 * Education \\ &+ \beta_3 * Subsidy \\ &+ \beta_4 * Income \\ &+ \beta_5 * Age \\ &+ \beta_6 * Gender \\ &+ \beta_7 * ERSwithoutPCR \end{aligned} \tag{E.13}$$

$$\begin{aligned} SpringOutcome = \alpha + \\ &+ \beta_1 * FallOutcome \\ &+ \beta_2 * Education \\ &+ \beta_3 * Subsidy \\ &+ \beta_4 * Income \\ &+ \beta_5 * Age \\ &+ \beta_6 * Gender \\ &+ \beta_7 * ERSTotalScore \end{aligned} \tag{E.14}$$

$$
\begin{aligned}
SpringOutcome = \alpha + & \\
& + \beta_1 * FallOutcome \\
& + \beta_2 * Education \\
& + \beta_3 * Subsidy \\
& + \beta_4 * Income \\
& + \beta_5 * Age \\
& + \beta_6 * Gender \\
& + \beta_7 * ERSSubscale_1 \\
& + \ldots \\
& + \beta_{12} ERSSubscale_6
\end{aligned}
\tag{E.15}
$$

Table E.32: FCCERS-R Proportion Score (Subscales)

	Dependent variable:			
	PPVTgains	WJ-LWgains	LENSgains	ELgains
Space_Furnishings	0.326	0.043	-0.373	0.739
	(0.411)	(0.307)	(0.394)	(0.554)
Personal_Care_Routines	-0.070	0.079	-0.135	0.090
	(0.385)	(0.309)	(0.214)	(0.447)
Language_Reasoning	0.253	-0.070	0.115	-0.256
	(0.205)	(0.145)	(0.109)	(0.388)
Activities	-0.363	-0.136	-0.172	-0.343
	(0.288)	(0.215)	(0.347)	(0.379)
Interactions	-0.241	-0.078	0.093	-0.135
	(0.153)	(0.120)	(0.073)	(0.260)
Program_Structure	0.016	0.298	0.186	0.342
	(0.454)	(0.361)	(0.487)	(0.488)
imputed_income	0.123	-0.257	0.223	0.046
	(0.691)	(0.672)	(0.156)	(1.308)
imputed_education	-0.798	1.864**	0.098	0.877
	(0.953)	(0.950)	(0.186)	(1.646)
imputed_subsidy	1.048	0.088	0.475	2.854
	(4.180)	(4.319)	(0.564)	(7.401)
Constant	12.651	-17.803	18.425	-38.970
	(26.375)	(19.953)	(22.181)	(27.883)
Observations	72	75	19	44
Log Likelihood	-262.946	-275.482	-31.232	-162.777
Akaike Inf. Crit.	549.892	574.965	86.463	349.553
Bayesian Inf. Crit.	577.212	602.775	97.797	370.964
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.33: FCCERS-R Proportion Score (Subscales)

	Dependent variable:			
	CCgains	PKCBCLgains	EWANgains	EWAWgains
Space_Furnishings	-0.756	1.725	-0.012	0.185*
	(1.069)	(2.764)	(0.057)	(0.096)
Personal_Care_Routines	0.396	-1.508	-0.091	-0.144
	(0.788)	(2.295)	(0.060)	(0.100)
Language_Reasoning	0.165	0.215	-0.017	0.066
	(0.658)	(0.510)	(0.028)	(0.048)
Activities	0.355	-0.092	-0.036	0.048
	(0.725)	(0.594)	(0.041)	(0.070)
Interactions	0.151	0.081	0.013	0.015
	(0.489)	(0.314)	(0.023)	(0.038)
Program_Structure	0.553	-0.779	0.106	-0.198*
	(1.026)	(1.859)	(0.069)	(0.118)
imputed_income	0.801	-0.532	-0.196	-0.206
	(2.563)	(0.745)	(0.130)	(0.218)
imputed_education	3.923	-1.021	0.203	0.005
	(2.977)	(1.091)	(0.182)	(0.314)
imputed_subsidy	7.033	-11.252*	0.105	-0.708
	(12.233)	(5.823)	(0.836)	(1.403)
Constant	-97.273*	25.349	2.448	5.157
	(52.020)	(47.077)	(3.843)	(6.459)
Observations	36	39	76	73
Log Likelihood	-142.247	-127.804	-170.962	-197.092
Akaike Inf. Crit.	308.494	279.609	365.924	418.184
Bayesian Inf. Crit.	327.496	299.572	393.893	445.670
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.34: FCCERS-R Proportion Score (Subscales)

	Dependent variable:			
	TOQgains	TEAMgains	HTKSgains	ITCBCLgains
Space_Furnishings	-0.070	0.005	0.158	0.575
	(0.205)	(0.073)	(0.505)	(0.369)
Personal_Care_Routines	-0.064	0.094	-0.299	-0.744
	(0.211)	(0.074)	(0.494)	(0.477)
Language_Reasoning	0.085	0.008	-0.026	0.212
	(0.108)	(0.037)	(0.257)	(0.334)
Activities	0.005	0.056	-0.263	-0.065
	(0.151)	(0.053)	(0.366)	(0.281)
Interactions	0.027	-0.063**	0.086	0.213
	(0.080)	(0.029)	(0.194)	(0.210)
Program_Structure	-0.081	-0.099	0.200	-0.486
	(0.243)	(0.088)	(0.586)	(0.345)
imputed_income	0.536	-0.056	0.110	0.041
	(0.429)	(0.155)	(0.946)	(1.054)
imputed_education	0.036	0.039	-0.630	-0.315
	(0.587)	(0.218)	(1.310)	(1.475)
imputed_subsidy	0.790	-0.479	2.367	0.203
	(2.803)	(0.982)	(5.781)	(6.087)
Constant	5.804	4.288	16.613	17.218
	(14.376)	(4.811)	(32.995)	(22.688)
Observations	74	76	75	27
Log Likelihood	-239.015	-181.844	-295.334	-80.840
Akaike Inf. Crit.	502.029	387.688	614.668	185.679
Bayesian Inf. Crit.	529.678	415.657	642.478	201.229
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.35: FCCERS-R Proportion Score (Subscales)

	Dependent variable:			
	GMgains	VRgains	FMgains	RLgains
Space_Furnishings	0.465	-0.411	-0.070	-0.219
	(0.807)	(0.381)	(0.692)	(0.523)
Personal_Care_Routines	-0.351	-0.590	0.181	0.472
	(1.111)	(0.374)	(0.655)	(0.487)
Language_Reasoning	-0.474	0.030	0.586	-0.541
	(0.500)	(0.314)	(0.552)	(0.417)
Activities	-0.602	0.161	-0.210	-0.004
	(0.596)	(0.266)	(0.504)	(0.377)
Interactions	-0.167	0.432**	0.139	0.290
	(0.452)	(0.212)	(0.390)	(0.295)
Program_Structure	1.739*	0.562	-0.247	0.605
	(0.959)	(0.409)	(0.641)	(0.510)
imputed_income	0.760	0.075	2.060	0.767
	(1.664)	(1.138)	(1.776)	(1.332)
imputed_education	-1.976	3.107**	0.547	0.153
	(2.124)	(1.372)	(2.424)	(1.779)
imputed_subsidy	3.870	12.595*	1.194	-3.094
	(10.363)	(6.625)	(11.329)	(8.537)
Constant	-58.320	-42.927	-44.061	-54.650*
	(40.305)	(26.584)	(44.485)	(32.307)
Observations	32	50	50	50
Log Likelihood	-113.834	-182.868	-204.557	-193.103
Akaike Inf. Crit.	251.667	389.735	433.113	410.206
Bayesian Inf. Crit.	269.256	412.680	456.058	433.150
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.36: FCCERS-R Proportion Score (Total Score)

	Dependent variable:			
	PPVTgains	WJ-LWgains	LENSgains	ELgains
NEWERS_Six_Subscales	0.035	0.049	0.031	0.141
	(0.165)	(0.103)	(0.034)	(0.182)
imputed_income	0.460	-0.140	0.070	0.176
	(0.672)	(0.617)	(0.136)	(1.119)
imputed_education	-0.718	1.809**	0.209	1.224
	(0.957)	(0.905)	(0.166)	(1.454)
imputed_subsidy	3.019	0.746	0.190	3.665
	(4.030)	(3.921)	(0.552)	(7.067)
Constant	-0.558	-10.884	-3.573	-17.693
	(14.391)	(10.387)	(3.051)	(18.433)
Observations	72	75	19	44
Log Likelihood	-263.816	-272.336	-27.049	-164.129
Akaike Inf. Crit.	541.631	558.673	68.099	342.258
Bayesian Inf. Crit.	557.568	574.895	74.710	354.747
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.37: FCCERS-R Proportion Score (Total Score)

	Dependent variable:			
	CCgains	PKCBCLgains	EWANgains	EWAWgains
NEWERS_Six_Subscales	0.791***	0.048	-0.004	0.031
	(0.304)	(0.150)	(0.020)	(0.035)
imputed_income	-0.400	-0.693	-0.153	-0.103
	(1.911)	(0.680)	(0.121)	(0.213)
imputed_education	3.481	-0.995	0.213	0.156
	(2.401)	(1.047)	(0.177)	(0.316)
imputed_subsidy	3.967	-12.596**	-0.146	-0.807
	(10.838)	(5.175)	(0.772)	(1.344)
Constant	-76.995**	8.459	1.153	-1.098
	(30.662)	(13.930)	(2.039)	(3.584)
Observations	36	39	76	73
Log Likelihood	-144.975	-128.781	-160.652	-192.085
Akaike Inf. Crit.	303.950	271.561	335.304	398.170
Bayesian Inf. Crit.	315.035	283.206	351.619	414.203
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.38: FCCERS-R Proportion Score (Total Score)

	Dependent variable:		
	TEAMgains	HTKSgains	ITCBCLgains
NEWERS_Six_Subscales	-0.025	-0.106	0.093
	(0.029)	(0.143)	(0.123)
imputed_income	-0.047	0.332	-0.191
	(0.150)	(0.844)	(0.927)
imputed_education	0.024	-0.987	-0.377
	(0.217)	(1.222)	(1.156)
imputed_subsidy	0.017	1.624	-3.052
	(0.931)	(5.322)	(5.495)
Constant	4.588*	18.421	-4.660
	(2.756)	(14.280)	(16.495)
Observations	76	75	27
Log Likelihood	-173.982	-293.694	-80.547
Akaike Inf. Crit.	361.965	601.388	175.094
Bayesian Inf. Crit.	378.280	617.611	184.164
Note:			*p<0.1; **p<0.05; ***p<0.01

Table E.39: FCCERS-R Proportion Score (Total Score)

	Dependent variable:			
	GMgains	VRgains	FMgains	RLgains
NEWERS_Six_Subscales	0.197	0.549***	0.462*	0.232
	(0.252)	(0.164)	(0.269)	(0.200)
imputed_income	-0.452	0.019	1.971	0.177
	(1.300)	(1.014)	(1.519)	(1.168)
imputed_education	-1.880	2.872**	1.163	-0.846
	(1.999)	(1.380)	(2.187)	(1.661)
imputed_subsidy	5.373	9.862	-1.532	-5.913
	(8.360)	(6.793)	(10.619)	(8.138)
Constant	-3.417	-58.360***	-55.927**	-12.298
	(26.152)	(17.488)	(28.031)	(20.914)
Observations	32	50	50	50
Log Likelihood	-117.677	-186.385	-206.834	-194.820
Akaike Inf. Crit.	249.355	386.770	427.669	403.640
Bayesian Inf. Crit.	259.615	400.154	441.053	417.024
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.40: FCCERS-R Proportion Score (Total Score without PCR)

	Dependent variable:			
	PPVTgains	WJ-LWgains	LENSgains	ELgains
NEWERS_Five_Subscales	0.034	0.043	0.028	0.121
	(0.148)	(0.093)	(0.031)	(0.164)
imputed_income	0.458	-0.147	0.067	0.157
	(0.671)	(0.615)	(0.135)	(1.119)
imputed_education	-0.718	1.805**	0.207	1.210
	(0.957)	(0.905)	(0.167)	(1.453)
imputed_subsidy	3.040	0.757	0.194	3.596
	(4.033)	(3.923)	(0.552)	(7.065)
Constant	-0.481	-10.369	-3.386	-16.116
	(13.364)	(9.834)	(2.865)	(17.299)
Observations	72	75	19	44
Log Likelihood	-263.923	-272.447	-27.142	-164.263
Akaike Inf. Crit.	541.847	558.895	68.284	342.527
Bayesian Inf. Crit.	557.783	575.117	74.895	355.016
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.41: FCCERS-R Proportion Score (Total Score without PCR)

	Dependent variable:			
	CCgains	PKCBCLgains	EWANgains	EWAWgains
NEWERS_Five_Subscales	0.686**	0.047	-0.003	0.033
	(0.273)	(0.135)	(0.018)	(0.032)
imputed_income	-0.531	-0.694	-0.151	-0.101
	(1.924)	(0.680)	(0.121)	(0.212)
imputed_education	3.404	-0.998	0.213	0.151
	(2.413)	(1.046)	(0.177)	(0.316)
imputed_subsidy	3.540	-12.579**	-0.144	-0.788
	(10.885)	(5.169)	(0.772)	(1.342)
Constant	-68.571**	8.481	0.999	-1.242
	(28.707)	(13.135)	(1.931)	(3.384)
Observations	36	39	76	73
Log Likelihood	-145.279	-128.877	-160.767	-192.051
Akaike Inf. Crit.	304.558	271.753	335.534	398.103
Bayesian Inf. Crit.	315.643	283.398	351.849	414.136
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.42: FCCERS-R Proportion Score (Total Score without PCR)

	Dependent variable:			
	TOQgains	TEAMgains	HTKSgains	ITCBCLgains
NEWERS_Five_Subscales	0.022	-0.023	-0.095	0.090
	(0.061)	(0.026)	(0.129)	(0.112)
imputed_income	0.494	-0.045	0.344	-0.173
	(0.398)	(0.149)	(0.841)	(0.928)
imputed_education	0.052	0.024	-0.979	-0.389
	(0.553)	(0.217)	(1.223)	(1.150)
imputed_subsidy	0.794	0.008	1.595	-2.977
	(2.592)	(0.931)	(5.325)	(5.477)
Constant	-3.401	4.447*	17.568	-4.668
	(6.329)	(2.602)	(13.484)	(15.935)
Observations	74	76	75	27
Log Likelihood	-233.638	-174.074	-293.804	-80.602
Akaike Inf. Crit.	481.275	362.149	601.608	175.205
Bayesian Inf. Crit.	497.404	378.464	617.831	184.275
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.43: FCCERS-R Proportion Score (Total Score without PCR)

	Dependent variable:			
	GMgains	VRgains	FMgains	RLgains
NEWERS_Five_Subscales	0.176	0.509***	0.391	0.187
	(0.232)	(0.146)	(0.241)	(0.180)
imputed_income	-0.494	-0.071	1.894	0.132
	(1.302)	(1.002)	(1.519)	(1.168)
imputed_education	-1.891	2.874**	1.086	-0.890
	(2.002)	(1.368)	(2.191)	(1.664)
imputed_subsidy	5.370	9.784	-1.869	-6.160
	(8.373)	(6.726)	(10.638)	(8.152)
Constant	-1.723	-55.380***	-50.017*	-8.488
	(24.771)	(16.256)	(26.211)	(19.666)
Observations	32	50	50	50
Log Likelihood	-117.778	-186.122	-207.102	-195.063
Akaike Inf. Crit.	249.557	386.245	428.205	404.126
Bayesian Inf. Crit.	259.817	399.629	441.589	417.510
Note:				*p<0.1; **p<0.05; ***p<0.01

$$
\begin{aligned}
SpringOutcome = \alpha + & \\
& + \beta_1 * FallOutcome \\
& + \beta_2 * Education \\
& + \beta_3 * Subsidy \\
& + \beta_4 * Income \\
& + \beta_5 * Age \\
& + \beta_6 * Gender \\
& + \beta_7 * ERSwithoutPCR
\end{aligned}
\tag{E.16}
$$

$$
\begin{aligned}
SpringOutcome = \alpha + & \\
& + \beta_1 * FallOutcome \\
& + \beta_2 * Education \\
& + \beta_3 * Subsidy \\
& + \beta_4 * Income \\
& + \beta_5 * Age \\
& + \beta_6 * Gender \\
& + \beta_7 * ERSTotalScore
\end{aligned}
\tag{E.17}
$$

$$
\begin{aligned}
SpringOutcome = \alpha + & \\
& + \beta_1 * FallOutcome \\
& + \beta_2 * Education \\
& + \beta_3 * Subsidy \\
& + \beta_4 * Income \\
& + \beta_5 * Age \\
& + \beta_6 * Gender \\
& + \beta_7 * ERSSubscale_1 \\
& + \ldots \\
& + \beta_{12} ERSSubscale_6
\end{aligned}
\tag{E.18}
$$

Table E.44: ITERS-R Proportion Score (Total Score without PCR)

	Dependent variable:			
	ELgains	CCgains	ITCBCLgains	GMgains
NEWERS_Five_Subscales	0.062	-0.121	0.161	-0.080
	(0.135)	(0.176)	(0.139)	(0.095)
imputed_income	0.134	0.702	0.758	0.222
	(0.562)	(0.855)	(0.527)	(0.566)
imputed_education	-0.378	-0.345	-0.876	-0.685
	(0.709)	(1.050)	(0.766)	(0.704)
imputed_subsidy	-1.289	2.164	3.574	-3.106
	(2.818)	(4.295)	(2.677)	(3.086)
Constant	-1.918	8.861	-13.275	7.306
	(11.629)	(15.252)	(12.430)	(8.823)
Observations	129	112	85	121
Log Likelihood	-495.252	-462.483	-299.302	-459.534
Akaike Inf. Crit.	1,004.504	938.966	612.604	933.067
Bayesian Inf. Crit.	1,024.522	957.995	629.702	952.638
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.45: ITERS-R Proportion Score (Total Score without PCR)

	Dependent variable:		
	VRgains	FMgains	RLgains
NEWERS_Five_Subscales	-0.101	-0.071	0.081
	(0.136)	(0.147)	(0.098)
imputed_income	0.139	0.137	1.047
	(0.593)	(0.682)	(0.640)
imputed_education	-0.477	0.260	-1.424*
	(0.756)	(0.858)	(0.774)
imputed_subsidy	0.744	-0.016	3.482
	(3.081)	(3.536)	(3.374)
Constant	10.814	3.874	-7.290
	(11.819)	(12.869)	(9.189)
Observations	135	140	143
Log Likelihood	-526.973	-563.598	-560.478
Akaike Inf. Crit.	1,067.945	1,141.197	1,134.956
Bayesian Inf. Crit.	1,088.282	1,161.788	1,155.696
Note:			*p<0.1; **p<0.05; ***p<0.01

Table E.46: ITERS-R Proportion Score (Total Score)

	Dependent variable:			
	ELgains	CCgains	ITCBCLgains	GMgains
NEWERS_Six_Subscales	-0.0003	-0.195	0.176	-0.100
	(0.151)	(0.194)	(0.152)	(0.105)
imputed_income	0.114	0.697	0.754	0.216
	(0.562)	(0.853)	(0.527)	(0.565)
imputed_education	-0.368	-0.313	-0.885	-0.664
	(0.710)	(1.049)	(0.766)	(0.704)
imputed_subsidy	-1.286	2.138	3.588	-3.157
	(2.818)	(4.290)	(2.677)	(3.085)
Constant	2.996	14.338	-14.209	8.687
	(12.560)	(16.261)	(13.185)	(9.350)
Observations	129	112	85	121
Log Likelihood	-495.249	-462.113	-299.212	-459.336
Akaike Inf. Crit.	1,004.498	938.226	612.423	932.672
Bayesian Inf. Crit.	1,024.516	957.256	629.522	952.242
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.47: ITERS-R Proportion Score (Total Score)

	Dependent variable:		
	VRgains	FMgains	RLgains
NEWERS_Six_Subscales	-0.145	-0.115	0.065
	(0.151)	(0.164)	(0.110)
imputed_income	0.135	0.139	1.033
	(0.592)	(0.681)	(0.640)
imputed_education	-0.456	0.268	-1.429*
	(0.756)	(0.857)	(0.776)
imputed_subsidy	0.712	0.006	3.495
	(3.079)	(3.534)	(3.378)
Constant	14.043	7.151	-5.907
	(12.668)	(13.800)	(9.790)
Observations	135	140	143
Log Likelihood	-526.681	-563.361	-560.530
Akaike Inf. Crit.	1,067.363	1,140.722	1,135.060
Bayesian Inf. Crit.	1,087.700	1,161.314	1,155.800
Note:			*p<0.1; **p<0.05; ***p<0.01

Table E.48: ITERS-R Proportion Score (Subscales)

	Dependent variable:			
	ELgains	CCgains	ITCBCLgains	GMgains
Space_Furnishings	-0.028	-0.091	-0.206	-0.024
	(0.177)	(0.252)	(0.189)	(0.147)
Personal_Care_Routines	-0.728***	-0.882***	0.232	-0.166
	(0.219)	(0.331)	(0.243)	(0.191)
Language_Reasoning	0.353**	0.220	-0.375**	-0.117
	(0.160)	(0.241)	(0.163)	(0.141)
Activities	0.281*	0.338	0.439**	0.138
	(0.156)	(0.224)	(0.191)	(0.139)
Interactions	0.021	0.232	0.123	0.189
	(0.150)	(0.211)	(0.160)	(0.135)
Program_Structure	-0.286*	-0.426*	0.047	-0.157
	(0.154)	(0.219)	(0.153)	(0.133)
imputed_income	0.274	0.772	0.625	0.205
	(0.554)	(0.861)	(0.519)	(0.601)
imputed_education	-0.307	-0.147	-0.467	-0.640
	(0.690)	(1.047)	(0.764)	(0.739)
imputed_subsidy	-1.898	0.521	3.226	-3.689
	(2.768)	(4.277)	(2.684)	(3.162)
Constant	29.720**	42.412**	-21.529	11.169
	(13.225)	(18.752)	(14.447)	(11.735)
Observations	129	112	85	121
Log Likelihood	-491.179	-460.531	-299.527	-464.096
Akaike Inf. Crit.	1,006.358	945.062	623.053	952.193
Bayesian Inf. Crit.	1,040.676	977.684	652.365	985.742
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E.49: ITERS-R Proportion Score (Subscales)

	Dependent variable:		
	VRgains	FMgains	RLgains
Space_Furnishings	-0.252	0.007	0.071
	(0.192)	(0.217)	(0.148)
Personal_Care_Routines	-0.485**	-0.554**	-0.302*
	(0.233)	(0.267)	(0.182)
Language_Reasoning	0.137	-0.113	0.272*
	(0.173)	(0.201)	(0.139)
Activities	0.326*	0.145	0.023
	(0.170)	(0.199)	(0.137)
Interactions	0.236	0.366*	-0.047
	(0.161)	(0.190)	(0.126)
Program_Structure	-0.390**	-0.178	-0.111
	(0.163)	(0.194)	(0.125)
imputed_income	0.134	0.300	1.166*
	(0.599)	(0.707)	(0.664)
imputed_education	-0.404	0.280	-1.375*
	(0.756)	(0.866)	(0.789)
imputed_subsidy	-0.216	-0.110	2.953
	(3.079)	(3.564)	(3.398)
Constant	34.582**	20.464	4.509
	(14.235)	(16.711)	(11.759)
Observations	135	140	143
Log Likelihood	-526.501	-564.725	-563.429
Akaike Inf. Crit.	1,077.002	1,153.451	1,150.858
Bayesian Inf. Crit.	1,111.865	1,188.750	1,186.412
Note:			*p<0.1; **p<0.05; ***p<0.01

Appendix F

Early Achievers Standard Indicators

The objective of this analysis was to examine the item quality and understand the factor structure of the EA standard indicators (Child Outcomes, Curriculum & Staff Supports and Family Engagement). Evaluating item quality and examining validity evidence can provide valuable information to better understand, revise, and/or distill the current version of a measure.

Item Response Theory (IRT)

First, Item Response Theory (IRT; Mislevy, 1996) was used to evaluate the item parameters (i.e., difficulty and discrimination indices). For the purpose of this analysis, we 1) examined the difficulty and discrimination indices to see whether the items contributed differentially, and 2) evaluated the internal consistency (Cronbach, 1971) of each of the standards.

The factor structure's internal consistency (i.e., Child Outcomes, CO; Curriculum and Staff Support, CSS; and Family Engagement, FE) was examined based on the framework. Then, an exploratory factor analysis (EFA) was conducted to detect the underlying factor structures related to the items. Using reverse inference, EFA seeks to identify a set of hypothetical factors, which can account for the observed pattern of correlations among the scores (Kane, 2006). Based on the findings of the EFA, a confirmatory factor analysis (CFA) was employed to further evaluate the factor structure. Finally, a second internal consistency check was run on the newly identified constructs.

Findings: IRT

Child Outcomes (CO). All items performed moderately based on the discriminative and difficulty index except for CO 2 and CO 3. In terms of the internal consistency, results suggested that item CO3 lacked variance and therefore was removed from the scale. The order (largest to smallest) of the nine items was: CO 2 (*M*=.98 *SD*=.12); CO 9 (*M*=.48 *SD*=.50); CO 7 (*M*=.38, *SD*=.49); CO 5 (*M*=.32, *SD*=.47); CO 4 (*M*=.29, *SD*=.46); CO 10 (*M*=.23, *SD*=.42); CO 6 (*M*=.21, *SD*=.41); CO 1 (*M*=.20, *SD*=.40); CO 8 (*M*=.17, *SD*=.38). The Cronbach's Alpha of the remaining nine items was .86, which indicated very high overall internal consistency. CO 2 was identified as problematic. The correlations with other items were very low (range from .06 to .12). Also the correlation between CO 2 and CO 7 was negative (*r*=-.16), removing this item would increase the Cronbach's Alpha to .87.

Curriculum & Staff Supports (CSS). All items performed low to moderate based on the discriminative and difficulty index except for CSS 6, CSS 7, and CSS 8. The order (largest to smallest) of the 15 items was: CSS 6 (*M*=.80 *SD*=.40); CSS 7 (*M*=.80 *SD*=.40); CSS 8 (*M*=.80, *SD*=.40); CSS 9 (*M*=.69, *SD*=.47); CSS14 (*M*=.57, *SD*=.50); CSS1 (*M*=.54, *SD*=.50); CSS10 (*M*=.53, *SD*=.50); CSS 2 (*M*=.43, *SD*=.50); CSS3 (*M*=.43, *SD*=.50); CSS 4 (*M*=.40, *SD*=.49); CSS 5 (*M*=.39, *SD*=.49); CSS 15 (*M*=.35, *SD*=.48); CSS 11 (*M*=.35, *SD*=.48); CSS 12 (*M*=.33, *SD*=.47); CSS 13 (*M*=.29, *SD*=.46). The Cronbach's Alpha of the 15 items was .88, which indicated very high overall internal consistency. The Cronbach's Alpha remained .88 when CSS 1 or CSS 9 was removed from the scale.

Family Engagement (FE). All items performed low to moderate based on the discriminative and difficulty index. The order (largest to smallest) of the nine items was: FE 1 (*M*=.91 *SD*=.28); FE 2 (*M*=.85 *SD*=.36); FE 7 (*M*=.78, *SD*=.42); FE 5 (*M*=.76, *SD*=.43); FE 6 (*M*=.60, *SD*=.49); FE 9 (*M*=.59, *SD*=.42); FE 8 (*M*=.52, *SD*=.50); FE 10 (*M*=.43, *SD*=.50); FE 3 (*M*=.36, *SD*=.48). FE 4 (*M*=.19, *SD*=.40). The Cronbach's Alpha of the remaining nine items was .81, which indicated very high overall internal consistency. The Cronbach's Alpha decreased with the removal of any item, suggesting that each item contributes important information to the construct.

Factor Analysis

Based on the above results, six items were removed. Results of the exploratory factor analysis based on these 29 items suggested a 3-factor, as well as a 4-factor model. A confirmatory factor analysis (CFA) was conducted to further evaluate the factor structure. Examining the model fit index indicated that the 4-factor model did not significantly improve the fit, so the 3-factor model was retained. After evaluating the factor loading, it was determined that FE 7 had very low loading (.30) on Factor 3. A refined 3-factor model (removing FE 7) was compared to the original 3-factor model, which identified slight improvement in the model fit index.

Findings: Factor Analysis

As a result, these findings suggest the following factors:

- Factor 1
  - » CSS13, CSS12, FE10, CO8, CO6, CO10, CO4, CO7, CSS1, FE4, FE9, CO5, CO1, CSS5, CSS3, FE6, and FE3.
- Factor 2
  - » CSS10, CSS9, CSS11, FE8, CO9, CSS8, CSS14, and CSS15.
- Factor 3
  - » FE7, FE2, FE1, and FE5.

The overall variance explained by these three factors was 51%. The correlation of the new three factors was moderate to low, which is a good indicator of discriminative validity. The internal consistency of the new constructs was also examined. The Cronbach's Alpha of the Factor 1 construct was fairly high (.93), moderate for the Factor 2 construct (.82), and relatively low for the Factor 3 construct (.63).
Tables detailing the entirety of these analyses can be found below (F.1-F.13)

Discussion

The objective of this analysis was to evaluate the item quality and factor structure of the Early Achievers standard indicators. Before turning to our discussion, a few limitations are important to consider. First, the results of the IRT identify difficulty and discriminative indexes. Although some items are fairly easy to achieve and may not contribute to the quality differentiation, these items may still be retained if they have important theoretical implications. Second, the statistical power of the EFA and CFA was fairly low (KMO<.50). As a criterion, the ideal KMO is .90. Therefore, it is possible that the current factor structure may not hold when reevaluated with a larger sample size (>300). These limitations should be considered when interpreting the results of this analysis, which suggest that the original factor structure or the items themselves may benefit from further revision.
These findings indicate a three-factor model. Next steps could include reconsidering indicators, points, and weighting based on these three new constructs as well as the remaining Early Achievers standards components (i.e., CLASS and ERS).

Table F.1: Descriptive Statistics for EA Standard Areas

Measure	*M*	*SD*	*Min*	*Max*
Child Outcomes (CO)	4.51	2.72	2	10
Curriculum and Staff Support (CSS)	8.06	4.34	0	15
Family Engagement (FE)	6.19	2.7	0	10

Table F.2: IRT Results

Item	#0	#1	*M*	*SD*	Difficulty index	Discriminative index
CO.1	102	25	0.2	0.4	1.39	1.85
CO.2	2	125	0.98	0.12	-17.71	0.23
CO.3	0	127	1	0	NA	NA
CO.4	90	37	0.29	0.46	0.92	1.83
CO.5	86	41	0.32	0.47	0.7	2.33
CO.6	100	27	0.21	0.41	1.01	3.72
CO.7	79	48	0.38	0.49	0.56	1.92
CO.8	105	22	0.17	0.38	1.3	3
CO.9	65	62	0.49	0.5	0.16	2.66
CO.10	98	29	0.23	0.42	0.9	4.35
CSS.1	58	69	0.54	0.5	-0.01	1.38
CSS.2	72	55	0.43	0.5	0.3	3.25
CSS.3	72	55	0.43	0.5	0.3	3.25
CSS.4	77	50	0.39	0.49	0.37	4.3
CSS.5	77	50	0.39	0.49	0.37	4.57
CSS.6	102	25	0.8	0.4	-1.67	0.87
CSS.7	102	25	0.8	0.4	-1.67	0.87
CSS.8	102	25	0.8	0.4	-1.67	0.87
CSS.9	40	87	0.69	0.47	-0.85	0.87
CSS.10	60	67	0.53	0.5	0.06	2.01
CSS.11	83	44	0.35	0.48	0.65	2.05
CSS.12	85	42	0.33	0.47	0.82	1.53
CSS.13	90	37	0.29	0.46	0.95	1.69
CSS.14	72	55	0.57	0.5	-0.11	1.26
CSS.15	82	45	0.35	0.48	0.61	2.16
FE.1	11	116	0.91	0.28	-3.47	0.7
FE.2	19	108	0.85	0.36	-1.86	1.01
FE.3	81	46	0.36	0.48	0.63	1.82
FE.4	102	25	0.2	0.4	1.29	2.23
FE.5	31	96	0.76	0.43	-2.01	0.55
FE.6	50	77	0.61	0.49	-0.18	2.33
FE.7	28	99	0.78	0.42	-1.29	1.04
FE.8	61	66	0.52	0.5	0.08	1.52
FE.9	52	75	0.59	0.49	-0.11	2.83
FE.10	72	55	0.43	0.5	0.26	5.03

Table F.3: Internal Consistency for Child Outcomes (CO) Standard Area

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
CO.1	3.0787	5.486	0.603	0.454	0.846
CO.2	2.2913	6.716	0.063	0.084	0.876
CO.4	2.9843	5.206	0.653	0.556	0.841
CO.5	2.9528	5.156	0.655	0.539	0.841
CO.6	3.063	5.186	0.758	0.657	0.831
CO.7	2.8976	5.442	0.482	0.409	0.86
CO.8	3.1024	5.362	0.719	0.663	0.836
CO.9	2.7874	5.248	0.554	0.475	0.853
CO.10	3.0472	5.188	0.733	0.654	0.833

Note: The overall Cronbach's Alpha is .862

Table F.4: Internal Consistency for Curriculum and Staff Supports (CSS) Standard Area

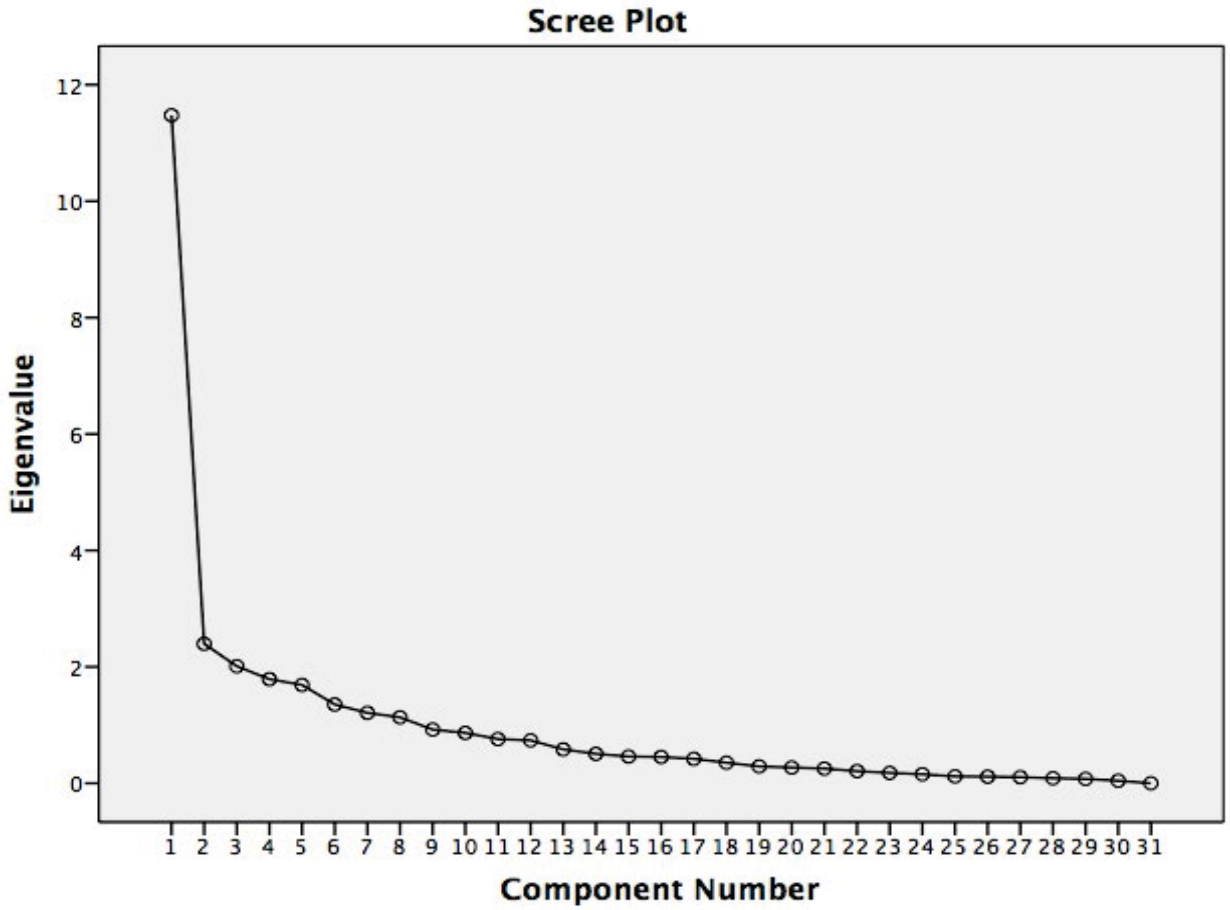
Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
CSS.1	7.1654	16.758	0.371	0.271	0.88
CSS.2	7.2756	15.741	0.643	0.543	0.867
CSS.3	7.2756	15.741	0.643	0.543	0.867
CSS.4	7.315	15.789	0.64	0.54	0.868
CSS.5	7.315	15.71	0.662	0.562	0.866
CSS.6	6.9055	16.864	0.458	0.358	0.876
CSS.7	6.9055	16.864	0.458	0.358	0.876
CSS.8	6.9055	16.864	0.458	0.358	0.876
CSS.9	7.0236	16.944	0.355	0.255	0.88
CSS.10	7.1811	15.816	0.617	0.517	0.869
CSS.11	7.3622	16.042	0.589	0.489	0.87
CSS.12	7.378	16.554	0.455	0.45	0.876
CSS.13	7.4173	16.372	0.527	0.237	0.873
CSS.14	7.1417	16.154	0.531	0.431	0.873

Note: The overall Cronbach's Alpha is .880

Table F.5: Internal Consistency for Family Engagement (FE) Standard Area

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
FE.1	5.0945	6.626	0.35	0.6	0.809
FE.2	5.1575	6.277	0.451	0.618	0.8
FE.3	5.6457	5.627	0.591	0.444	0.783
FE.4	5.811	6.091	0.489	0.303	0.796
FE.5	5.252	6.253	0.359	0.263	0.809
FE.6	5.4016	5.591	0.596	0.422	0.783
FE.7	5.2283	6.162	0.426	0.399	0.802
FE.8	5.4882	5.919	0.428	0.36	0.804
FE.9	5.4173	5.578	0.597	0.568	0.782
FE.10	5.5748	5.532	0.613	0.604	0.78

Note: The overall Cronbach's Alpha is .812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Component Number

Table F.6: Exploratory Factor Analysis: 3-Factor Structure

	Factor 1	Factor2	Factor 3
CSS.13	0.782		
CSS.12	0.759		
FE.10	0.731		
CO.8	0.703		
CO.6	0.684		
CO.10	0.664		
CO.4	0.65		
CO.7	0.649		
CSS.1	0.633		
FE.4	0.586		
FE.9	0.567		
CO.5	0.539		
CO.1	0.519		
CSS.5	0.512		
CSS.3	0.496		
FE.6	0.491		
FE.3	0.476		
CSS.10		0.81	
CSS.9		0.664	
CSS.11		0.61	
FE.8		0.602	
CO.9		0.54	
CSS.8		0.536	
CSS.14		0.532	
CSS.15		0.508	
FE.7			0.3
FE.2			0.798
FE.1			0.779
FE.5			0.654

Note: Rotation method: Varimax with Kaiser Normalization

Table F.7: Exploratory Factor Analysis:4-Factor Structure

	Factor 1	Factor 2	Factor 3	Factor 4
CSS.13	0.747			
CSS.12	0.74			
C0.8	0.737			
C0.6	0.72			
C0.4	0.683			
C0.1	0.669			
FE.4	0.666			
C0.10	0.652			
FE.10	0.629			
C0.5	0.564			
C0.7	0.549			
FE.3	0.547			
FE.7		0.66		
FE.8		0.654		
FE.9		0.63		
FE.6		0.526		
CSS.14		0.509		
CSS.1		0.502		
CSS.5		0.487		
C0.9		0.461		
CSS.3		0.457		
CSS.10			0.798	
CSS.9			0.674	
CSS.11			0.569	
CSS.8			0.511	
CSS.15			0.447	0.348
FE.1				0.766
FE.2				0.755
FE.5				0.682

Note: Rotation method: Varimax with Kaiser Normalization

Table F.8: CFA Model Fit Index

Model	Chi-squared	Df	RMSEA	SRMR	CFI	TLI	NFI	AIC
3-factor	1393	374	0.146 90%[0.138 0.155]	0.109	0.578	0.542	0.506	3213.7
4-factor	1344.2	371	0.144 90%[0.135 0.152]	0.105	0.597	0.559	0.524	3170.9
Refined 3 factor	1184.9	321	0.146 90%[0.137 0.154]	0.102	0.614	0.578	0.542	2970.4

Notes:
Chi-square (closer to 0=better);
RMSA=Root Mean Square Error of Approximation (0-1, smaller better, <.06 is acceptable);
SRMR=Standardized Root Mean Square Residual(0-1, <.08 acceptable);
CFI=The Comparative Fit Index(0-1, at least >.90);
NFI=The Normed Fit Index (0-1, with a cutoff of .95 or greater indicating a good model fit).

Table F.9: Extraction Sum of Squared

Component	Total	% of Variance	Cumulative %	Rotation Sums of Squared Loading
1	11.475	37.017	37.017	10.107
2	2.396	7.729	44.746	3.9
3	2.01	6.485	51.231	6.528

Table F.10: Correlation of the Three New Factors

Component	Factor 1	Factor 2	Factor 3
Factor 1	1		
Factor 2	0.214	1	
Factor 3	0.412	0.197	1

Rotation Method: Oblimin with Kaiser Normalization.

Table F.11: Internal Consistency of Factor 1

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CSS.13	5.6929	25.119	0.616	0.922
CSS.12	5.6535	25.117	0.592	0.923
FE.10	5.5512	24.202	0.755	0.919
CO.8	5.811	25.25	0.72	0.92
CO.6	5.7717	24.94	0.74	0.92
CO.10	5.7559	24.853	0.741	0.919
CO.4	5.6929	24.961	0.652	0.921
CO.7	5.6063	24.971	0.603	0.923
CSS.1	5.4409	25.518	0.47	0.926
FE.4	5.7874	25.391	0.644	0.922
FE.9	5.3937	25.002	0.587	0.923
CO.5	5.6614	24.892	0.647	0.921
CO.1	5.7874	25.724	0.558	0.924
CSS.5	5.5906	24.768	0.642	0.922
CSS.3	5.5512	24.868	0.61	0.922
FE.6	5.378	25.158	0.558	0.924
FE.3	5.622	25.015	0.6	0.923

Note: The overall Cronbach's Alpha is .926

Table F.12: Internal Consistency of Factor 2

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CSS.10	3.7638	4.801	0.685	0.781
CSS.9	3.6063	5.32	0.474	0.811
CSS.11	3.9449	5.052	0.594	0.795
FE.8	3.7717	5.051	0.557	0.8
C0.9	3.8031	5.08	0.542	0.802
CSS.8	3.4882	5.68	0.377	0.822
CSS.14	3.7244	5.138	0.52	0.806
CSS.15	3.937	5.059	0.587	0.796

Note: The overall Cronbach's Alpha is .823

Table F.13: Internal Consistency of Factor 3

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
FE.2	2.4488	0.583	0.654	0.37
FE.1	2.3858	0.715	0.573	0.477
FE.5	2.5433	0.679	0.287	0.657
FE.7	2.5197	0.728	0.236	0.688

Note: The overall Cronbach's Alpha is .626

Appendix G

Spline Analysis

The Early Achievers system provides ratings for sites, utilizing observational measures of quality as a contributing component to the overall rating level. The existing literature has examined the relationship between both the ERS and CLASS with child outcomes and suggested that a) there is a positive relationship, and that b) there might be some sort of a take-off in a sense that this relationship gets stronger once a certain threshold level of ERS or CLASS scores are achieved (Hatfield, Burchinal, Pianta, & Sideris, 2015). This section will help us determine whether our data supports such claims.

Before we discuss the details of this analysis let us address some limitations/qualifications. A big issue in this investigation was the size of the dataset. A low number of classrooms participated in this study and missing data on scores as well as classroom quality indicators bring this number even lower. Further, separate analysis done based on different classroom types reduces the number down even more, to a territory that raises concerns about external validity.

Another limiting aspect of the data is the range of the independent variable. Most observations are clustered in the 2.5 - 4.5 range of the ERS variable with the 4.5 - 5.5 range having around half a dozen observations in it. This renders the use of splines problematic. It complicates an effort to run an analysis (e. g. spline fit) that ponders whether the relationship between child outcomes and classroom quality changes within the range of observed data. The idea behind spline is that every sub-range of the independent variable is taken separately and regression is estimated using only that subset of data. This places higher demands on the quantity of data and consumes more degrees of freedom as more parameters are being estimated. Our analysis shows that the only non-linearities arise are in the ranges of the ERS variable with very little data (see Figure 2 for an example). In those ranges the estimation is easily influenced by outliers which is not a cause of the problem but rather symptom of the issue with having few observations in that range. In the range with abundant data we can see the relationship being fairly linear.

Hatfield, Burchinal, Pianta, & Sideris (2015), find a non-linear relationship between child outcomes and classroom quality. Given the shape of the curve they found, however, a linear relationship must be feasible as well. In other words, given how expensive splines are in terms of degrees of freedom if they obtained significant estimates on the spline parameters then a linear relationship would have obtained even more robust estimates. Given the nature of our data mentioned above we are doubtful that we have enough data in all regions for spline curves to be estimated well in the whole domain of the classroom quality. Splines are a local regression, which is using only local data points to estimate local curve. Given that our ERS and CLASS measures tend to be clustered in certain subsections of the domain we are cautious about putting faith in the spline analysis. We are omitting the collective resulting graphs from this analysis here for the purposes of brevity. See Figures 1-3 for a sampling of the spline results.

Figure 1: Sample Spline PPVT and PK CLASS CO

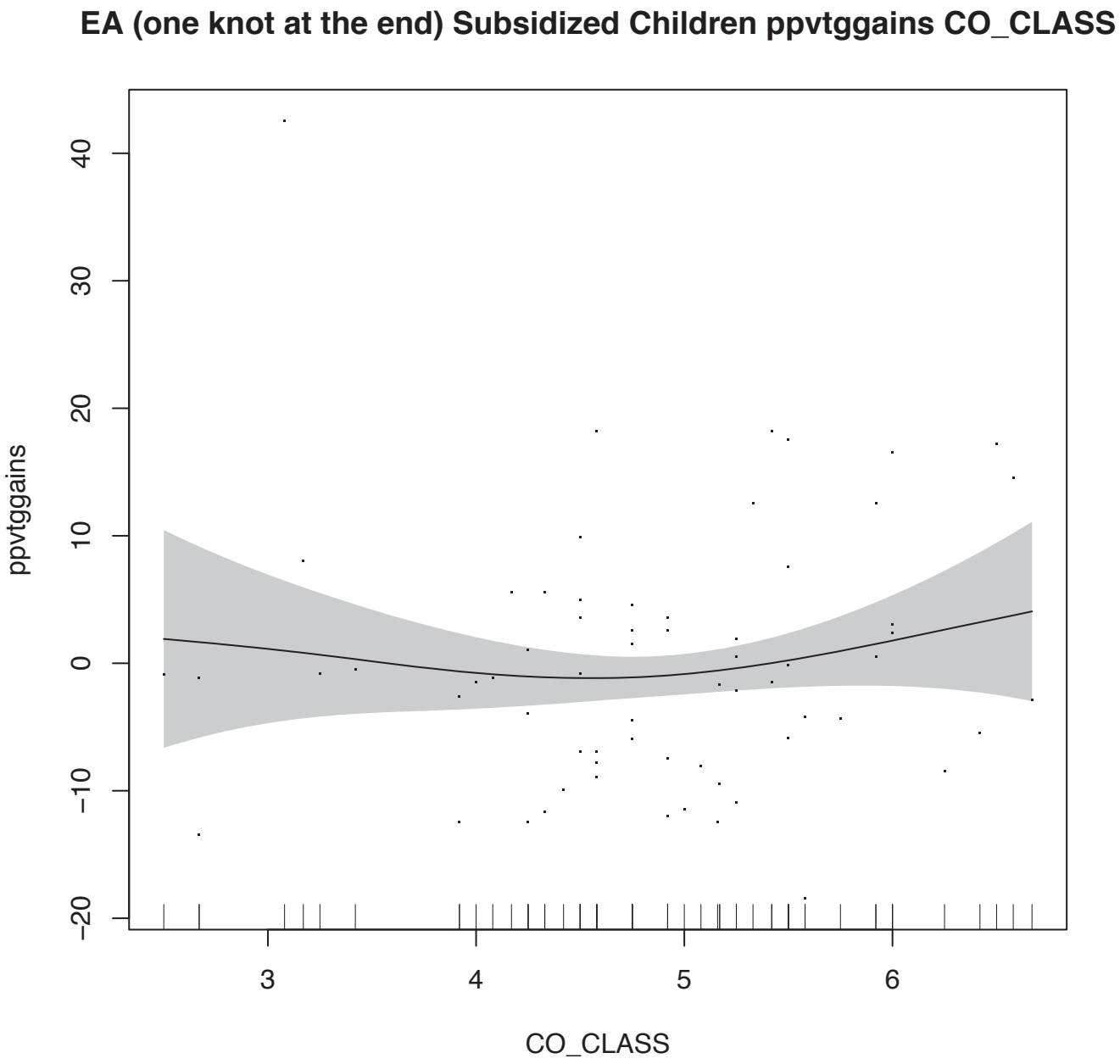


Figure 3: Sample Spline PPVT and PK CLASS IS

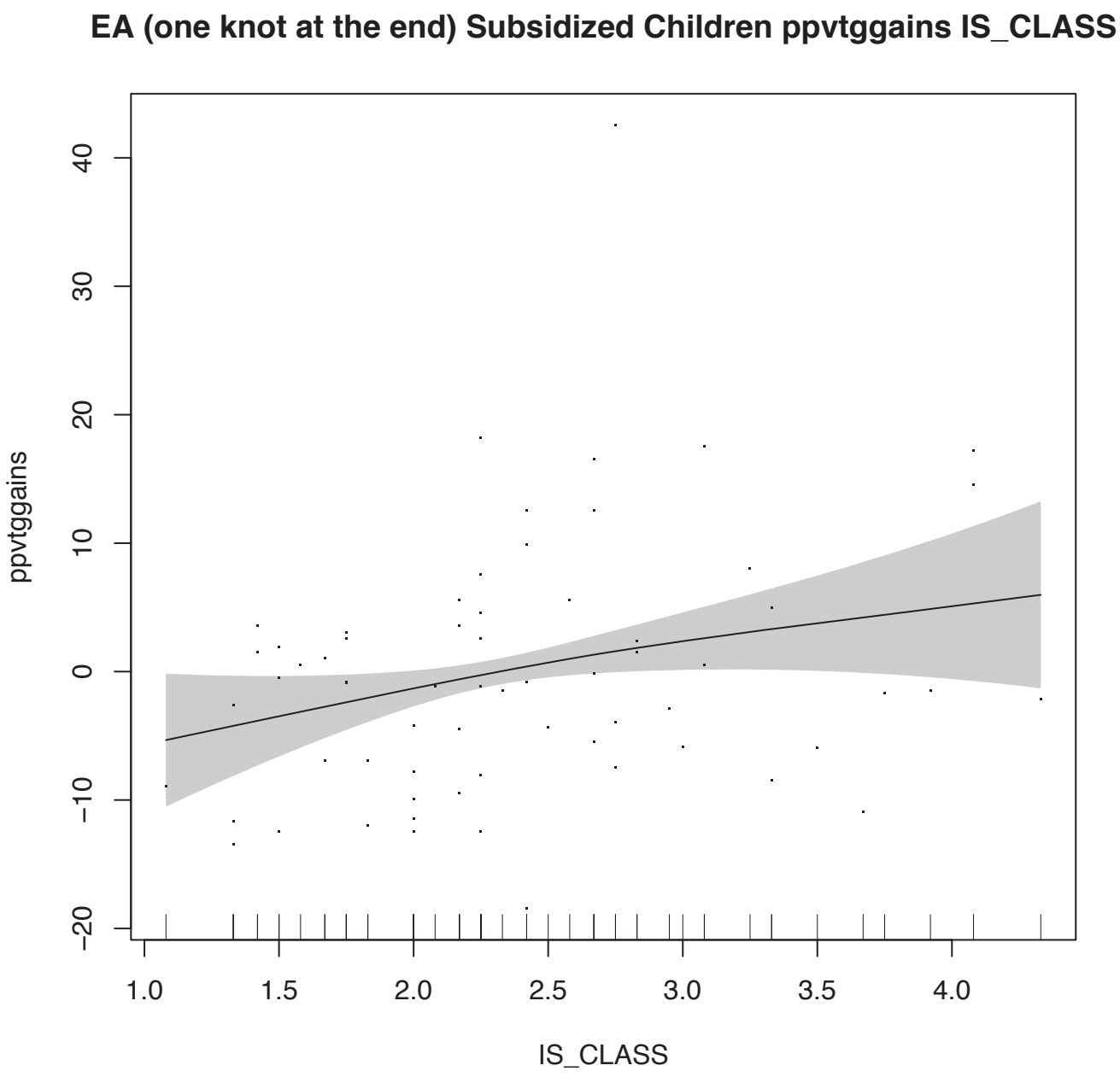
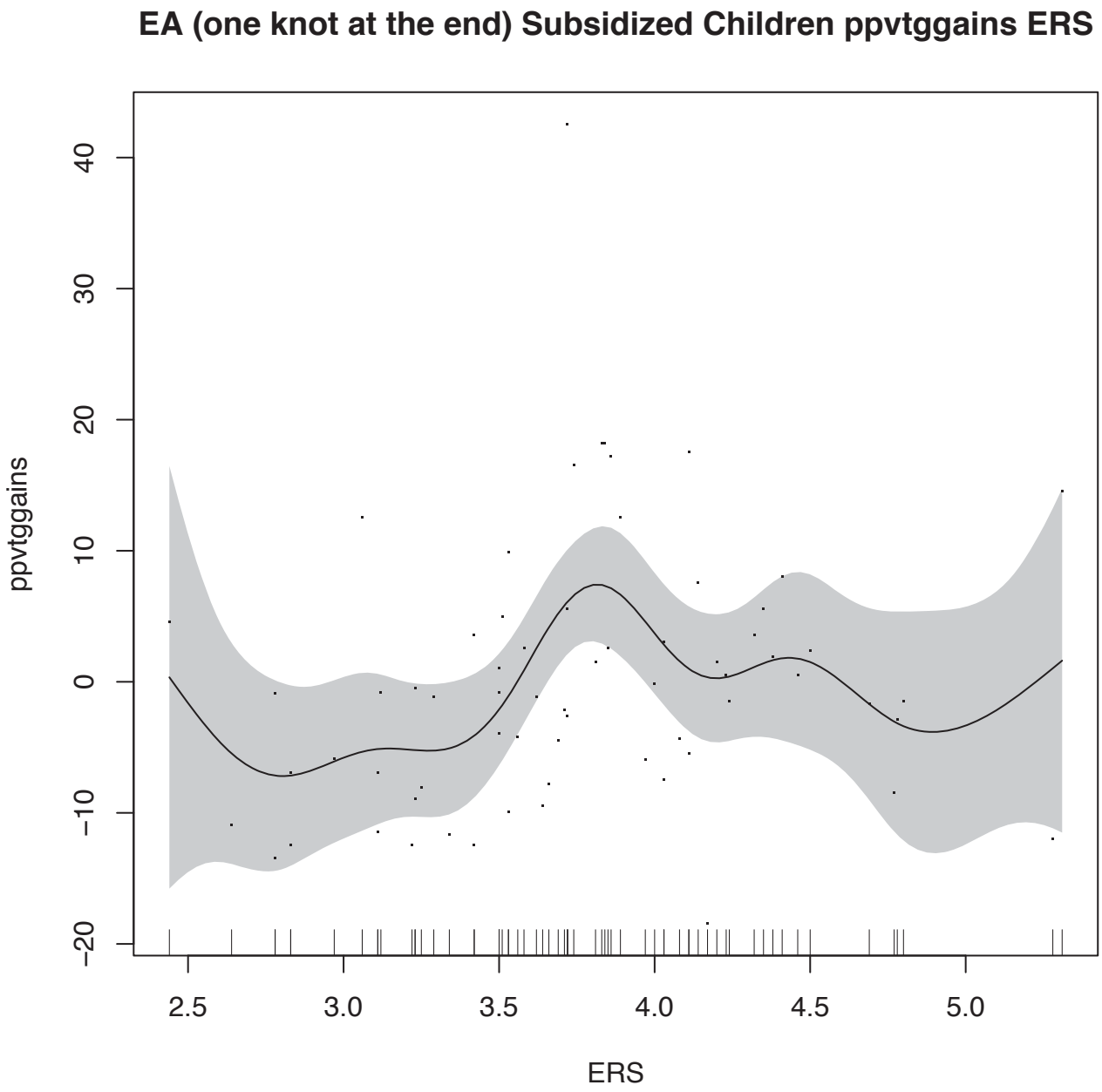


Figure 2: Sample Spline PPVT and ERS



Appendix H

$$
\begin{aligned}
ScoreGains = \alpha + & \\
& + \beta_1 * log(WordsPerHour) \\
& + \beta_2 * log(ConversationalTurns) \\
& + \beta_3 * Subsidy \\
& + \beta_4 * Subsidy * log(WordsPerHour) \\
& + \beta_5 * Subsidy * log(ConversationalTurns)
\end{aligned}
\tag{H.1}
$$

Table H.1: LENA (Joint Data Set)

	Dependent variable:			
	PPVTgains	WJ-LWgains	TOQgains	TEAMAgains
log(WPH)	−1.978	1.130	−0.633	0.124
	(2.293)	(1.357)	(0.880)	(0.149)
Subsidy	−33.153	4.530	−0.218	−3.331
	(31.393)	(19.558)	(13.343)	(2.186)
log(CT)	1.060	−0.629	0.475	0.028
	(1.669)	(0.916)	(0.584)	(0.100)
log(WPH):Subsidy	2.842	−0.759	0.100	0.319
	(3.914)	(2.425)	(1.650)	(0.271)
Subsidy:log(CT)	1.716	−0.015	−0.258	0.121
	(2.427)	(1.477)	(0.993)	(0.168)
Constant	11.779	−4.020	4.529	−1.155
	(16.288)	(9.914)	(6.445)	(1.089)
Observations	448	521	501	516
Log Likelihood	−1,743.915	−1,860.088	−1,608.575	−733.827
Akaike Inf. Crit.	3,503.830	3,736.176	3,233.150	1,483.654
Bayesian Inf. Crit.	3,536.668	3,770.222	3,266.883	1,517.623
Note:				*p<0.1; **p<0.05; ***p<0.01

$$
\begin{aligned}
ChildOutcome = \alpha + & \beta_1 * Subsidy + \\
& \beta_2 * Curriculum1 + \beta_3 * Curriculum2 + \\
& \beta_4 * Curriculum3 + \beta_5 * Curriculum4 + \\
& \beta_6 * ISCLASS + \\
& \beta_7 * ISCLASS * Curriculum1 + \\
& \beta_7 * ISCLASS * Curriculum2 + \\
& \beta_8 * ISCLASS * Curriculum3 + \\
& \beta_9 * ISCLASS * Curriculum4 + \\
& \epsilon
\end{aligned}
\tag{H.2}
$$

Table H.2: Curriculum Use with PK CLASS IS Interaction Term (Joint Data Set)

	Dependent variable:			
	PPVTgains	WJ-LWgains	TOQgains	TEAMAgains
self-made curriculum	−0.731	−7.061*	0.624	−0.027
	(6.739)	(4.068)	(3.121)	(0.479)
other curriculum	0.719	−3.975	2.238	−0.249
	(5.582)	(3.226)	(2.518)	(0.381)
Montessori	8.223	−12.536**	−1.975	−0.547
	(10.991)	(5.351)	(4.522)	(0.641)
Research-based	−0.450	−6.292**	−1.331	−0.194
	(4.860)	(2.971)	(2.228)	(0.345)
IS_CLASS	1.349	−2.221***	0.658	−0.036
	(1.375)	(0.773)	(0.613)	(0.092)
PS_SubsidyYN	0.666	−1.297*	−1.023*	0.041
	(1.254)	(0.754)	(0.569)	(0.088)
self-made curriculum:IS_CLASS	0.133	2.693	−0.013	0.056
	(2.812)	(1.701)	(1.303)	(0.200)
other curriculum:IS_CLASS	−0.167	1.314	−1.014	0.102
	(2.127)	(1.251)	(0.967)	(0.147)
Montessori:IS_CLASS	−2.975	3.865**	0.317	0.182
	(3.768)	(1.793)	(1.526)	(0.216)
Research-based:IS_CLASS	0.386	2.419**	0.974	0.124
	(1.766)	(1.078)	(0.814)	(0.125)
Constant	−1.795	7.412***	0.127	0.028
	(3.626)	(2.014)	(1.611)	(0.240)
Observations	669	746	715	739
Note:				*p<0.1; **p<0.05; ***p<0.01

$$ChildOutcome = \alpha + \beta_1 * Subsidy + \beta_2 * Engagement + \beta_3 * Subsidy * Engagement + \epsilon \quad \text{(H.3)}$$

Table H.3: Mastery Engagement

	Dependent variable:			
	PPVTgains	WJ-LWgains	LENSgains	ELgains
Mastery_per	−5.461	0.786	−0.481	−4.694
	(6.378)	(4.373)	(0.640)	(7.669)
imputed_subsidy	5.325	−4.369	−0.050	−8.922
	(7.239)	(5.188)	(0.705)	(10.200)
Mastery_per:imputed_subsidy	−8.008	5.250	0.214	12.370
	(9.574)	(6.851)	(0.928)	(14.573)
Constant	5.922	1.052	0.958**	6.931
	(4.878)	(3.350)	(0.486)	(5.580)
Observations	435	445	174	157
Note:				*p<0.1; **p<0.05; ***p<0.01

Table H.4: Mastery Engagement

	Dependent variable:			
	CCgains	PKCBCLgains	EWANgains	EWAWgains
Mastery_per	−11.359	−16.448**	−0.846	6.797***
	(11.021)	(7.330)	(1.019)	(1.770)
imputed_subsidy	−13.920	−2.253	1.049	6.722***
	(14.557)	(7.308)	(1.169)	(2.150)
Mastery_per:imputed_subsidy	17.713	3.518	−1.131	−8.603***
	(20.820)	(9.466)	(1.546)	(2.838)
Constant	13.565*	12.725**	1.356*	−3.836***
	(7.984)	(5.742)	(0.779)	(1.359)
Observations	136	233	449	442
Note:				*p<0.1; **p<0.05; ***p<0.01

Table H.5: Mastery Engagement

	Dependent variable:		
	TEAMgains	HTKSgains	ITCBCLgains
Mastery_per	1.323	0.325	−3.105
	(1.206)	(7.477)	(7.926)
imputed_subsidy	1.241	−14.019	−16.246
	(1.532)	(8.944)	(10.820)
Mastery_per:imputed_subsidy	−1.525	16.199	23.876
	(2.024)	(11.854)	(14.734)
Constant	0.945	7.789	1.437
	(0.929)	(5.727)	(5.975)
Observations	439	432	104
Note:			*p<0.1; **p<0.05; ***p<0.01

Table H.6: Mastery Engagement

	Dependent variable:			
	GMgains	VRgains	FMgains	RLgains
Mastery_per	−6.948	−6.719	−4.409	−0.246
	(8.094)	(8.377)	(10.321)	(7.085)
imputed_subsidy	10.636	−3.808	3.352	−9.473
	(11.809)	(10.606)	(13.248)	(10.264)
Mastery_per:imputed_subsidy	−18.654	5.906	−10.303	15.703
	(17.118)	(15.106)	(19.045)	(14.600)
Constant	2.055	7.452	5.442	0.322
	(5.849)	(6.104)	(7.522)	(5.172)
Observations	127	165	174	171
Note:				*p<0.1; **p<0.05; ***p<0.01

$$
\begin{aligned}
SpringOutcome = \alpha &+ \beta_1 * DaysBetweenAssessment + \\
&+ \beta_2 * Education \\
&+ \beta_3 * Subsidy \\
&+ \beta_4 * Income \\
&+ \beta_5 * Age \\
&+ \beta_6 * Gender \\
&+ \beta_7 * FallOutcome \\
&+ \beta 8 * I(RatingALevel2) \\
&+ \beta 9 * I(RatingALevel4) \\
&+ \beta_{10} * I(RatingALevel5)
\end{aligned}
\tag{H.4}
$$

Table H.7: Example Alternate Rating Levels with PK and IT Outcomes

	Dependent variable:			
	PPVT	WJ-LW	TEAM	LENS
Days_x_assess	0.111***	0.02	0.003	0.001
	(0.036)	(0.031)	(0.008)	(0.004)
Education_Parent2	5.806	-4.019	-0.737	-0.075
	(4.523)	(3.705)	(1.091)	(0.419)
Education_Parent3	1.496	-5.999*	-0.462	-0.408
	(3.987)	(3.593)	(1.074)	(0.45)
Education_Parent4	4.663*	-1.173	0.119	0.271
	(2.803)	(2.537)	(0.769)	(0.327)
Education_Parent5	3.478	-1.028	0.481	0.597*
	(2.689)	(2.412)	(0.745)	(0.312)
Education_Parent6	3.261	-0.198	0.238	0.485
	(2.845)	(2.542)	(0.788)	(0.31)
Education_Parent7	2.968	-1.661	0.386	0.547*
	(2.796)	(2.502)	(0.773)	(0.321)
Education_Parent8	3.079	0.005	0.454	0.598*
	(2.811)	(2.511)	(0.769)	(0.319)
Gender1	2.088**	-0.152	-0.345	0.217
	(1.008)	(0.877)	(0.261)	(0.131)
Income_Parent2	2.055	1.179	-0.847	-0.289
	(3.094)	(2.699)	(0.788)	(0.399)
Income_Parent3	4.196	1.908	0.656	0.023
	(2.672)	(2.335)	(0.691)	(0.32)
Income_Parent4	3.067	1.697	-0.686	-0.103
	(2.929)	(2.56)	(0.764)	(0.35)
Income_Parent5	3.894	2.35	-0.112	-0.007
	(2.887)	(2.53)	(0.757)	(0.358)
Income_Parent6	1.837	-1.392	0.017	-0.069
	(3.287)	(2.944)	(0.845)	(0.371)
Income_Parent7	7.443**	2.198	-0.022	-0.537
	(3.156)	(2.719)	(0.808)	(0.411)
Income_Parent8	2.12	2.133	-0.92	0.167
	(3.542)	(3.001)	(0.905)	(0.447)
Income_Parent9	5.424**	1.852	-0.086	-0.036
	(2.679)	(2.353)	(0.697)	(0.328)
(Intercept)	29.384***	22.569***	4.418***	0.361
	(6.471)	(5.76)	(1.422)	(0.725)
preage	-0.278	0.007	-0.218**	-0.059
	(0.411)	(0.359)	(0.103)	(0.053)
prescore	0.478***	0.758***	0.689***	0.603***
	(0.033)	(0.032)	(0.032)	(0.069)
PS_SubsidyYN1	-2.892*	-1.082	-0.44	0.384**
	(1.547)	(1.352)	(0.393)	(0.179)
Rating_A2	0.664	-1.364	-0.095	0.307
	(2.443)	(2.103)	(0.537)	(0.25)
Rating_A4	4.72***	0.684	0.524*	-0.207
	(1.381)	(1.166)	(0.289)	(0.205)
Rating_A5	6.735	1.955	0.06	-0.202
	(4.674)	(3.698)	(0.975)	(0.679)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table H.8: Example Alternate Rating Levels with PK and IT Outcomes

	Dependent variable:			
	PKCBCL	EWA Name	EWA Word	HTKS
Days_x_assess	0.023	-0.001	-0.003	0.117**
	(0.05)	(0.006)	(0.012)	(0.055)
Education_Parent2	5.123	-0.631	1.034	-3.82
	(4.795)	(0.686)	(1.587)	(6.311)
Education_Parent3	-1.759	-0.831	-1.37	4.684
	(4.831)	(0.663)	(1.558)	(6.355)
Education_Parent4	0.685	-0.4	-0.018	-1.776
	(3)	(0.461)	(1.072)	(4.384)
Education_Parent5	0.042	-0.575	-0.023	4.019
	(2.961)	(0.447)	(1.038)	(4.206)
Education_Parent6	0.708	-0.978**	-0.289	-3.16
	(2.952)	(0.468)	(1.098)	(4.366)
Education_Parent7	0.608	-0.893*	0.773	-1.654
	(2.967)	(0.461)	(1.081)	(4.307)
Education_Parent8	1.435	-0.924**	0.439	-1.103
	(2.996)	(0.46)	(1.082)	(4.289)
Gender1	-1.232	0.345**	0.484	0.937
	(0.938)	(0.161)	(0.385)	(1.464)
Income_Parent2	1.371	-0.125	-0.847	0.773
	(3.267)	(0.483)	(1.15)	(4.486)
Income_Parent3	1.798	0.371	0.143	1.095
	(2.762)	(0.42)	(0.995)	(3.92)
Income_Parent4	2.366	0.148	0.144	-1.967
	(2.904)	(0.464)	(1.104)	(4.28)
Income_Parent5	0.555	1.017**	-0.079	5.03
	(3.01)	(0.461)	(1.082)	(4.228)
Income_Parent6	5.151	-0.121	-0.18	2.782
	(3.119)	(0.525)	(1.241)	(4.927)
Income_Parent7	1.037	0.57	0.446	-2.392
	(3.077)	(0.495)	(1.179)	(4.557)
Income_Parent8	2.978	1.253**	0.625	0.792
	(3.302)	(0.556)	(1.323)	(5.061)
Income_Parent9	3.115	0.665	0.488	2.191
	(2.75)	(0.428)	(1.01)	(3.938)
(Intercept)	5.933	2.929***	3.987*	-1.995
	(8.506)	(1.026)	(2.097)	(9.13)
preage	0.719*	0.084	-0.18	-1.332**
	(0.42)	(0.067)	(0.155)	(0.601)
prescore	0.71***	0.559***	0.664***	0.612***
	(0.056)	(0.031)	(0.047)	(0.052)
PS_SubsidyYN1	2.876*	-0.145	0.386	-2.719
	(1.694)	(0.247)	(0.574)	(2.262)
Rating_A2	0.419	0.426	-0.105	1.87
	(3.694)	(0.428)	(0.826)	(3.79)
Rating_A4	-4.017*	-0.231	-0.2	1.888
	(1.982)	(0.242)	(0.449)	(2.129)
Rating_A5		0.179	2.19	6.709
		(0.747)	(1.488)	(7.216)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table H.9: Example Alternate Rating Levels with PK and IT Outcomes

	Dependent variable:			
	ITCBCL	GM	VR	FM
Days_x_assess	0.032	-0.11	0.178*	-0.031
	(0.115)	(0.112)	(0.1)	(0.125)
Education_Parent2	-5.718	2.368	-4.534	4.204
	(9.07)	(6.271)	(6.353)	(7.87)
Education_Parent3	-4.125	-3.435	-5.146	5.065
	(10.189)	(7.326)	(6.561)	(8.007)
Education_Parent4	-4.255	-7.303	-1.648	3.822
	(9.148)	(5.58)	(5.425)	(6.682)
Education_Parent5	0.259	-4.042	-3.181	3.11
	(9.21)	(5.326)	(5.236)	(6.369)
Education_Parent6	1.634	-3.705	-2.833	7.553
	(8.866)	(5.498)	(5.295)	(6.37)
Education_Parent7	-2.768	-5.052	-5.52	5.835
	(9.047)	(5.397)	(5.251)	(6.414)
Education_Parent8	-3.541	-6.881	-4.331	3.223
	(9.24)	(5.701)	(5.489)	(6.76)
Gender1	0.291	-0.991	2.834*	2.309
	(1.607)	(1.805)	(1.563)	(1.86)
Income_Parent2	10.172*	-9.844*	-0.29	2.097
	(5.79)	(5.321)	(4.986)	(6.154)
Income_Parent3	4.404	-6.89	-2.375	-0.802
	(4.769)	(4.551)	(4.452)	(5.443)
Income_Parent4	1.293	-2.148	-3.812	-0.663
	(5.417)	(4.716)	(4.44)	(5.525)
Income_Parent5	0.527	-8.358	-0.945	-4.277
	(5.369)	(6.37)	(5.006)	(6.311)
Income_Parent6	7.719	-4.496	4.176	-1.442
	(6.052)	(5.405)	(5.53)	(6.696)
Income_Parent7	2.334	2.908	-2.034	1.591
	(6.282)	(6.049)	(5.628)	(6.734)
Income_Parent8	3.877	-6.915	0.876	-2.087
	(6.022)	(5.652)	(5.215)	(6.268)
Income_Parent9	4.577	-3.303	0.385	0.736
	(5.48)	(5.147)	(4.717)	(5.849)
(Intercept)	10.919	57.055***	2.336	30.617
	(20.652)	(18.302)	(16.29)	(19.844)
preage	-0.639	-1.069	-0.704	0.041
	(0.632)	(0.775)	(0.645)	(0.79)
prescore	0.653***	0.414***	0.475***	0.312***
	(0.102)	(0.084)	(0.069)	(0.078)
PS_SubsidyYN1	4.999*	-3.334	-1.539	-1.662
	(2.951)	(3.062)	(2.755)	(3.25)
Rating_A2	-1.32	-4.162	-4.951	-2.145
	(4.879)	(2.786)	(3.24)	(4.034)
Rating_A4	0.183	-1.564	2.018	-0.966
	(2.519)	(2.063)	(2.272)	(2.92)
Rating_A5		-5.26	4.216	13.232
		(8.356)	(7.454)	(9.605)

Note: *p<0.1; **p<0.05; ***p<0.01

Table H.10: Example Alternate Rating Levels with PK and IT Outcomes

	Dependent variable:			
	RL	EL	CC	CBCL IP
Days_x_assess	0	-0.033	0.025	0.013
	(0.103)	(0.113)	(0.157)	(0.042)
Education_Parent2	-3.6	-0.061	-6.439	-0.546
	(6.785)	(6.655)	(8.552)	(3.278)
Education_Parent3	8.122	7.61	3.345	1.101
	(7.403)	(7.3)	(9.379)	(3.575)
Education_Parent4	3.644	4.458	3.649	2.869
	(5.73)	(5.665)	(7.515)	(2.263)
Education_Parent5	1.57	5.401	3.92	2.439
	(5.68)	(5.534)	(7.267)	(2.289)
Education_Parent6	-0.164	1.119	-0.505	2.616
	(5.723)	(5.475)	(7.189)	(2.345)
Education_Parent7	-0.175	2.272	-1.994	3.047
	(5.645)	(5.541)	(7.158)	(2.253)
Education_Parent8	-2.098	-0.785	-5.729	3.469
	(5.859)	(5.844)	(7.658)	(2.322)
Gender1	1.7	0.899	4.789**	-0.147
	(1.702)	(1.725)	(2.297)	(0.789)
Income_Parent2	3.556	10.951**	16.666**	3.488
	(5.341)	(5.266)	(7.367)	(2.681)
Income_Parent3	-1.973	-2.05	1.842	-0.682
	(5.023)	(4.639)	(6.376)	(2.314)
Income_Parent4	-0.184	-3.377	-1.034	0.81
	(4.994)	(4.633)	(6.823)	(2.489)
Income_Parent5	7.064	1.957	4.455	0.35
	(5.72)	(5.33)	(7.491)	(2.565)
Income_Parent6	5.325	-2.623	2.278	1.339
	(5.945)	(5.788)	(7.916)	(2.802)
Income_Parent7	3.515	3.089	4.909	1.403
	(6.103)	(5.616)	(8.19)	(2.769)
Income_Parent8	4.644	3.288	5.865	-0.052
	(5.654)	(5.451)	(7.908)	(2.922)
Income_Parent9	4.396	2.851	7.443	2.05
	(5.31)	(4.86)	(7.006)	(2.491)
(Intercept)	21.198	28.747	28.286	16.328**
	(16.578)	(17.613)	(25.028)	(7.118)
preage	-0.168	-0.354	0.223	0.537*
	(0.686)	(0.697)	(0.943)	(0.324)
prescore	0.447***	0.453***	0.601***	0.476***
	(0.073)	(0.083)	(0.074)	(0.052)
PS_SubsidyYN1	-0.238	-4.976*	-3.101	2.539*
	(2.915)	(2.779)	(3.905)	(1.444)
Rating_A2	-1.654	-3.473	-6.641	1.762
	(2.891)	(3.182)	(5.079)	(2.549)
Rating_A4	1.058	5.354**	2.892	-1.676
	(2.034)	(2.356)	(3.872)	(1.415)
Rating_A5	10.813	14.868**	18.561	
	(8.017)	(7.217)	(12.26)	

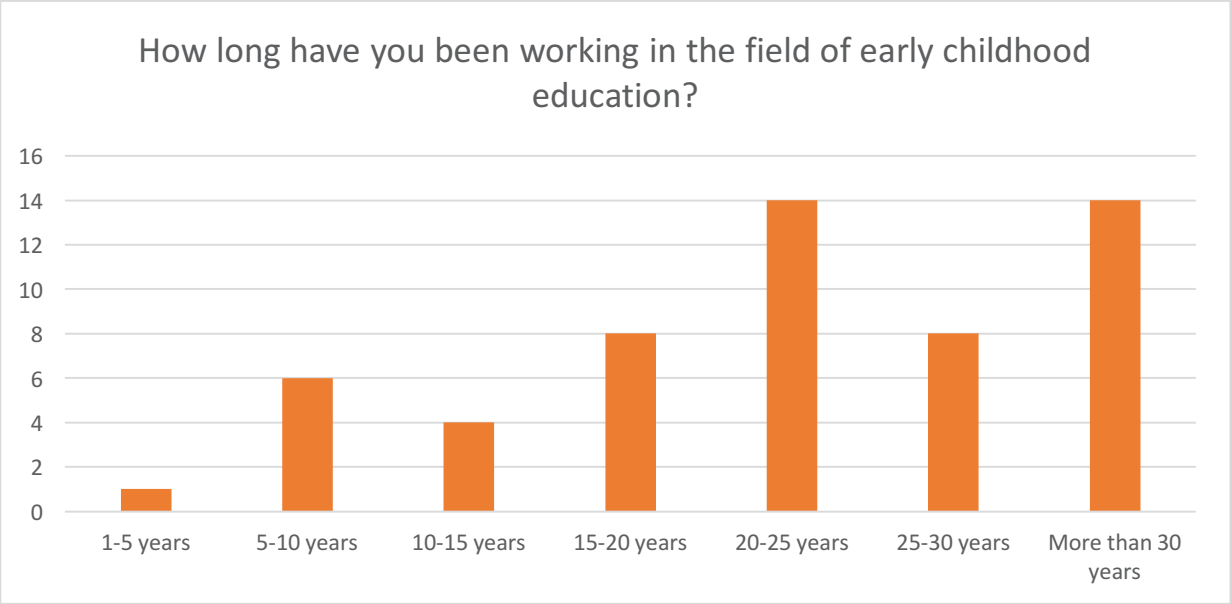
Note: *p<0.1; **p<0.05; ***p<0.01

Table H.11: Example Alternate Rating Levels with PK and IT Outcomes

	Dependent variable:
	CBCL EP
Days_x_assess	0.051
	(0.037)
Education_Parent2	5.141*
	(2.839)
Education_Parent3	1.574
	(3.104)
Education_Parent4	2.205
	(1.959)
Education_Parent5	3.66*
	(1.982)
Education_Parent6	4.02**
	(2.029)
Education_Parent7	3.246*
	(1.947)
Education_Parent8	2.577
	(2.013)
Gender1	-0.308
	(0.685)
Income_Parent2	0.796
	(2.323)
Income_Parent3	2.707
	(2)
Income_Parent4	1.412
	(2.156)
Income_Parent5	-1.984
	(2.225)
Income_Parent6	4.749*
	(2.43)
Income_Parent7	0.836
	(2.398)
Income_Parent8	2.538
	(2.53)
Income_Parent9	2.602
	(2.157)
(Intercept)	-1.696
	(6.385)
preage	0.516*
	(0.28)
prescore	0.735***
	(0.042)
PS_SubsidyYN1	4.729***
	(1.252)
Rating_A2	-3.069
	(2.333)
Rating_A4	-1.57
	(1.296)
Note:	*p<0.1; **p<0.05; ***p<0.01

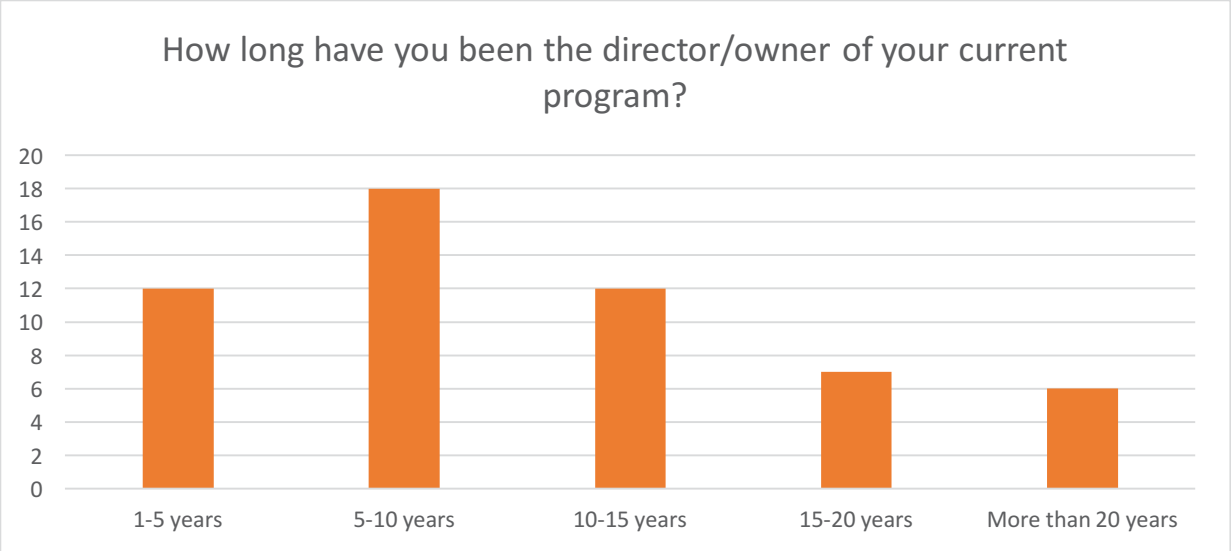
Appendix I

1. How long have you been working in the field of early childhood education?



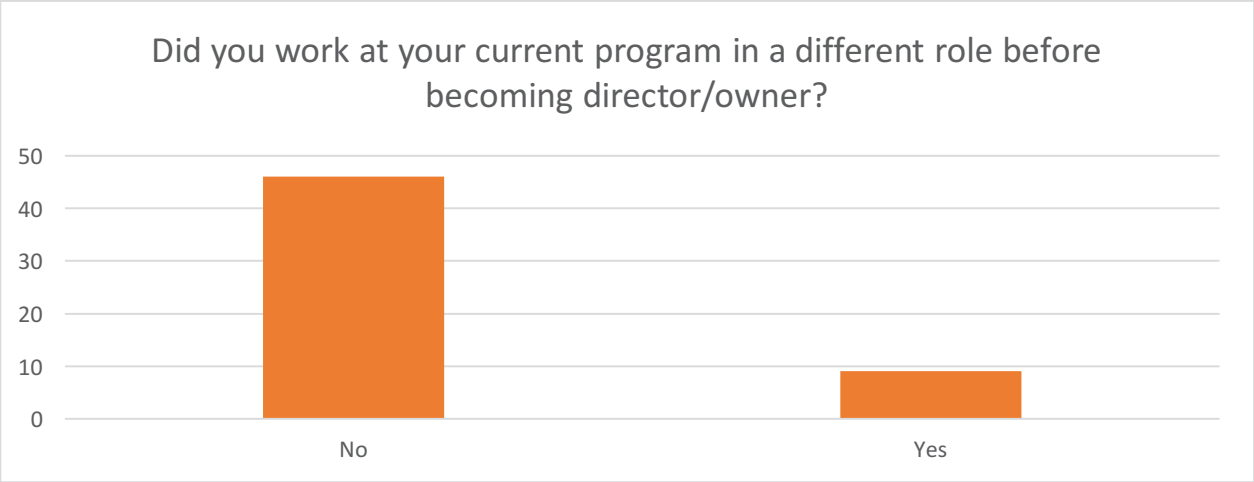
How long have you been working in the field of early childhood education?	Percentage (N)
1-5 years	1.8% (1)
5-10 years	10.9% (6)
10-15 years	7.3% (4)
15-20 years	14.5% (8)
20-25 years	25.5% (14)
25-30 years	14.5% (8)
More than 30 years	25.5% (14)

2. How long have you been the director/owner of your current program?

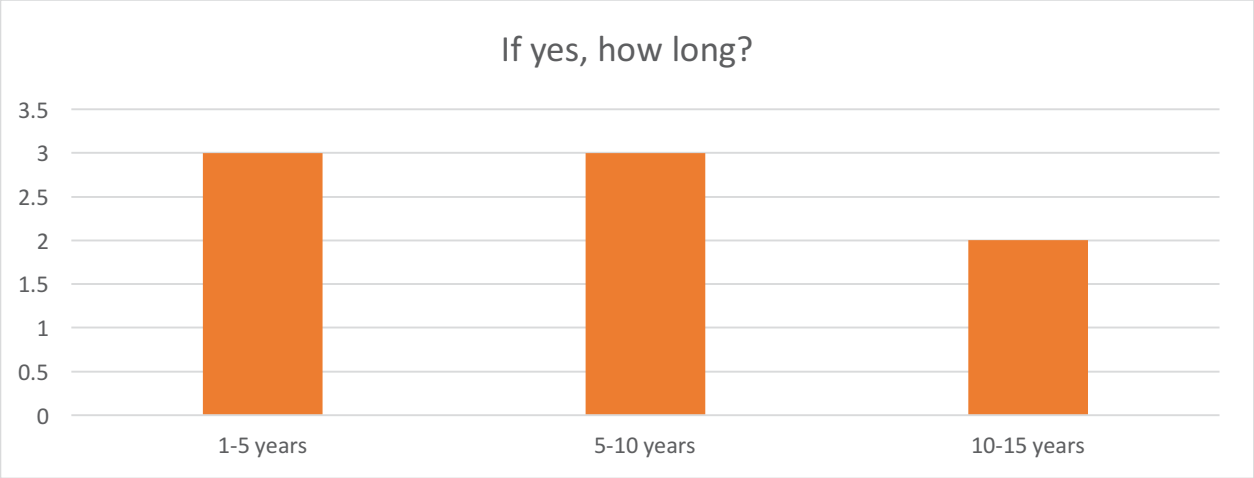


How long have you been the director/owner of your current program?	Percentage (N)
1-5 years	21.8% (12)
5-10 years	32.7% (18)
10-15 years	21.8% (12)
15-20 years	12.7% (7)
More than 20 years	10.9% (6)

3. Did you work at your current program in a different role before becoming director/owner?

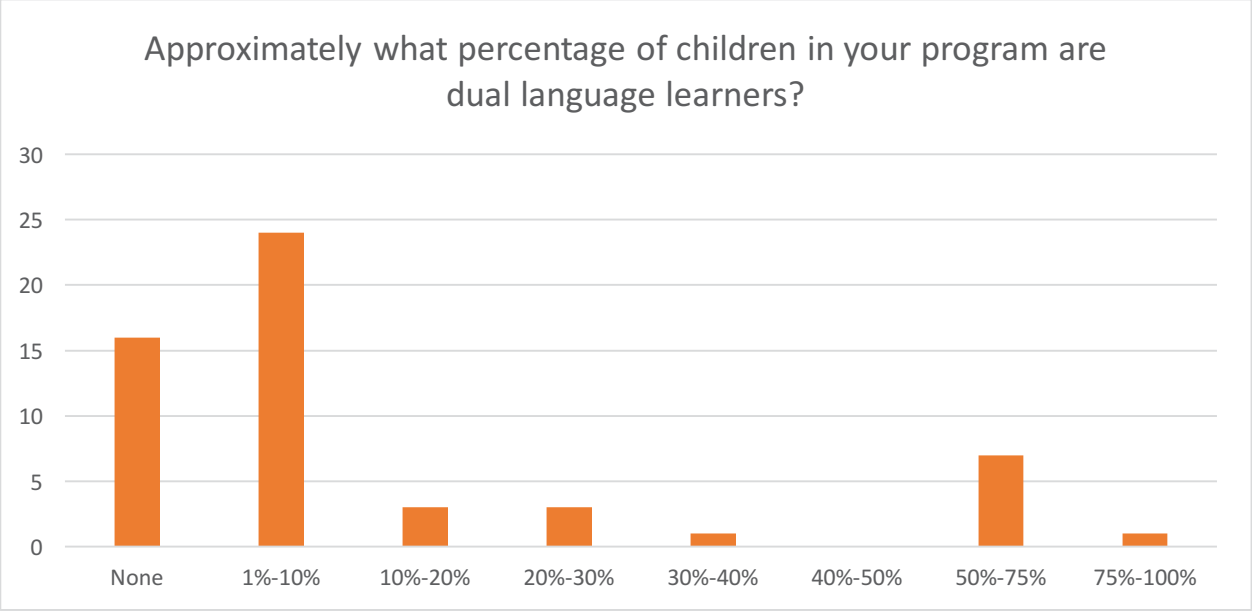


Did you work at your current program in a different role before becoming director/owner?	Percentage (N)
No	83.6% (46)
Yes	16.4% (9)



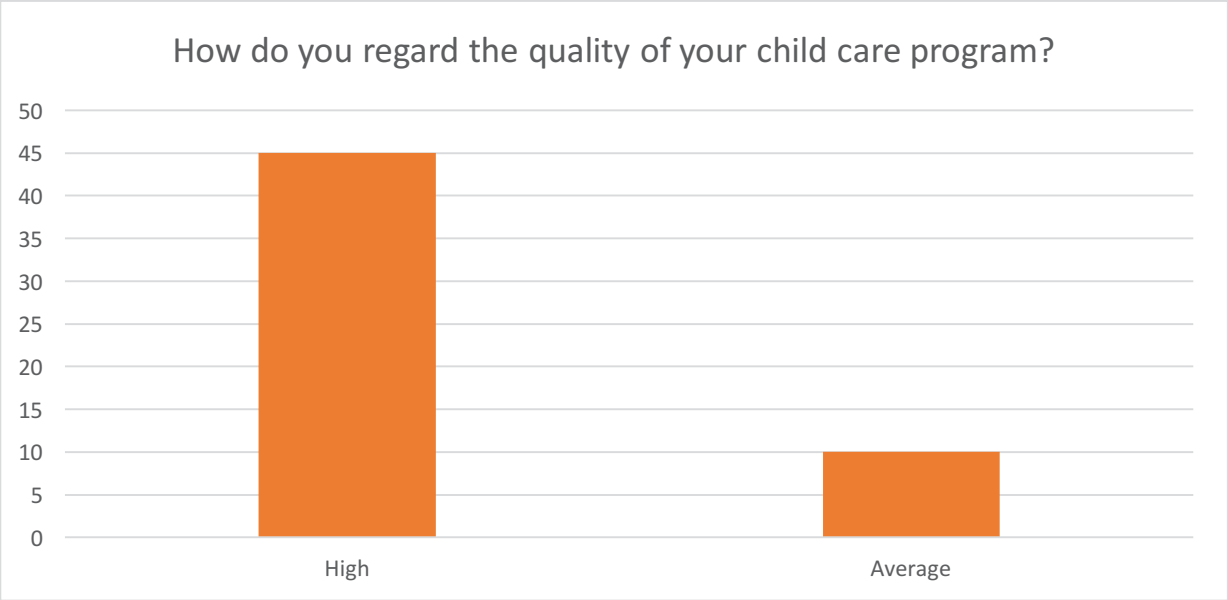
If yes, how long?	Percentage (N)
1-5 years	37.5% (3)
5-10 years	37.5% (3)
10-15 years	25.0% (2)

4. Approximately what percentage of children in your program are dual language learners (children who are learning a language other than their primary language; “bilingual”)?



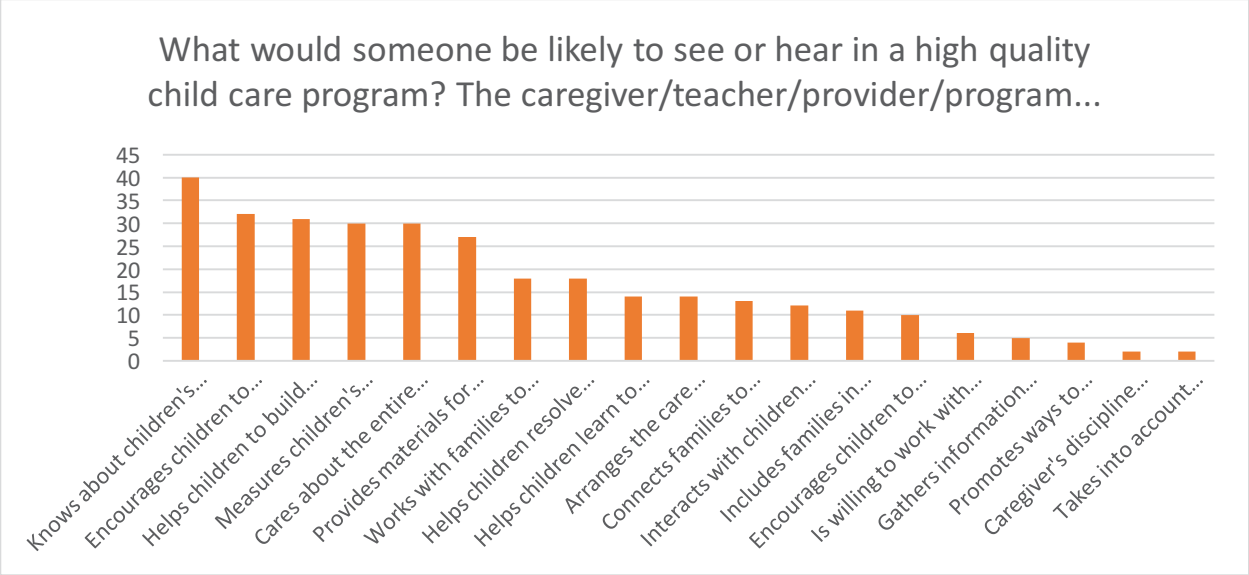
Approximately what percentage of children in your program are dual language learners?	Percentage (N)
None	29.1% (16)
1%-10%	43.6% (24)
10%-20%	5.5% (3)
20%-30%	5.5% (3)
30%-40%	1.8% (1)
40%-50%	0.0% (0)
50%-75%	12.7% (7)
75%-100%	1.8% (1)

5. How do you regard the quality of your childcare program?



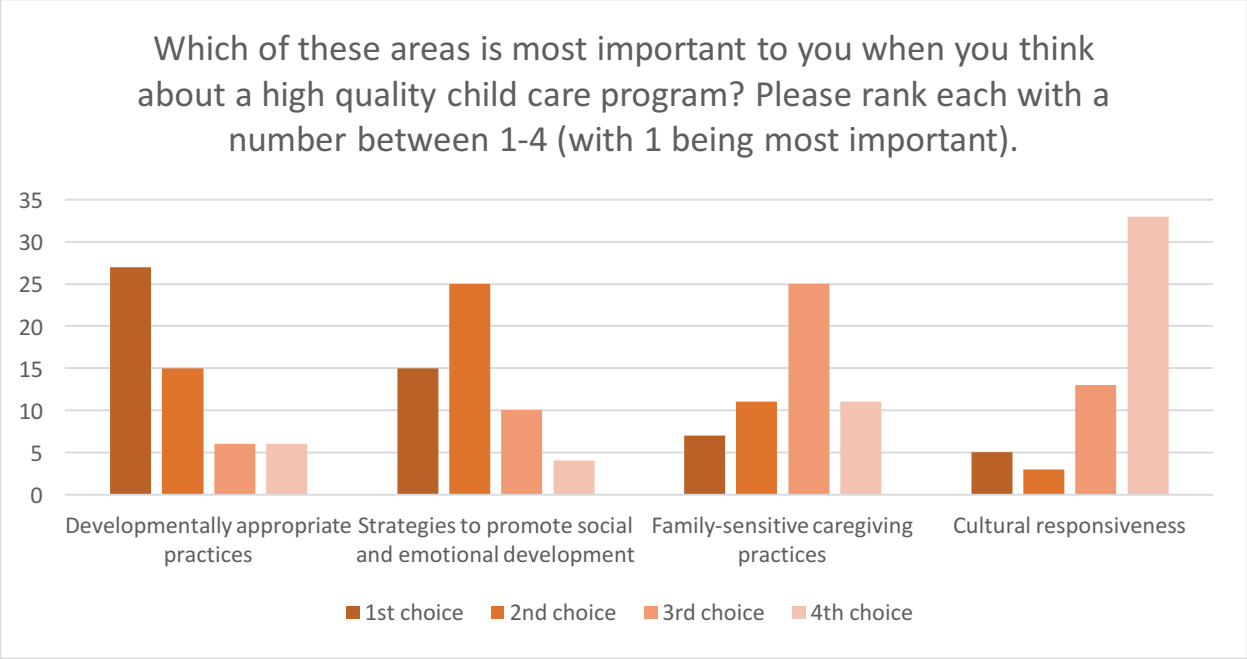
How do you regard the quality of your child care program?	Percentage (N)
High	81.8% (45)
Average	18.2% (10)
Low	0.0% (0)

6. What would someone be likely to see or hear in a high quality child care program? Please select the most important, in your opinion: (choose no more than 6 from the options below) The caregiver/teacher/provider/program...



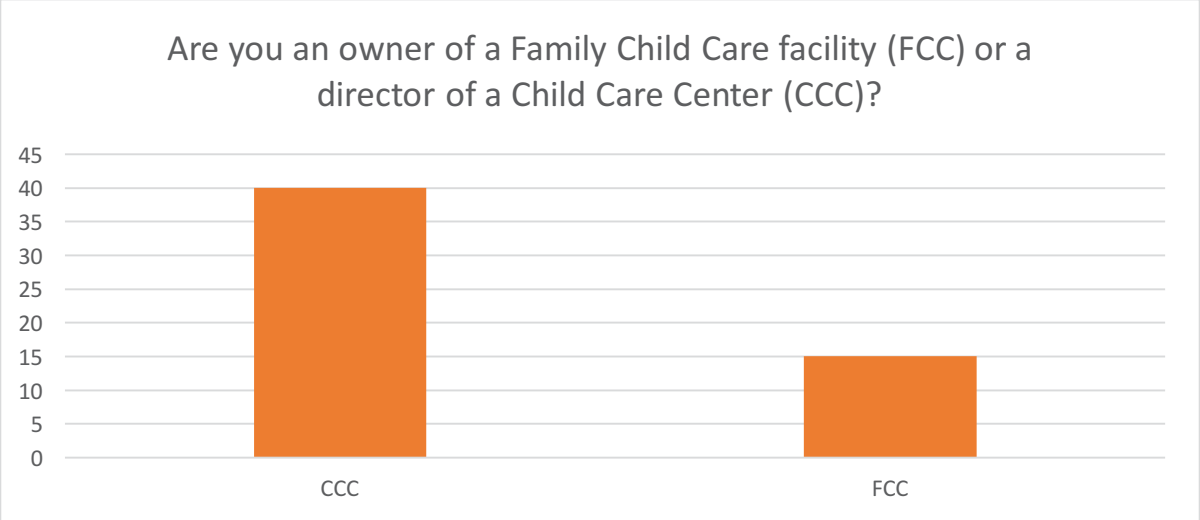
What would someone be likely to see or hear in a high quality child care program? The caregiver/teacher/provider/program...	Percentage (N)
Knows about children's changing needs as they grow and develop	12.5% (40)
Encourages children to express thoughts and feelings	10.0% (32)
Helps children to build relationships with peers and other adults	9.7% (31)
Measures children's development over time to determine how they're doing	9.4% (30)
Cares about the entire family, not just the child	9.4% (30)
Provides materials for play and learning	8.5% (27)
Works with families to set individual plans and goals for children	5.6% (18)
Helps children resolve conflicts with other children	5.6% (18)
Helps children learn to control their behavior	4.4% (14)
Arranges the care setting so that it reflects different cultural backgrounds of the children and their families	4.4% (14)
Connects families to community resources such as developmental screenings for children, economic assistance, or parenting information	4.1% (13)
Interacts with children in ways that are keeping with their family's beliefs, customs, and ways of doing things	3.8% (12)
Includes families in planning and decision making for the program and/or children's activities	3.4% (11)
Encourages children to recognize words/letters/numbers/shapes	3.1% (10)
Is willing to work with parents about their work schedules	1.9% (6)
Gathers information about families' beliefs, customs, and ways that each family does things	1.6% (5)
Promotes ways to communicate with families who speak a language not spoken by the provider	1.3% (4)
Caregiver's discipline and guidance style match the parents'	0.6% (2)
Takes into account parents' ideas about caregiving	0.6% (2)

7. Which of these areas is most important to you when you think about a high quality childcare program? Please rank each with a number between 1-4 (with 1 being the most important).



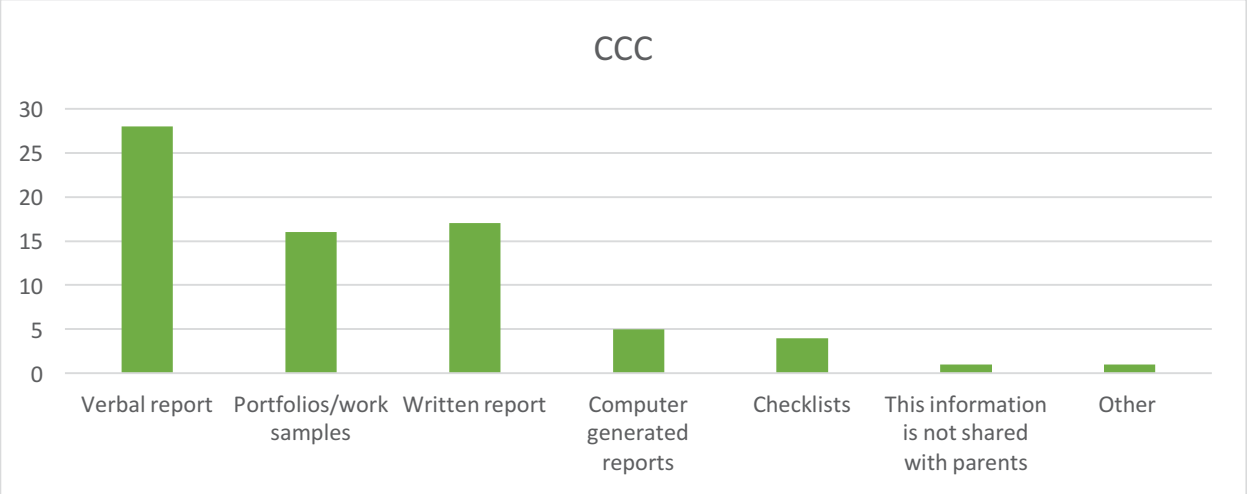
Which of these areas is most important to you when you think about a high quality childcare program?	1st choice	2nd choice	3rd choice	4th choice
Developmentally appropriate practices	50.0% (27)	27.8% (15)	11.1% (6)	11.1% (6)
Strategies to promote social and emotional development	27.8% (15)	46.3% (25)	18.5% (10)	7.4% (4)
Family-sensitive caregiving practices	13.0% (7)	20.4% (11)	46.3% (25)	20.4% (11)
Cultural responsiveness	9.3% (5)	5.6% (3)	24.1% (13)	61.1% (33)

8. Are you an owner of a Family Childcare facility (FCC) or a director of a Childcare Center (CCC)?



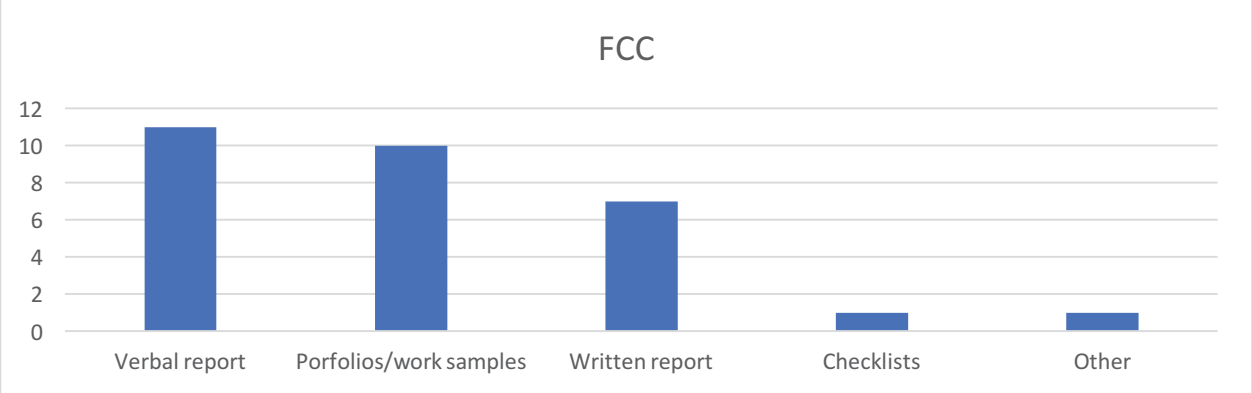
Are you an owner of a Family Child Care facility (FCC) or a director of a Child Care Center (CCC)?	Percentage (N)
CCC	72.7% (40)
FCC	27.3% (15)

9. CCC: What methods does your program use to share information with parents about their child's development? (Choose the 2 used the most)



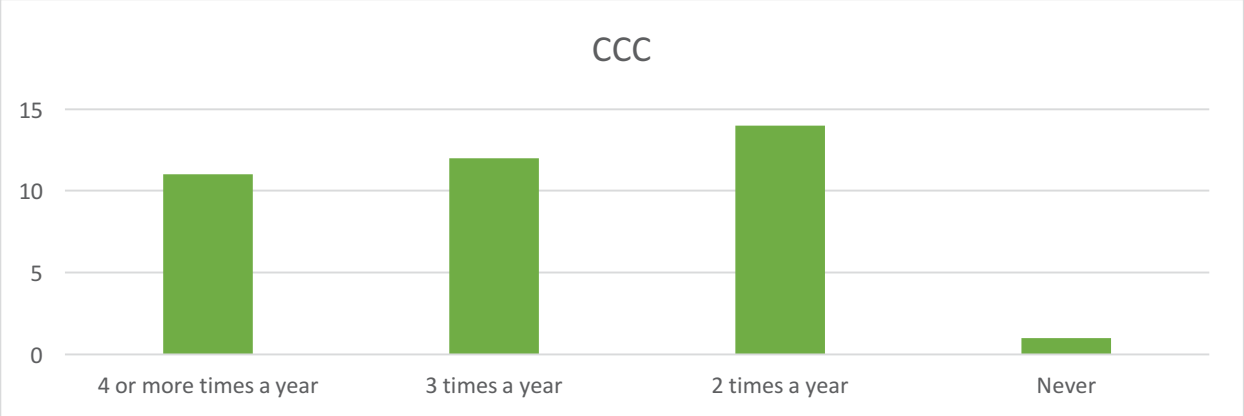
CCC	Percentage (N)
Verbal report	73.7% (28)
Portfolios/work samples	42.1% (16)
Written report	44.7% (17)
Computer generated reports	13.2% (5)
Checklists	10.5% (4)
This information is not shared with parents	2.6% (1)
Other	2.6% (1)

FCC: What methods do you use to share information with parents about their child's development? (Choose the 2 you use the most)



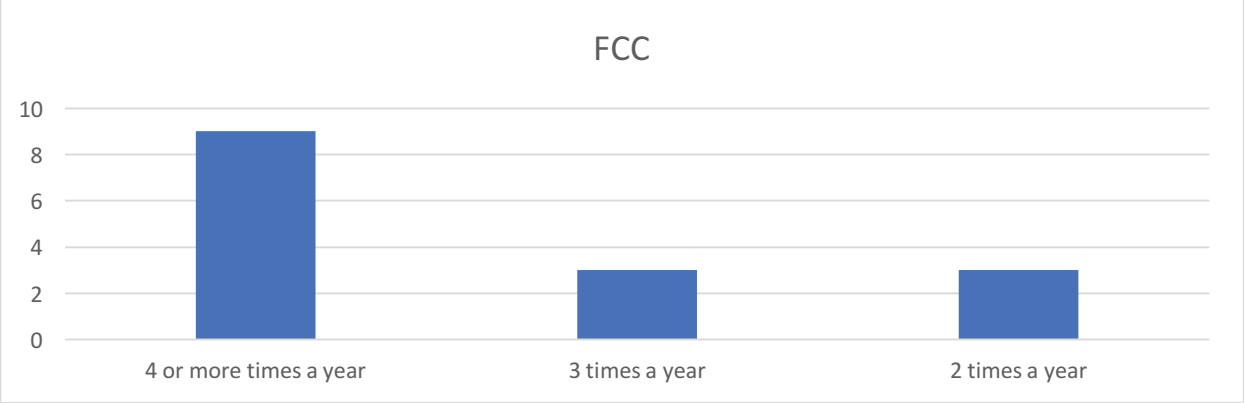
FCC	Percentage (N)
Verbal report	73.3% (11)
Portfolios/work samples	66.7% (10)
Written report	46.7% (7)
Checklists	6.7% (1)
Computer generated reports	0.0% (0)
This information is not shared with parents	0.0% (0)
Other	6.7% (1)

10. CCC: Approximately how often does your program share information about children's development with parents?



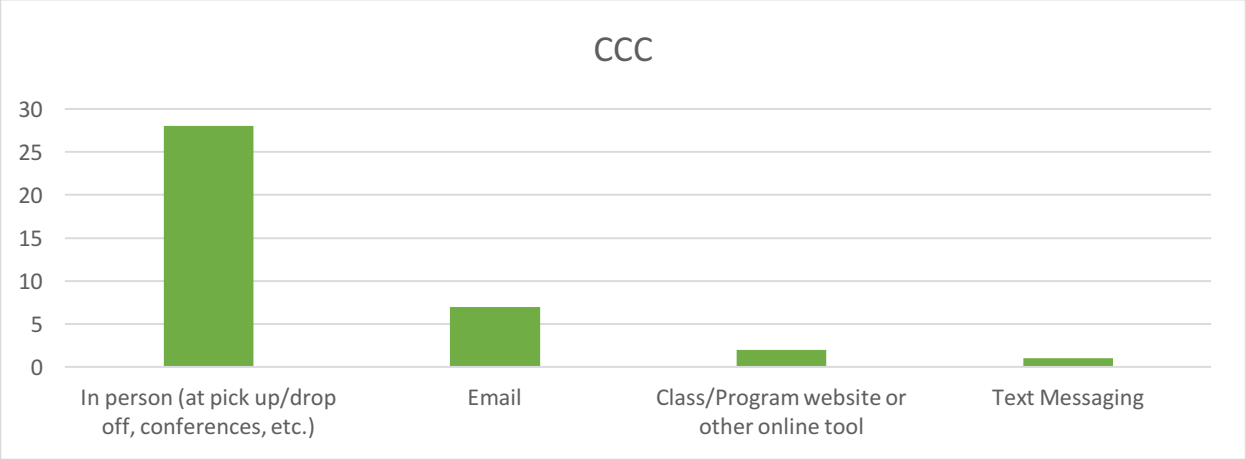
CCC	Percentage (N)
4 or more times a year	28.9% (11)
3 times a year	31.6% (12)
2 times a year	36.8% (14)
Once a year	0.0% (0)
Never	2.6% (1)

FCC: Approximately how often do you share information about children's development with parents?



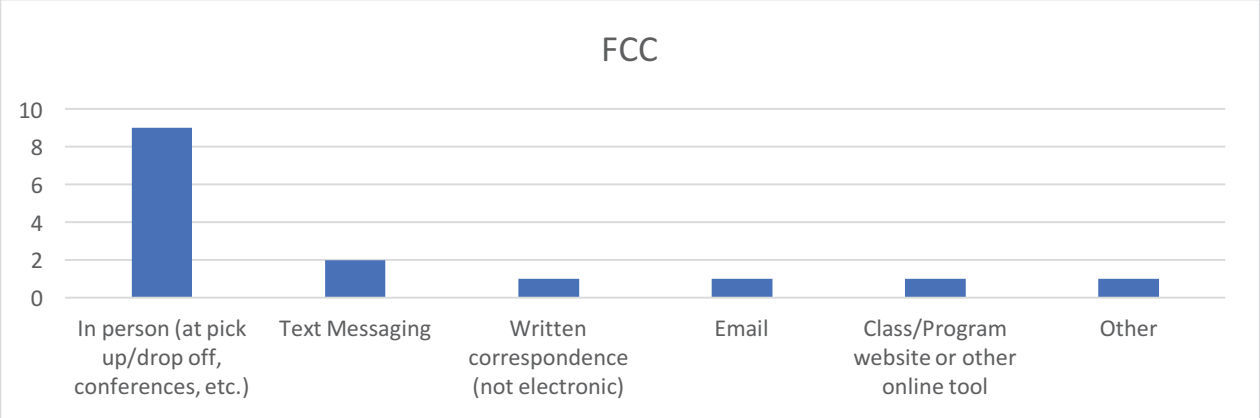
FCC	Percentage (N)
4 or more times a year	60.0% (9)
3 times a year	20.0% (3)
2 times a year	20.0% (3)
Once a year	0.0% (0)
Never	0.0% (0)

11. CCC: What do you find to be the easiest way to communicate with parents? (choose one)



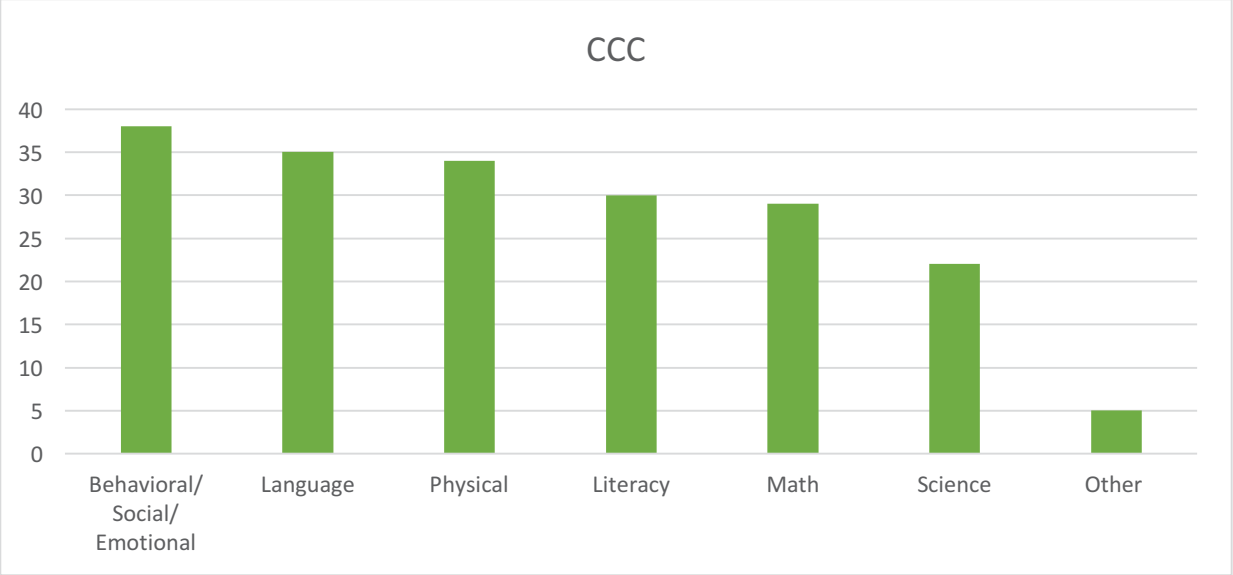
CCC	Percentage (N)
In person (at pick up/drop off, conferences, etc.)	73.7% (28)
Email	18.4% (7)
Class/Program website or other online tool	5.3% (2)
Text Messaging	2.6% (1)
On the phone	0.0% (0)
Written correspondence (not electronic)	0.0% (0)
Other	0.0% (0)

FCC: What do you find to be the easiest way to communicate with parents? (choose one)



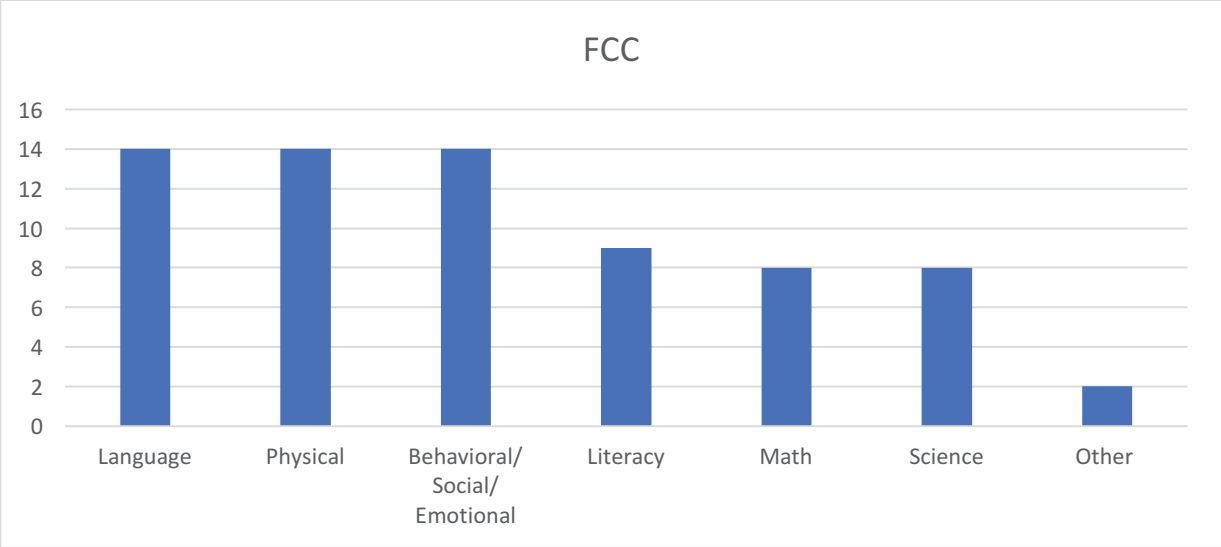
FCC	FCC
In person (at pick up/drop off, conferences, etc.)	60.0% (9)
Text Messaging	13.3% (2)
Written correspondence (not electronic)	6.7% (1)
Email	6.7% (1)
Class/Program website or other online tool	6.7% (1)
On the phone	0.0% (0)
Other	6.7% (1)

12. CCC: What type of information does your program share with parents in terms of their child's development? Check all that apply.



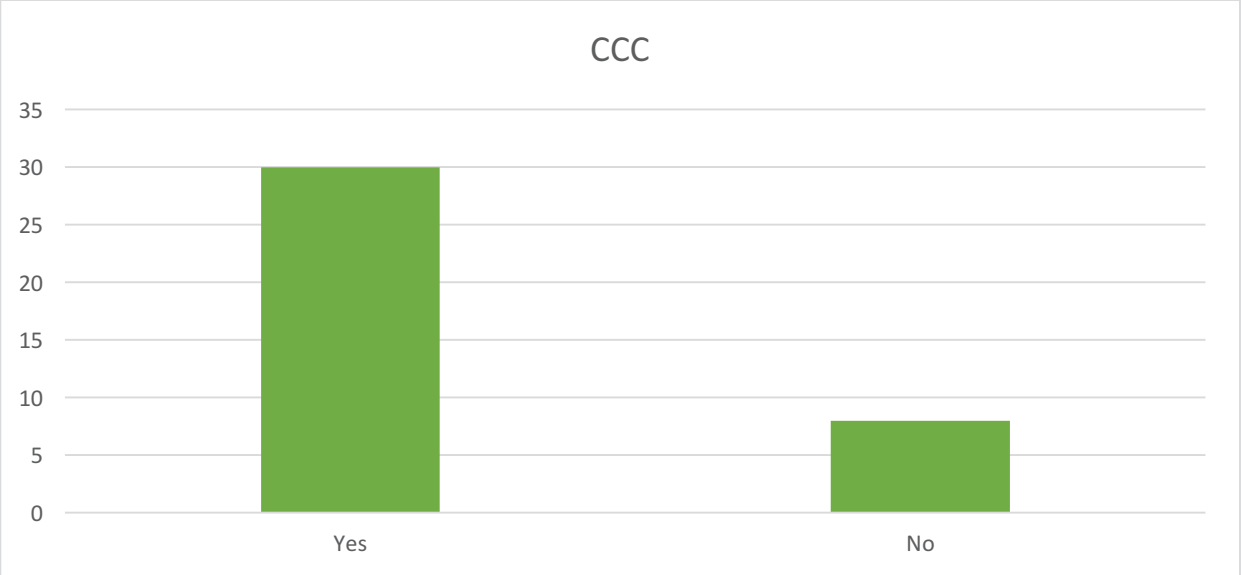
CCC	Percentage (N)
Behavioral/Social/Emotional	100% (38)
Language	92.1% (35)
Physical	89.5% (34)
Literacy	78.9% (30)
Math	76.3% (29)
Science	57.9% (22)
Other	13.2% (5)

FCC: What type of information do you share with parents in terms of their child's development? Check all that apply.

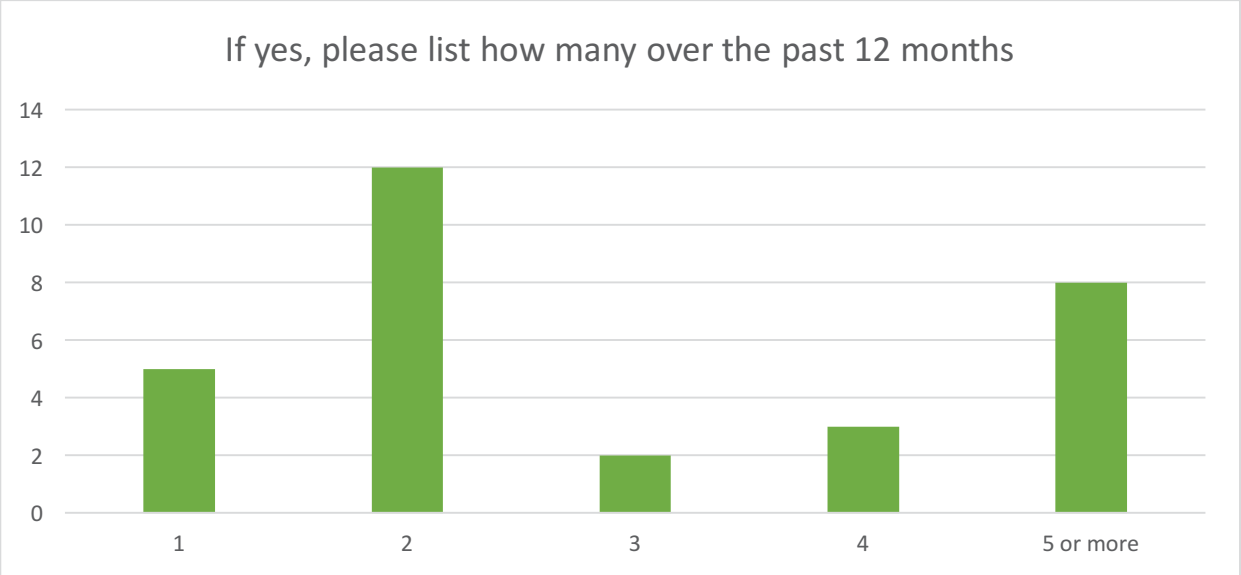


FCC	Percentage (N)
Language	100% (14)
Physical	100% (14)
Behavioral/Social/Emotional	100% (14)
Literacy	64.3% (9)
Math	57.1% (8)
Science	57.1% (8)
Other	14.3% (2)

13. CCC: Over the past 12 months, have any children in your program been identified for special services?

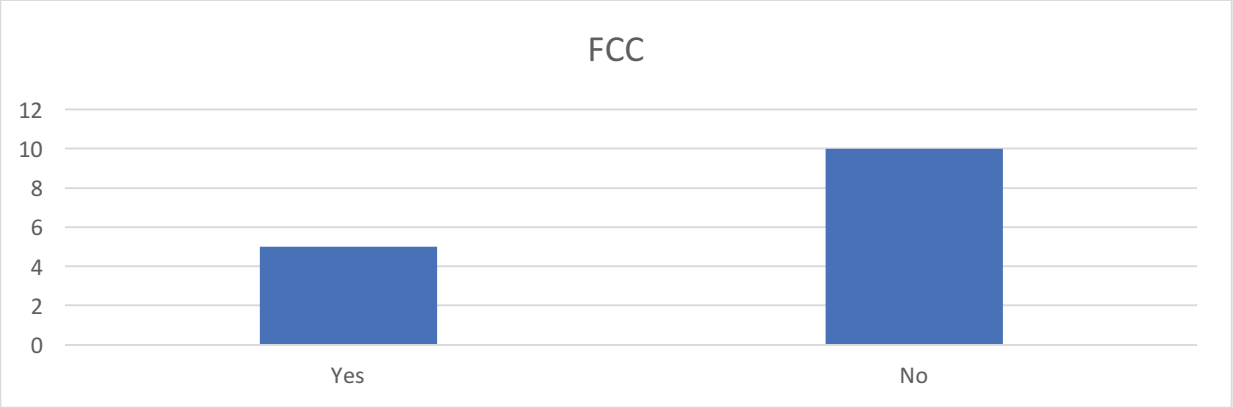


CCC	Percentage (N)
Yes	78.9% (30)
No	21.1% (8)

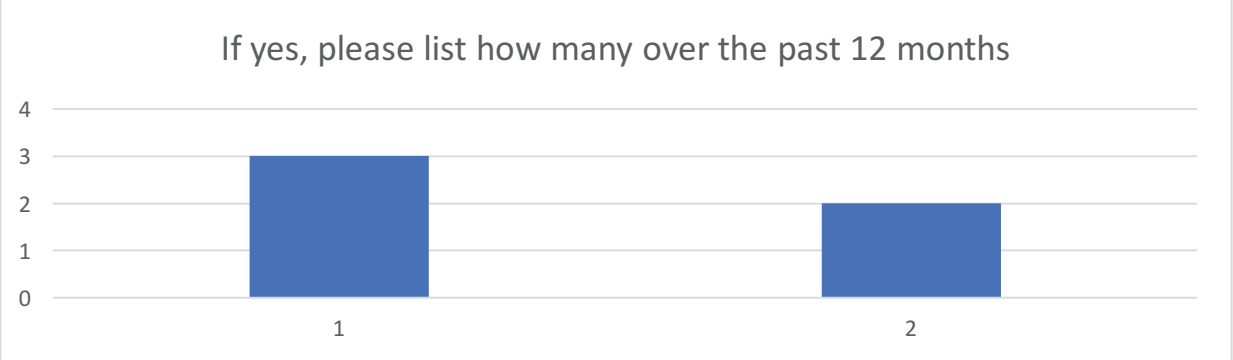


If yes, please list how many over the past 12 months	Percentage (N)
1	16.7% (5)
2	40.0% (12)
3	6.7% (2)
4	10.0% (3)
5 or more	26.6% (8)

FCC: Over the past 12 months, have any children in your program been identified for special services?

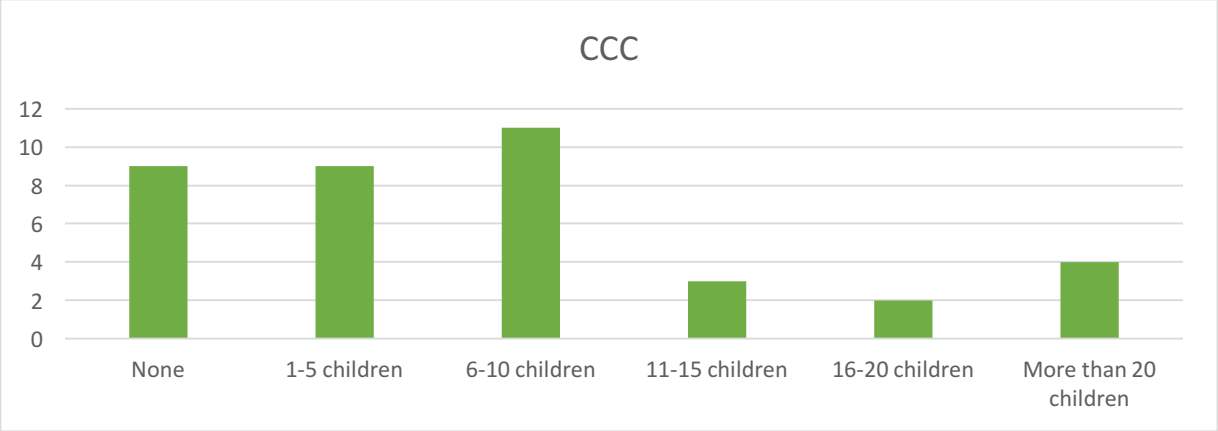


FCC	Percentage (N)
Yes	33.3% (5)
No	66.7% (10)



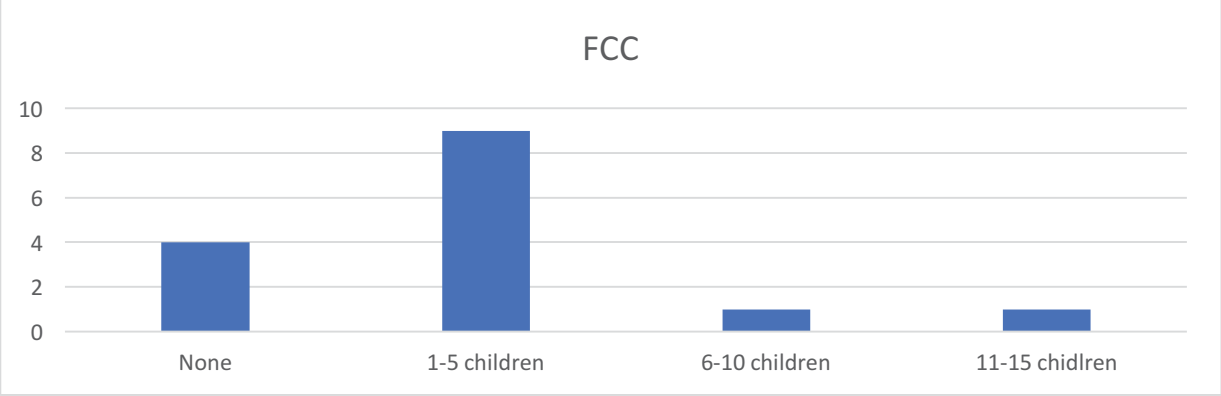
If yes, please list how many over the past 12 months	Percentage (N)
1	60.0% (3)
2	40.0% (2)
3	0.0% (0)
4	0.0% (0)
5 or more	0.0% (0)

14. CCC: From September 2014 to May 2015, how many children transitioned from one classroom into another within your program?



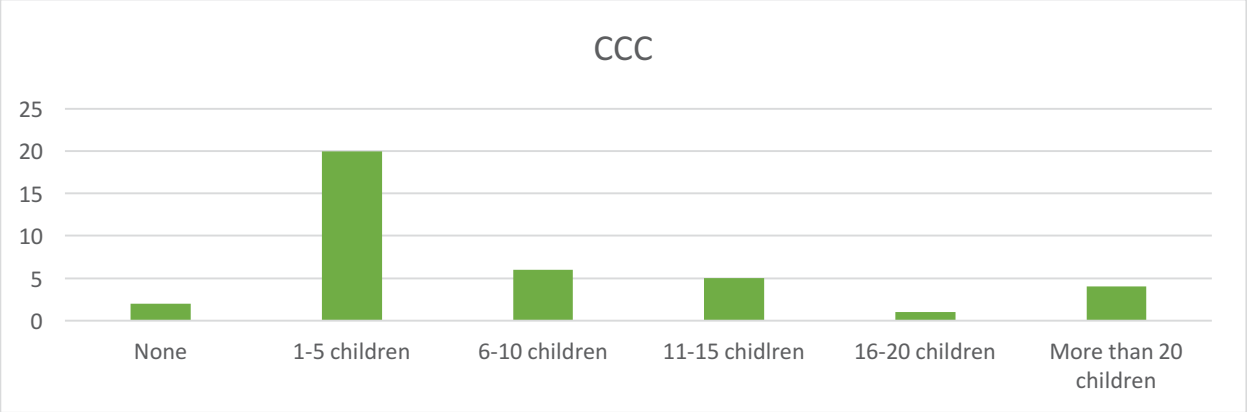
CCC	Percentage (N)
None	23.7% (9)
1-5 children	23.7% (9)
6-10 children	29.0% (11)
11-15 children	7.9% (3)
16-20 children	5.3% (2)
More than 20 children	10.4% (4)

FCC: From September 2014 to May 2015, how many children transitioned into your program from another program?



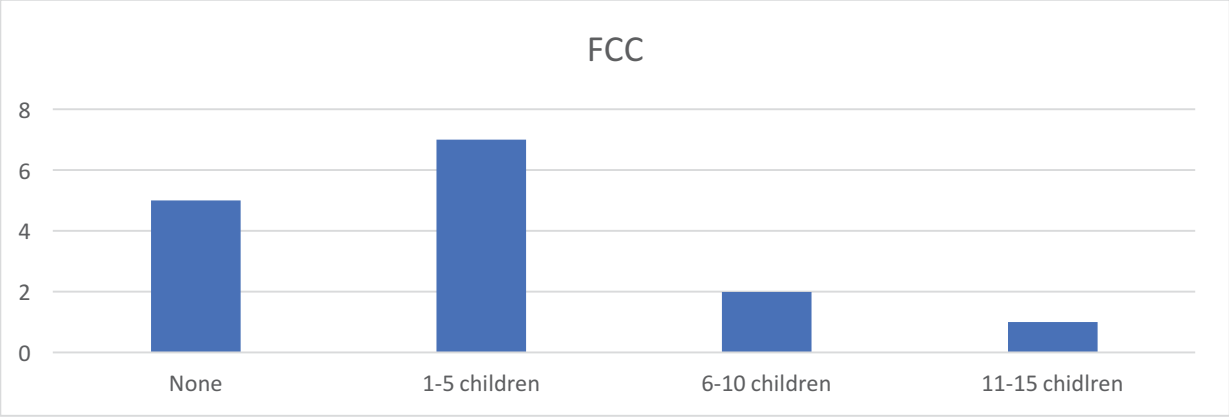
FCC	Percentage (N)
None	26.7% (4)
1-5 children	60.0% (9)
6-10 children	6.7% (1)
11-15 children	6.7% (1)

15. CCC: From September 2014 to May 2015, approximately how many children unenrolled from your program?



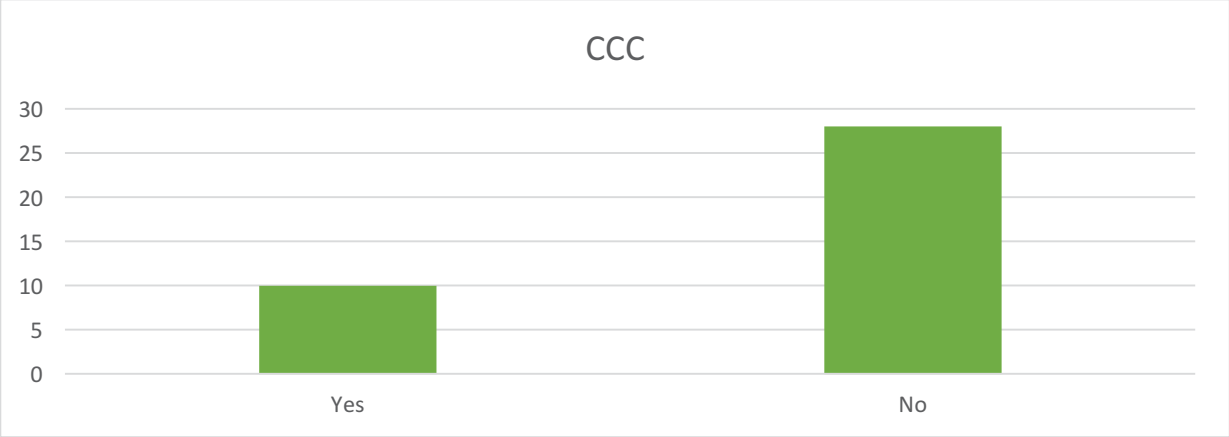
CCC	Percentage (N)
None	5.3% (2)
1-5 children	52.6% (20)
6-10 children	15.8% (6)
11-15 children	13.2% (5)
16-20 children	2.6% (1)
More than 20 children	10.5% (4)

FCC: From September 2014 to May 2015, approximately how many children unenrolled from your program?



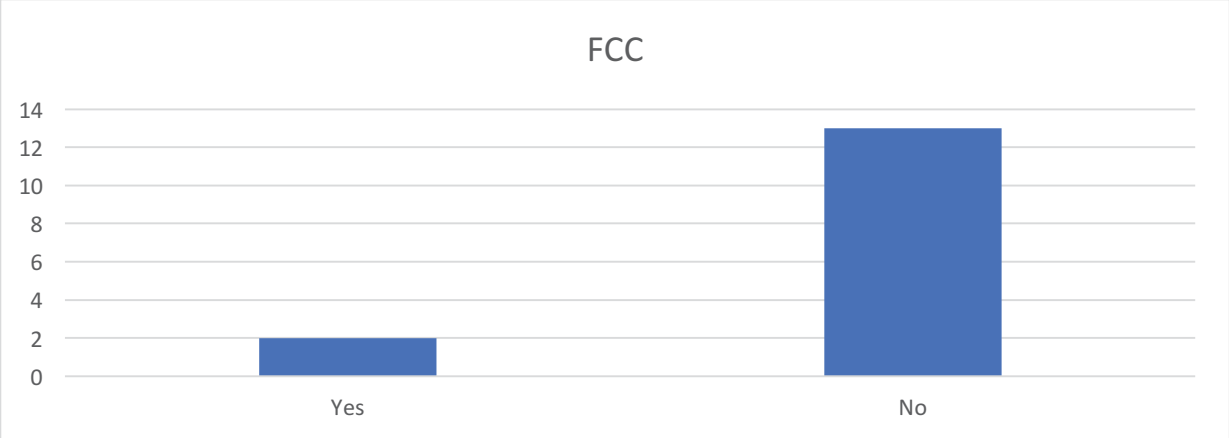
FCC	Percentage (N)
None	33.3% (5)
1-5 children	46.7% (7)
6-10 children	13.3% (2)
11-15 children	6.7% (1)

16. CCC: Over the past 12 months, have any children been asked to leave your program because of behavior?



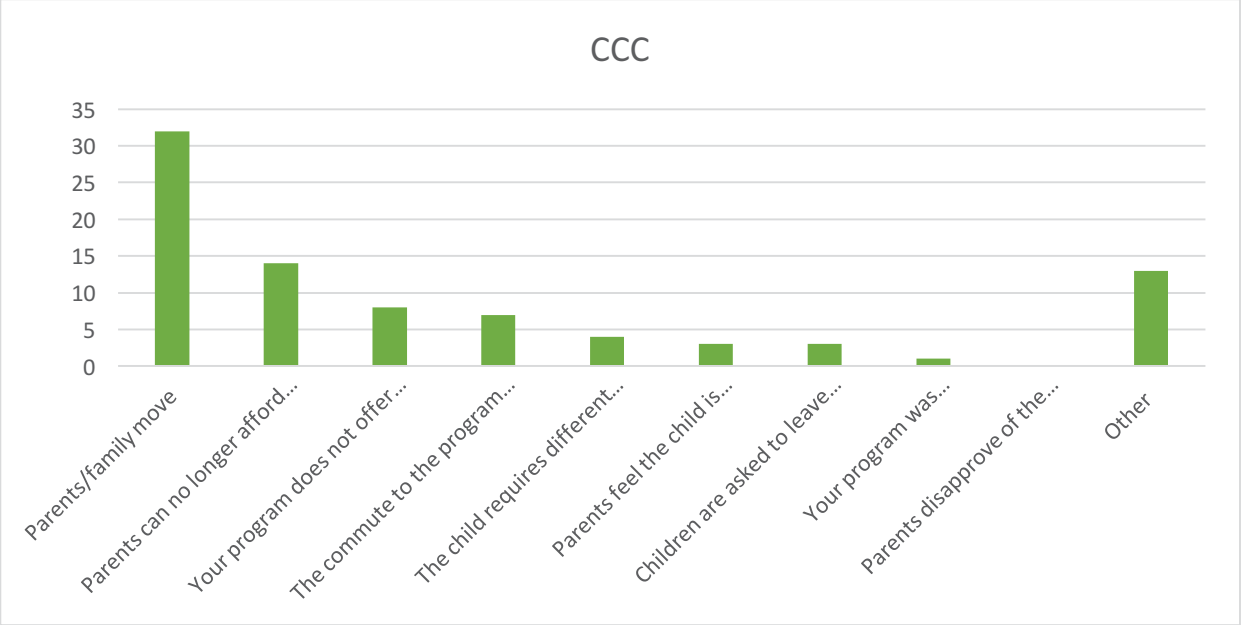
CCC	Percentage (N)
Yes	26.3% (10)
No	73.7% (28)

FCC: Over the past 12 months, have any children been asked to leave your program because of behavior?



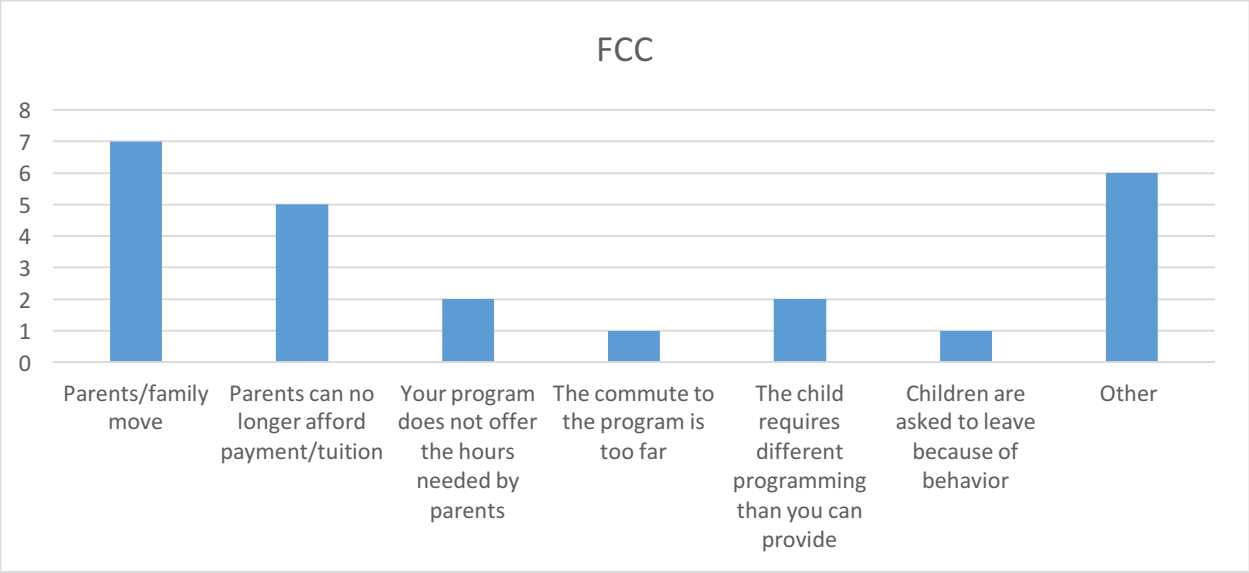
FCC	Percentage (N)
Yes	13.3% (2)
No	86.7% (13)

17. CCC: Over the last 12 months, what have been the top three (3) reasons that children have unenrolled from your program (other than children aging out of the program)? Please select no more than three (3) options.



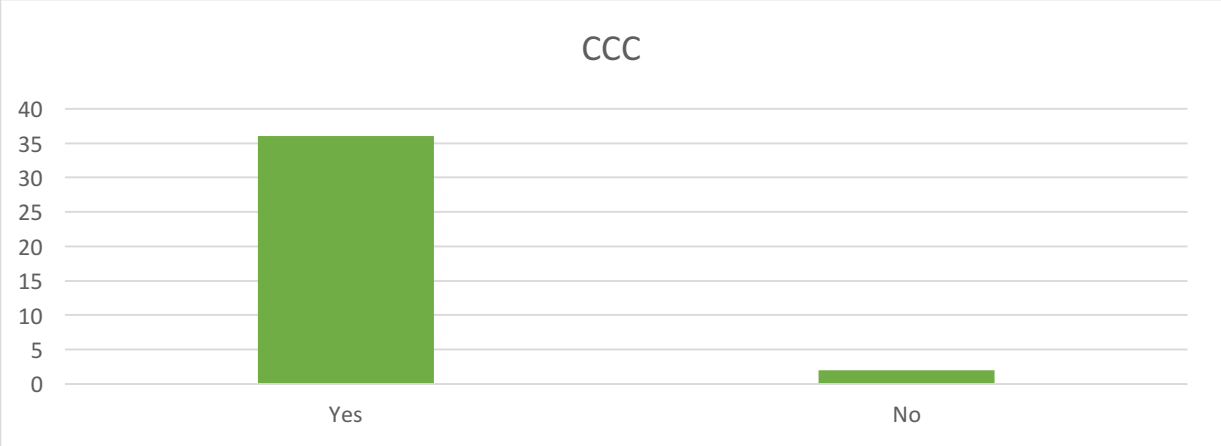
CCC	Percentage Selected (N)
Parents/family move	84.2% (32)
Parents can no longer afford payment/tuition	36.8% (14)
Your program does not offer the hours needed by parents	12.1% (8)
The commute to the program is too far	18.4% (7)
The child requires different programming than you can provide	10.5% (4)
Parents feel the child is having difficulty adjusting to the program	7.9% (3)
Children are asked to leave because of behavior	7.9% (3)
Your program was temporarily closed	2.6% (1)
Parents disapprove of the program's Early Achievers rating	0.0% (0)
Other	34.2% (13)

FCC: Over the last 12 months, what have been the top three (3) reasons that children have unenrolled from your program (other than children aging out of the program)? Please select no more than three (3) options.



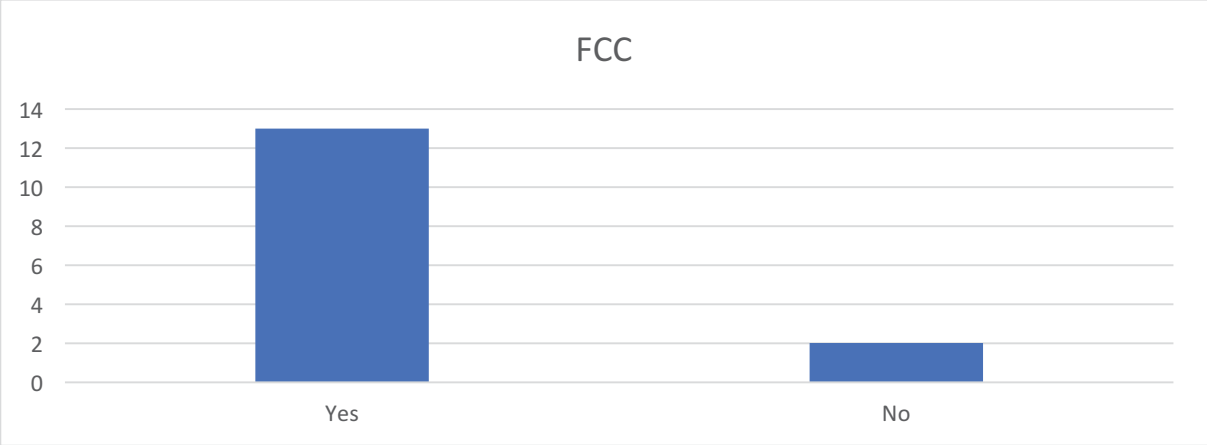
FCC	Percentage (N)
Parents/family move	50.0% (7)
Parents can no longer afford payment/tuition	35.7% (5)
Your program does not offer the hours needed by parents	14.3% (2)
The commute to the program is too far	7.1% (1)
The child requires different programming than you can provide	14.3% (2)
Children are asked to leave because of behavior	7.1% (1)
Parents feel the child is having difficulty adjusting to the program	0.0% (0)
Your program was temporarily closed	0.0% (0)
Parents disapprove of the program's Early Achievers rating	0.0% (0)
Other	42.9% (6)

18. CCC: Were there children in your program during the past year who will be attending kindergarten this fall



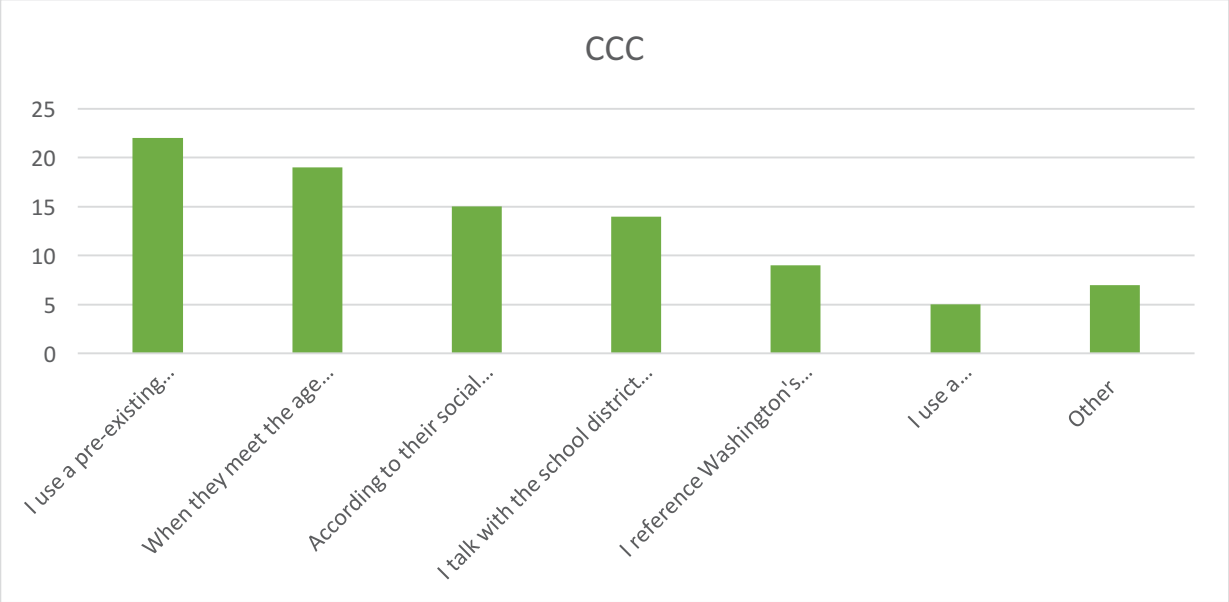
CCC	Percentage (N)
Yes	94.7% (36)
No	5.3% (2)

FCC: Were there children in your program during the past year who will be attending kindergarten this fall?



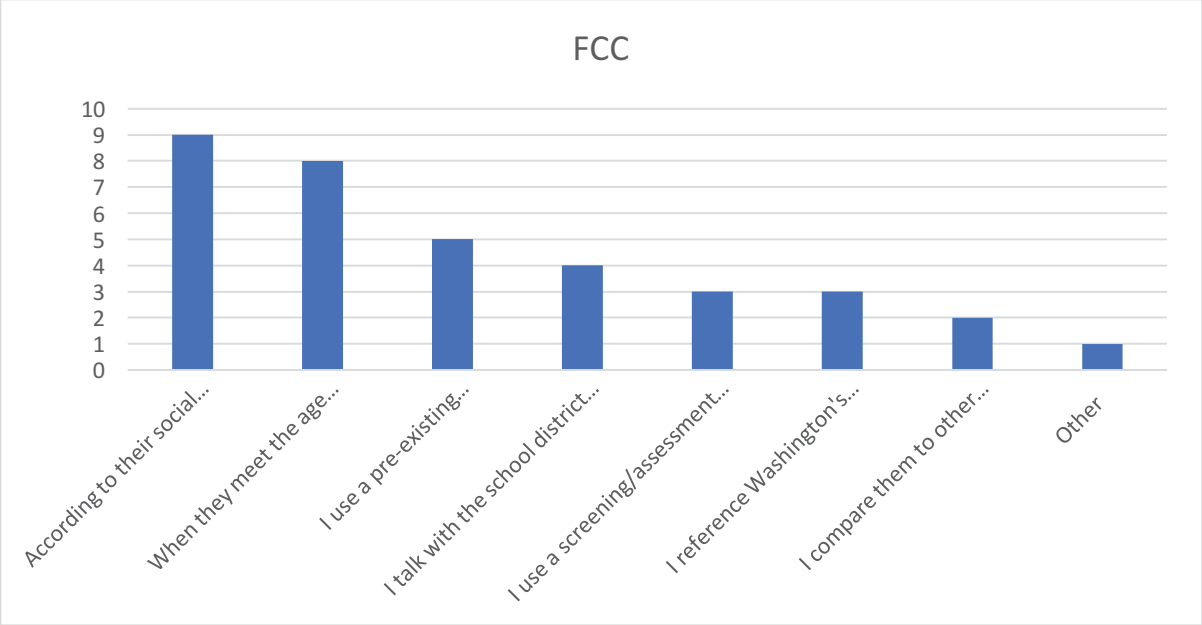
FCC	Percentage (N)
Yes	86.7% (13)
No	13.3% (2)

19. CCC: How do you and/or your staff determine whether children are ready for kindergarten? (Please select no more than three (3) options).



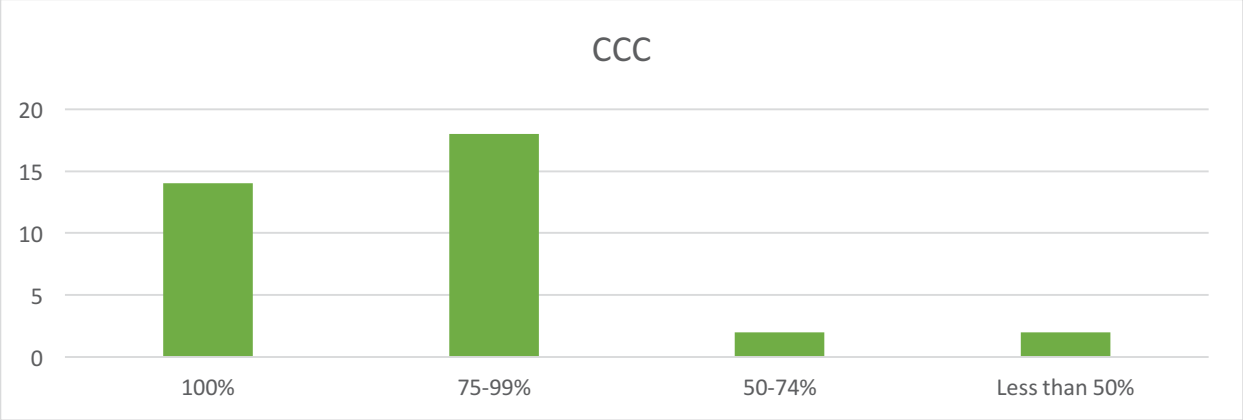
CCC	Percentage (N)
I use a pre-existing developmental screening/assessment tool	57.9% (22)
When they meet the age requirements for enrolling in kindergarten	50.0% (19)
According to their social emotional skills	39.5% (15)
I talk with the school district about what they expect in a kindergartner	36.8% (14)
I reference Washington's Department of Early Learning (DEL) and Office of Superintendent of Public Instruction (OSPI) resources	23.7% (9)
I use a screening/assessment that I created	13.2% (5)
When they know the alphabet	0.0% (0)
When they can write their names	0.0% (0)
I compare them to other kindergarten-age children I know	0.0% (0)
Other	18.4% (7)

FCC: How do you determine whether children are ready for kindergarten? (Please select no more than three (3) options)



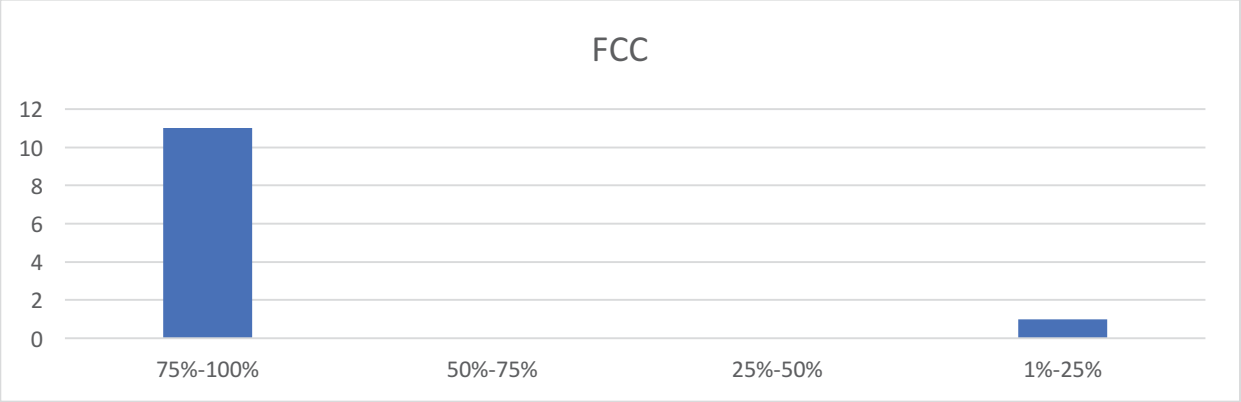
FCC	Percentage (N)
According to their social emotional skills	60.0% (9)
When they meet the age requirements for enrolling in kindergarten	53.3% (8)
I use a pre-existing developmental screening/assessment tool	33.3% (5)
I talk with the school district about what they expect in a kindergartner	26.7% (4)
I use a screening/assessment that I created	20.0% (3)
I reference Washington's Department of Early Learning (DEL) and Office of Superintendent of Public Instruction (OSPI) resources	20.0% (3)
I compare them to other kindergarten-age children I know	13.3% (2)
When they know the alphabet	0.0% (0)
When they can write their names	0.0% (0)
Other	6.7% (1)

20. CCC: Think about the children who were in your program this past year and are going to kindergarten this Fall. What percent (%), in your opinion, were ready for kindergarten? (if you did not work with this age group last year, please enter "NA")



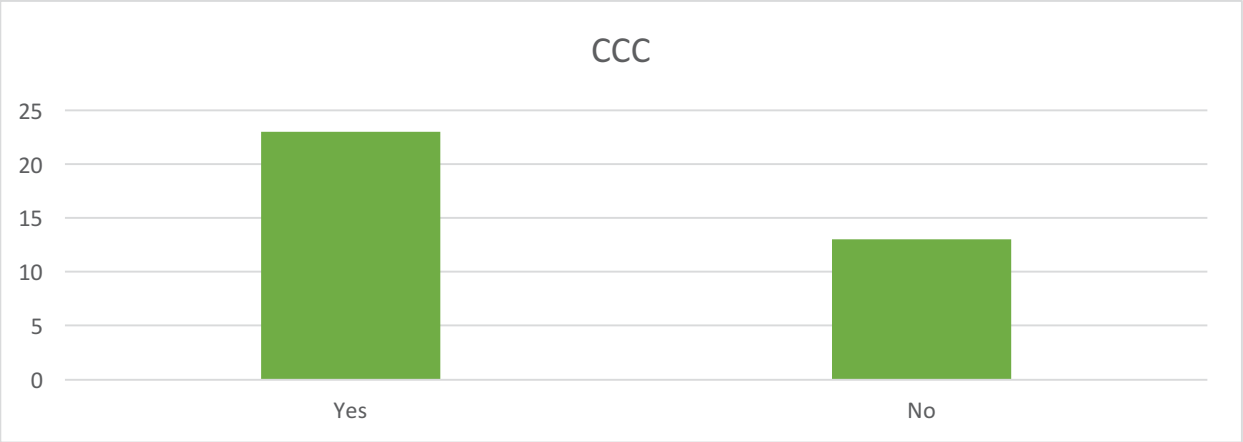
CCC	Percentage (N)
100%	38.9% (14)
75-99%	50.0% (18)
50-74%	5.6% (2)
Less than 50%	5.6% (2)

FCC: Think about the children who were in your program this past year and are going to kindergarten this Fall. What percent (%), in your opinion, were ready for kindergarten? (if you did not work with this age group this past year, please enter "NA")



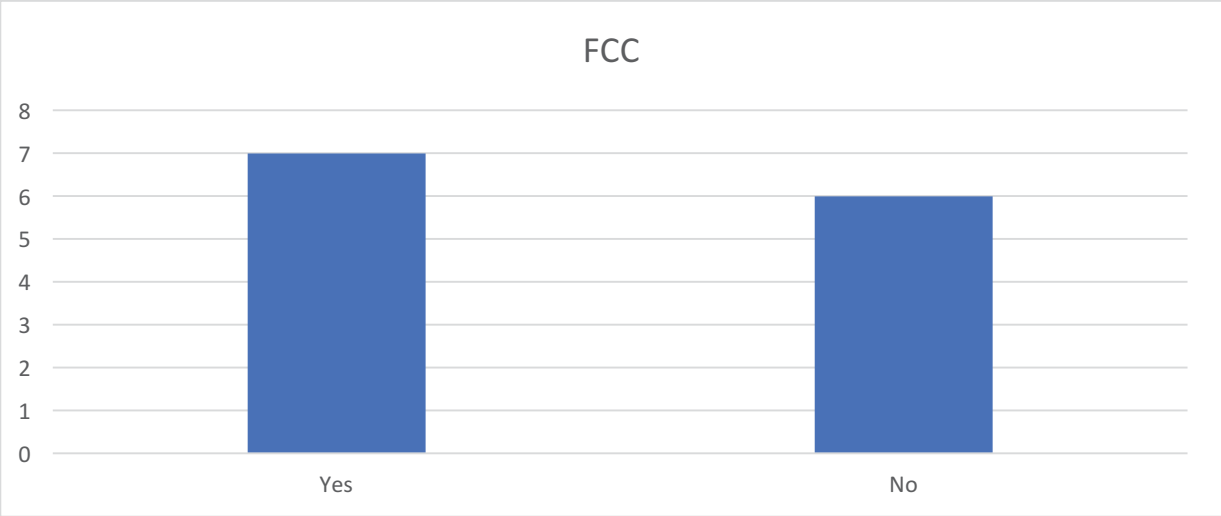
FCC	Percentage (N)
100%	91.7% (11)
75-99%	0.0% (0)
50-74%	0.0% (0)
Less than 50%	8.3% (1)

21. CCC: Do you ever meet with kindergarten teachers to discuss kindergarten readiness?



CCC	Percentage (N)
Yes	63.9% (23)
No	36.1% (13)

FCC: Do you ever meet with kindergarten teachers to discuss kindergarten readiness?

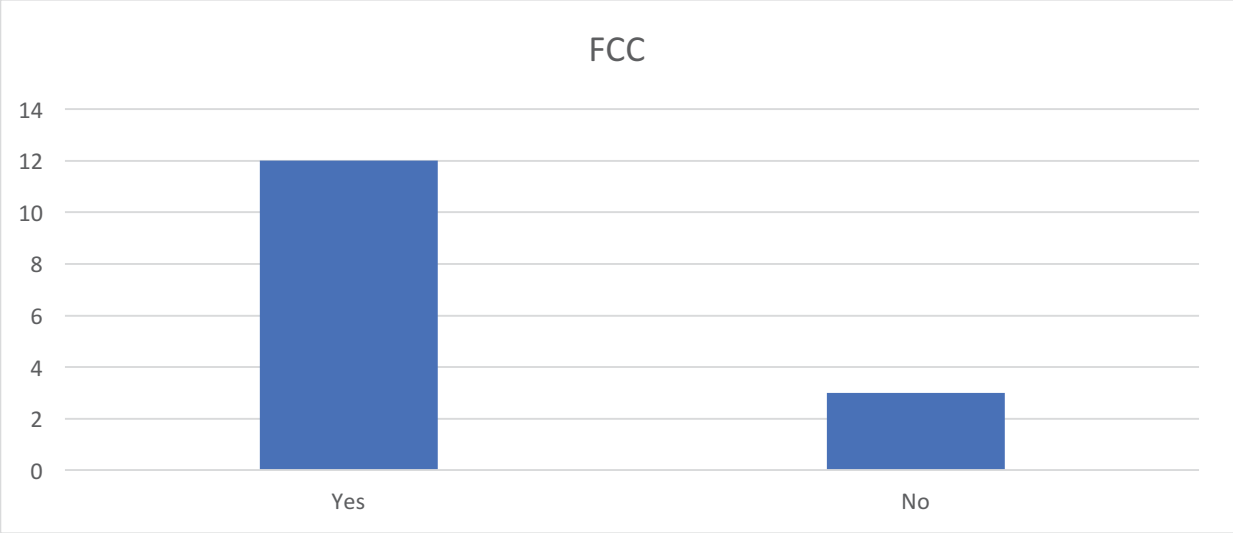


FCC	Percentage (N)
Yes	53.8% (7)
No	46.2% (6)

22. CCC: Does your program use a curriculum? (if no, please skip the remaining curriculum questions on this page and the next page)

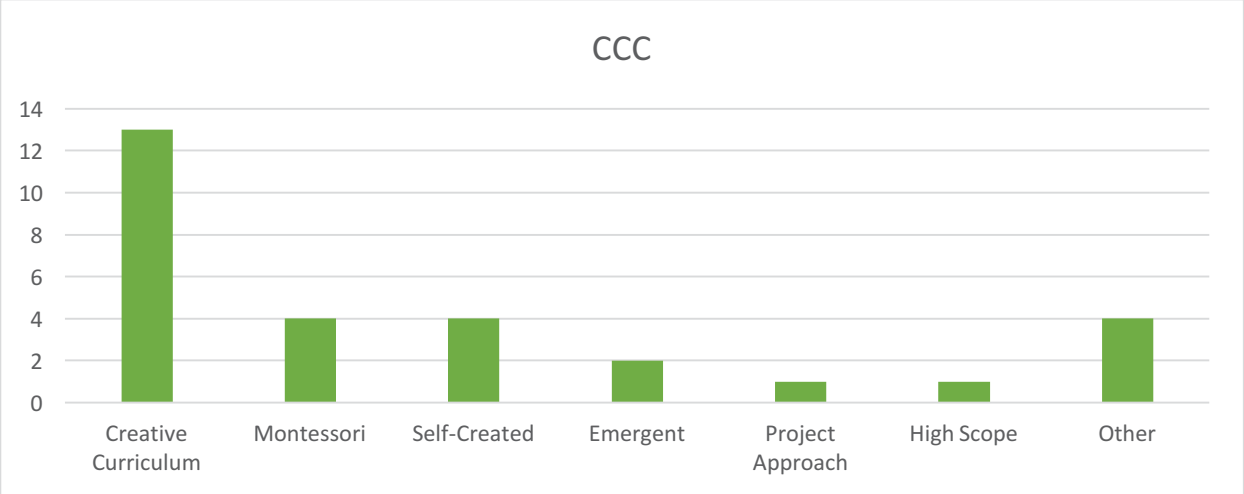
CCC	Percentage (N)
Yes	76.3% (29)
No	23.7% (9)

FCC: Do you use a curriculum? (if no, please skip the remaining curriculum questions on this page and the next page)



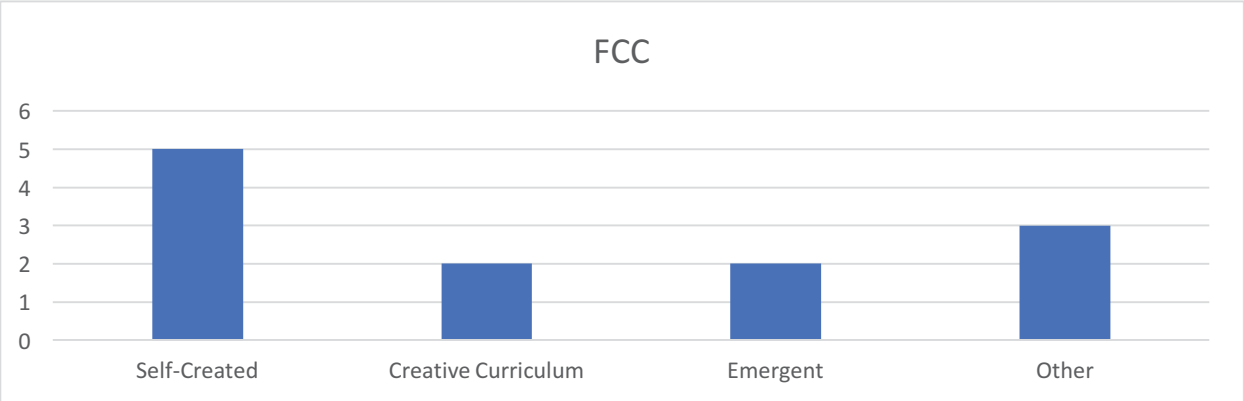
FCC	Percentage (N)
Yes	80.0% (12)
No	20.0% (3)

23. CCC: If yes, which curriculum do you consider to be your program's primary curriculum? (enter only one primary curriculum):



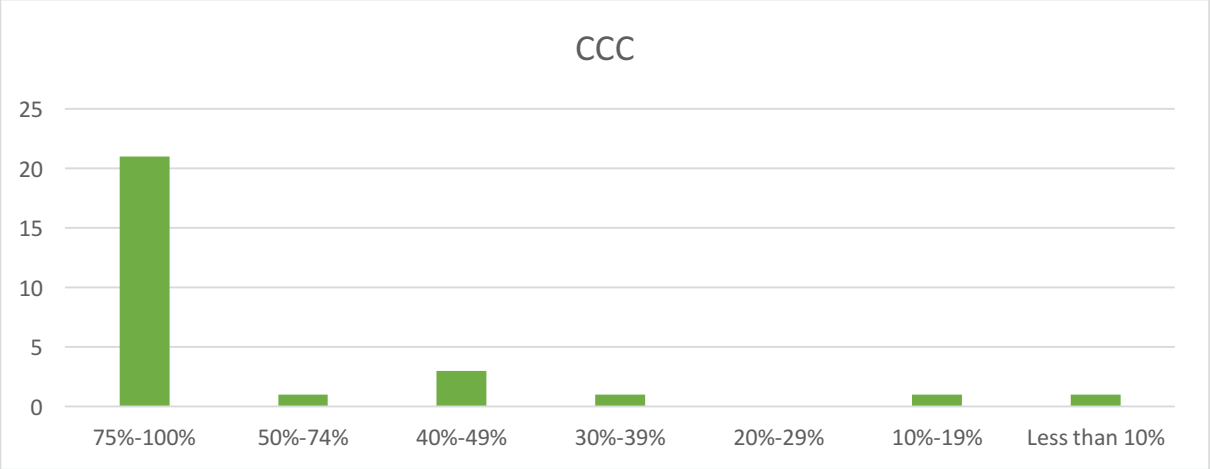
CCC	Percentage (N)
Creative Curriculum	44.8% (13)
Montessori	13.8% (4)
Self-Created	13.8% (4)
Emergent	6.9% (2)
Project Approach	3.4% (1)
High Scope	3.4% (1)
Other	13.8% (4)

FCC: If yes, which curriculum do you consider to be your primary curriculum? (enter only one primary curriculum):



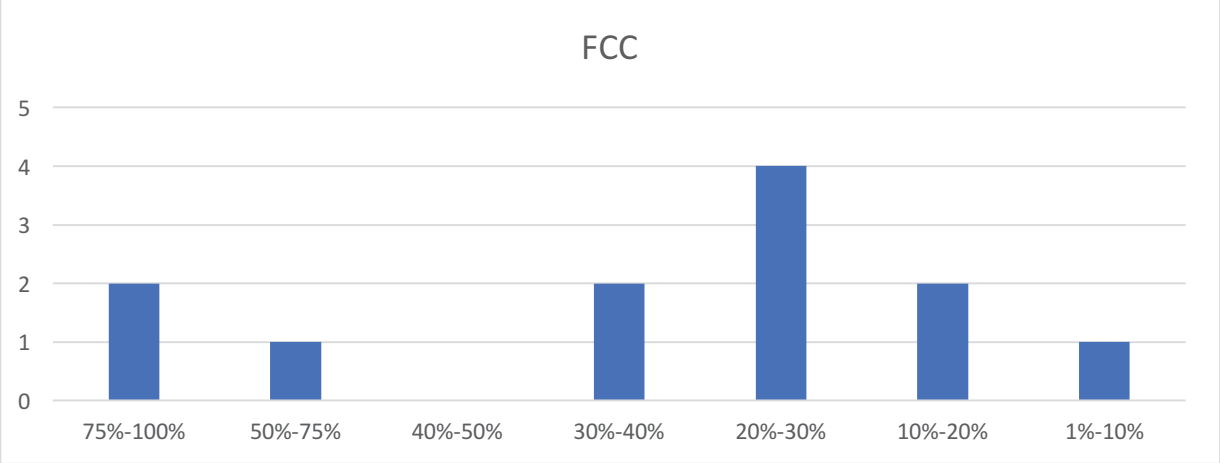
FCC	Percentage (N)
Self-Created	41.7% (5)
Creative Curriculum	16.7% (2)
Emergent	16.7% (2)
Montessori	0.0% (0)
Project Approach	0.0% (0)
High Scope	0.0% (0)
Other	25.0% (3)

24. CCC: What percentage (%) of a typical day does your program spend on this primary curriculum?



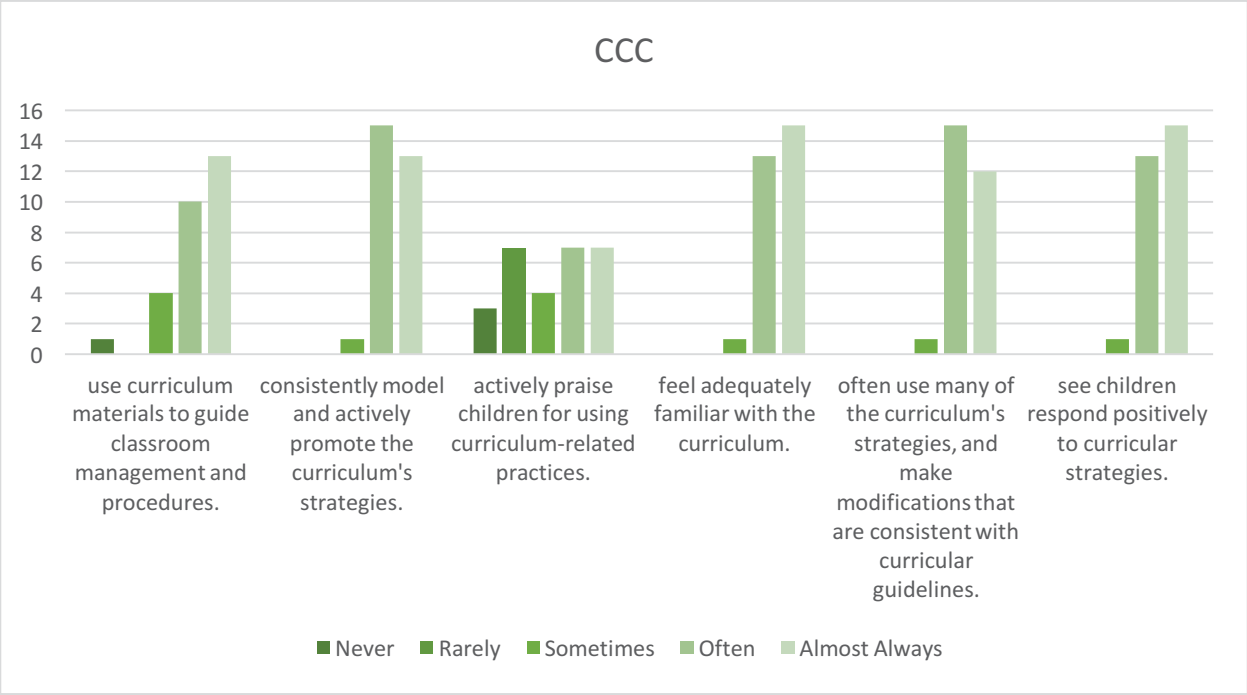
CCC	Percentage (N)
75%-100%	75.0% (21)
50%-74%	3.6% (1)
40%-49%	10.7% (3)
30%-39%	3.6% (1)
20%-29%	0.0% (0)
10%-19%	3.6% (1)
Less than 10%	3.6% (1)

FCC: What percentage (%) of a typical day do you spend on this primary curriculum?



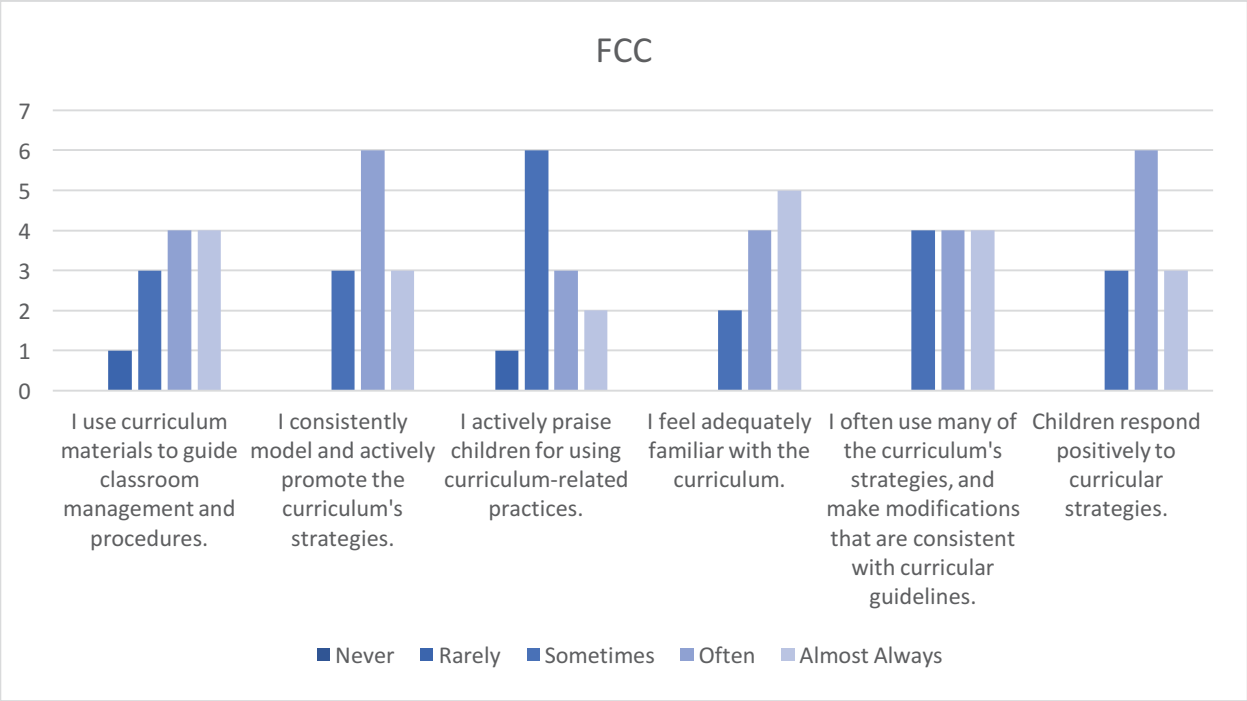
FCC	Percentage (N)
75%-100%	16.7% (2)
50%-74%	8.3% (1)
40%-49%	0.0% (0)
30%-39%	16.7% (2)
20%-29%	33.3% (4)
10%-19%	16.7% (2)
Less than 10%	8.3% (1)

25. CCC: In thinking about your primary curriculum, do your staff …



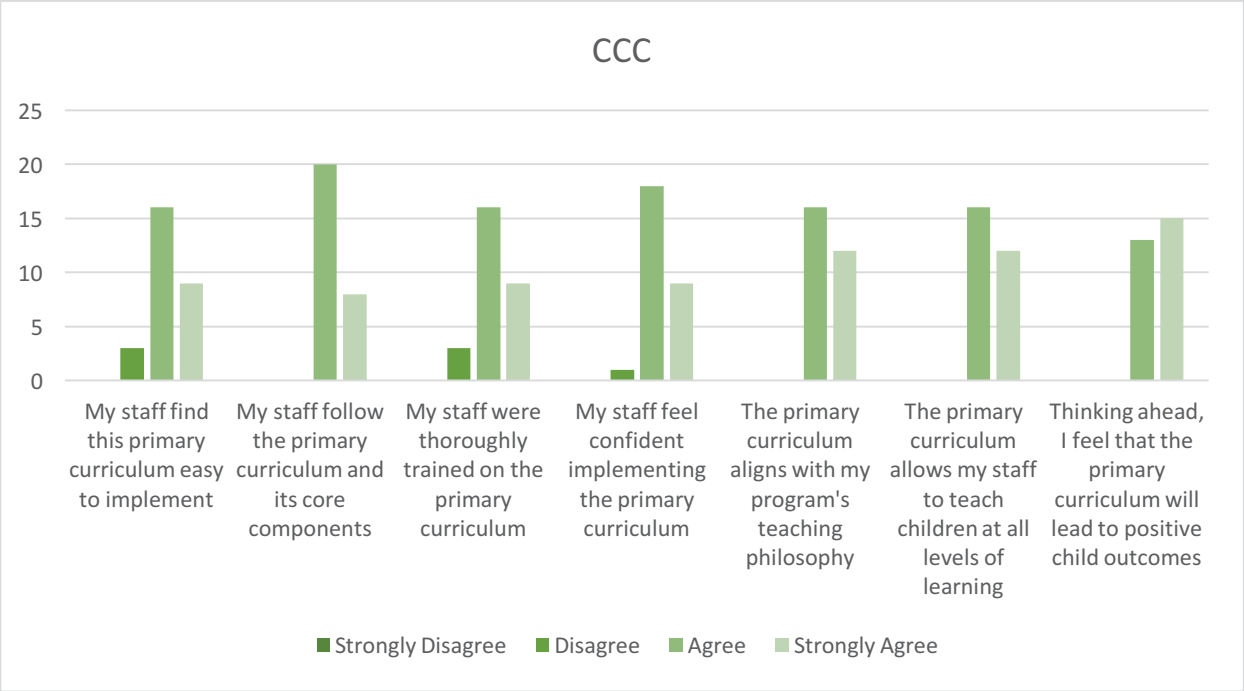
CCC	Never	Rarely	Sometimes	Often	Almost Always
Use curriculum materials to guide classroom management and procedures.	3.6% (1)	0.0% (0)	14.3% (4)	35.7% (10)	46.4% (13)
Consistently model and actively promote the curriculum's strategies.	0.0% (0)	0.0% (0)	3.4% (1)	51.7% (15)	44.8% (13)
Actively praise children for using curriculum-related practices.	10.7% (3)	25.0% (7)	14.3% (4)	25.0% (7)	25.0% (7)
Feel adequately familiar with the curriculum.	0.0% (0)	0.0% (0)	3.4% (1)	44.8% (13)	51.7% (15)
Often use many of the curriculum's strategies, and make modifications that are consistent with curricular guidelines.	0.0% (0)	0.0% (0)	3.6% (1)	53.6% (15)	42.9% (12)
See children respond positively to curricular strategies.	0.0% (0)	0.0% (0)	3.4% (1)	44.8% (13)	51.7% (15)

FCC: In thinking about your primary curriculum, do you…



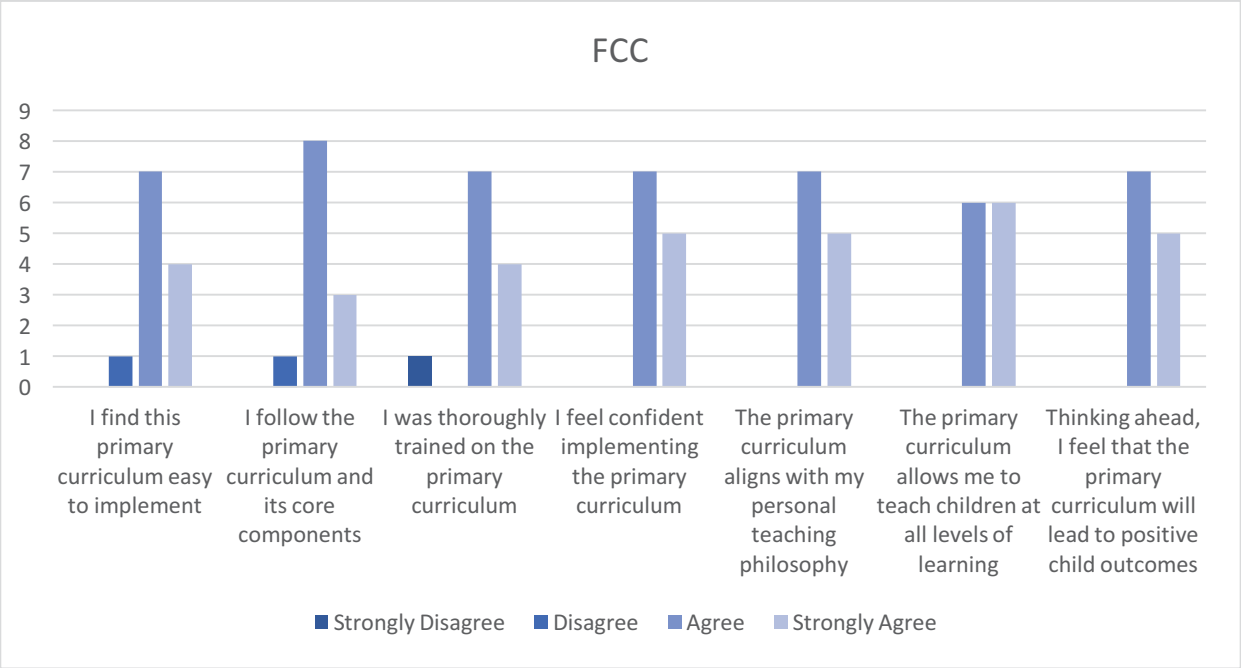
FCC	Never	Rarely	Sometimes	Often	Almost Always
I use curriculum materials to guide classroom management and procedures.	0.0% (0)	8.3% (1)	25.0% (3)	33.3% (4)	33.3% (4)
I consistently model and actively promote the curriculum's strategies.	0.0% (0)	0.0% (0)	25.0% (3)	50.0% (6)	25.0% (3)
I actively praise children for using curriculum-related practices.	0.0% (0)	8.3% (1)	50.0% (6)	25.0% (3)	16.7% (2)
I feel adequately familiar with the curriculum.	0.0% (0)	0.0% (0)	18.2% (2)	36.4% (4)	45.5% (5)
I often use many of the curriculum's strategies, and make modifications that are consistent with curricular guidelines.	0.0% (0)	0.0% (0)	33.3% (4)	33.3% (4)	33.3% (4)
Children respond positively to curricular strategies.	0.0% (0)	0.0% (0)	25.0% (3)	50.0% (6)	25.0% (3)

26. CCC: Please indicate how much you agree or disagree with the following statements:



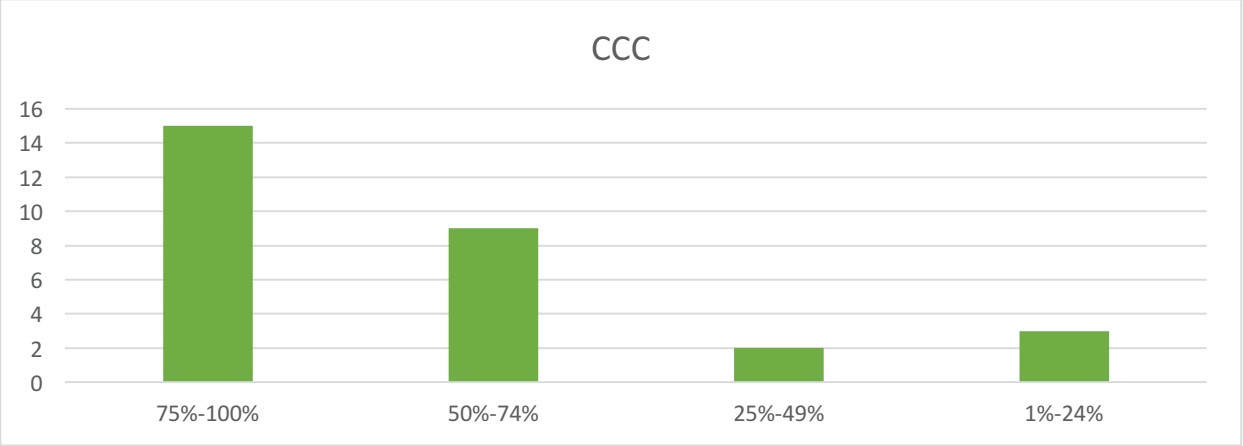
CCC	Strongly Disagree	Disagree	Agree	Strongly Agree
My staff find this primary curriculum easy to implement	0.0% (0)	10.7% (3)	57.1% (16)	32.1% (9)
My staff follow the primary curriculum and its core components	0.0% (0)	0.0% (0)	71.4% (20)	28.6% (8)
My staff were thoroughly trained on the primary curriculum	0.0% (0)	10.7% (3)	57.1% (16)	32.1% (9)
My staff feel confident implementing the primary curriculum	0.0% (0)	3.6% (1)	64.3% (18)	32.1% (9)
The primary curriculum aligns with my program's teaching philosophy	0.0% (0)	0.0% (0)	57.1% (16)	42.9% (12)
The primary curriculum allows my staff to teach children at all levels of learning	0.0% (0)	0.0% (0)	57.1% (16)	42.9% (12)
Thinking ahead, I feel that the primary curriculum will lead to positive child outcomes	0.0% (0)	0.0% (0)	46.4% (13)	53.6% (15)

FCC: Please indicate how much you agree or disagree with the following statements:



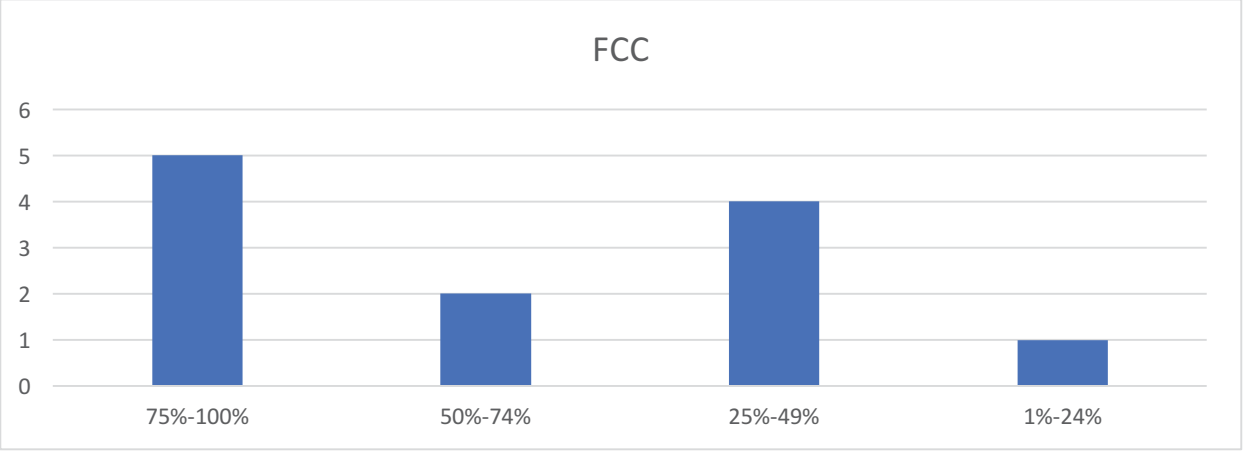
FCC	Strongly Disagree	Disagree	Agree	Strongly Agree
I find this primary curriculum easy to implement	0.0% (0)	8.3% (1)	58.3% (7)	33.3% (4)
I follow the primary curriculum and its core components	0.0% (0)	8.3% (1)	66.7% (8)	25.0% (3)
I was thoroughly trained on the primary curriculum	8.3% (1)	0.0% (0)	58.3% (7)	33.3% (4)
I feel confident implementing the primary curriculum	0.0% (0)	0.0% (0)	58.3% (7)	41.7% (5)
The primary curriculum aligns with my personal teaching philosophy	0.0% (0)	0.0% (0)	58.3% (7)	41.7% (5)
The primary curriculum allows me to teach children at all levels of learning	0.0% (0)	0.0% (0)	50.0% (6)	50.0% (6)
Thinking ahead, I feel that the primary curriculum will lead to positive child outcomes	0.0% (0)	0.0% (0)	58.3% (7)	41.7% (5)

27. CCC: What percentage (%) of the time spent on your primary curriculum are children in your program actively engaged in curriculum activities?



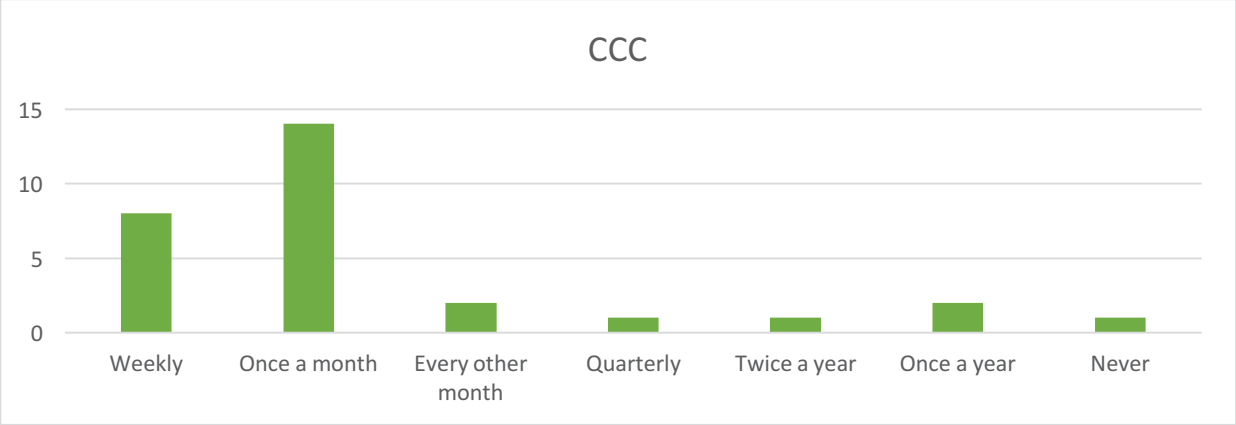
CCC	Percentage (N)
75%-100%	51.7% (15)
50%-74%	31.0% (9)
25%-49%	6.9% (2)
1%-24%	10.3% (3)

FCC: What percentage (%) of the time spent on your primary curriculum are children actively engaged in curriculum activities?



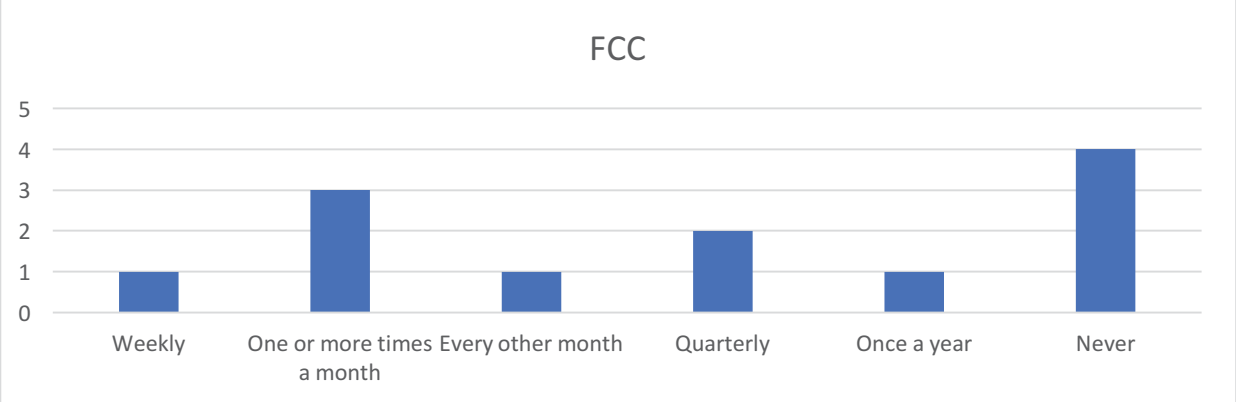
FCC	Percentage (N)
75%-100%	41.7% (5)
50%-74%	16.7% (2)
25%-49%	33.3% (4)
1%-24%	8.3% (1)

28. CCC: Think about your past year. Approximately how often does someone (e.g., administrator, supervisor, coach) provide your staff with feedback on their implementation of the curriculum?



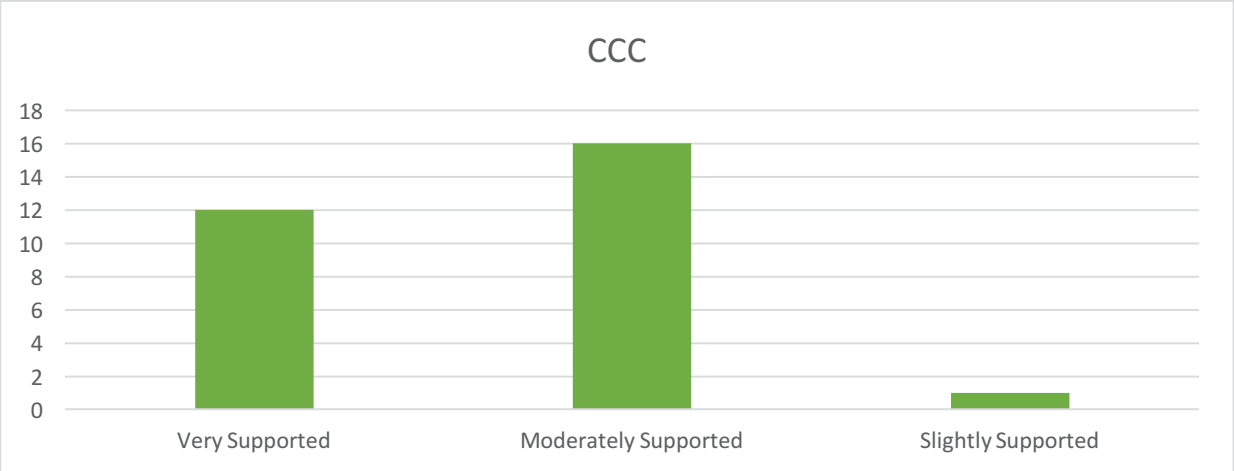
CCC	Percentage (N)
Weekly	27.6% (8)
Once a month	48.3% (14)
Every other month	6.9% (2)
Quarterly	3.4% (1)
Twice a year	3.4% (1)
Once a year	6.9% (2)
Never	3.4% (1)

FCC: Think about the past year. Approximately how often does someone (e.g., administrator, supervisor, coach) visit and provide you with feedback on your implementation of the curriculum?



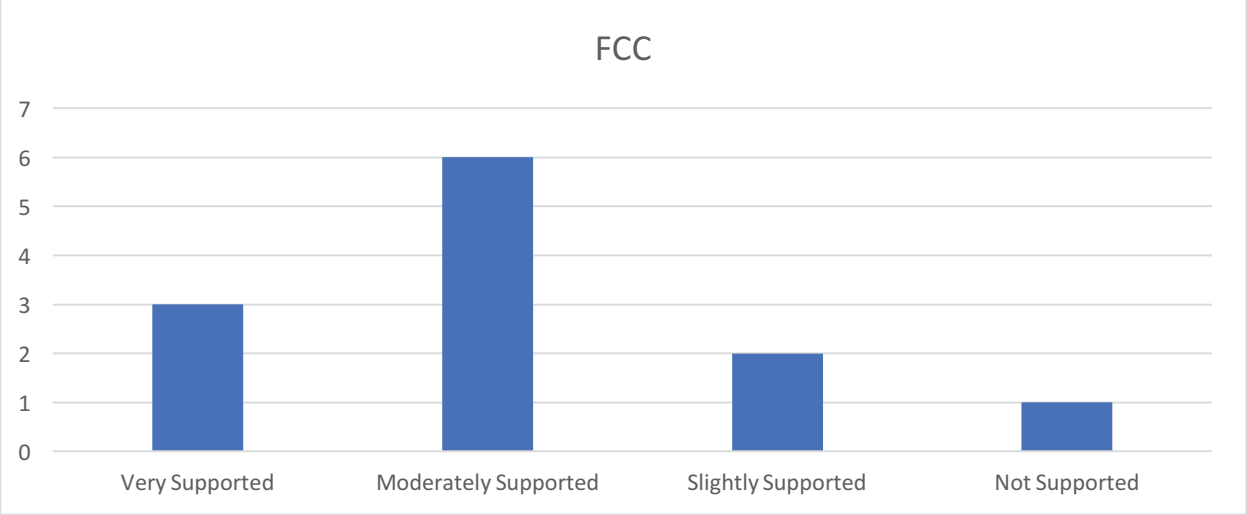
FCC	Percentage (N)
Weekly	8.3% (1)
One or more times a month	25.0% (3)
Every other month	8.3% (1)
Quarterly	16.7% (2)
Twice a year	0.0% (0)
Once a year	8.3% (1)
Never	33.3% (4)

29. CCC: How supported are your staff as they implement the curriculum?



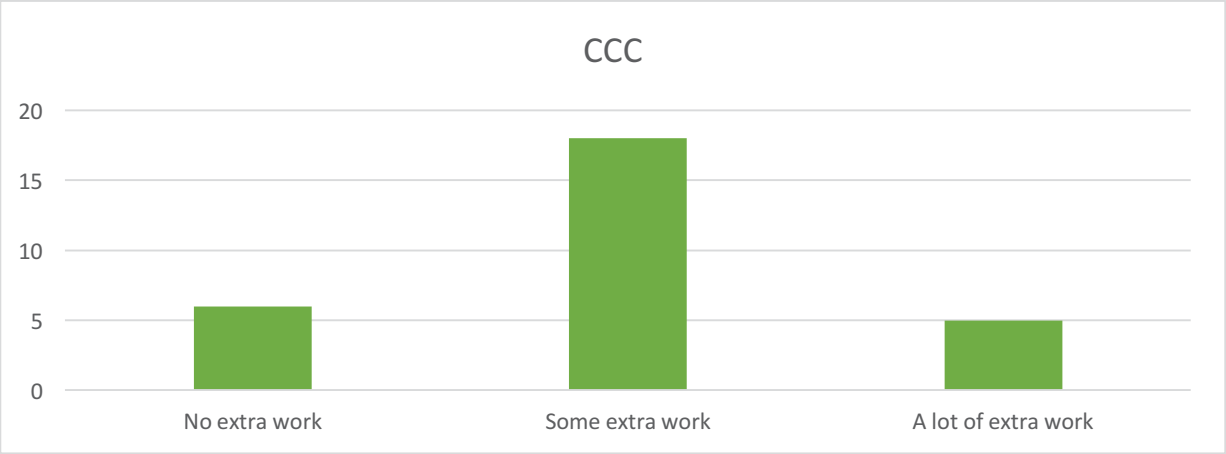
CCC	Percentage (N)
Very Supported	41.4% (12)
Moderately Supported	55.2% (16)
Slightly Supported	3.4% (1)
Not Supported	0.0% (0)

FCC: How supported do you feel as you implement the curriculum?



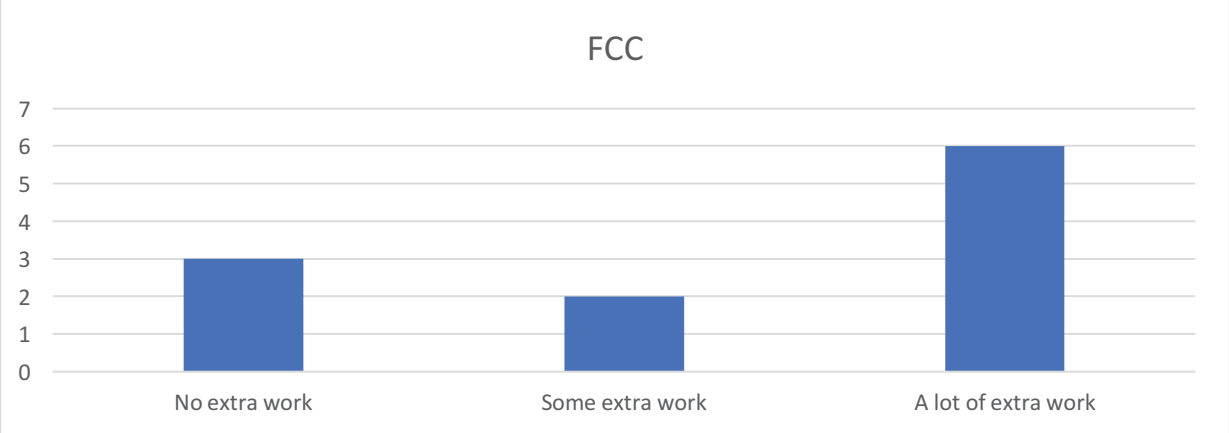
FCC	Percentage (N)
Very Supported	25.0% (3)
Moderately Supported	50.0% (6)
Slightly Supported	16.7% (2)
Not Supported	8.3% (1)

30. CCC: How much extra work does the curriculum produce for you and/or your staff?



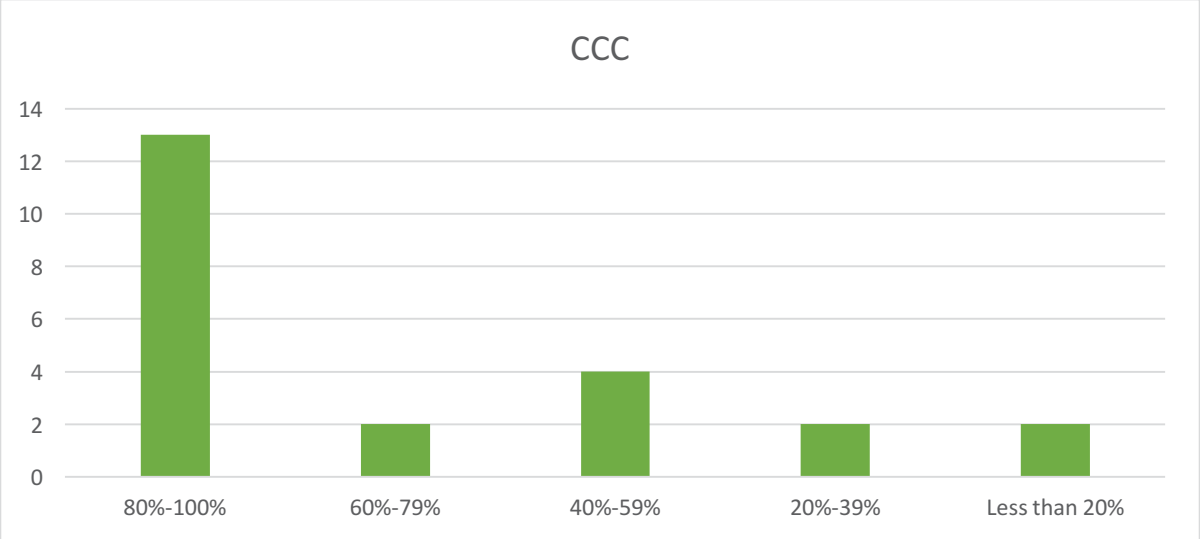
CCC	Percentage (N)
No extra work	20.7% (6)
Some extra work	62.1% (18)
A lot of extra work	17.2% (5)

FCC: How much extra work does the curriculum produce for you?



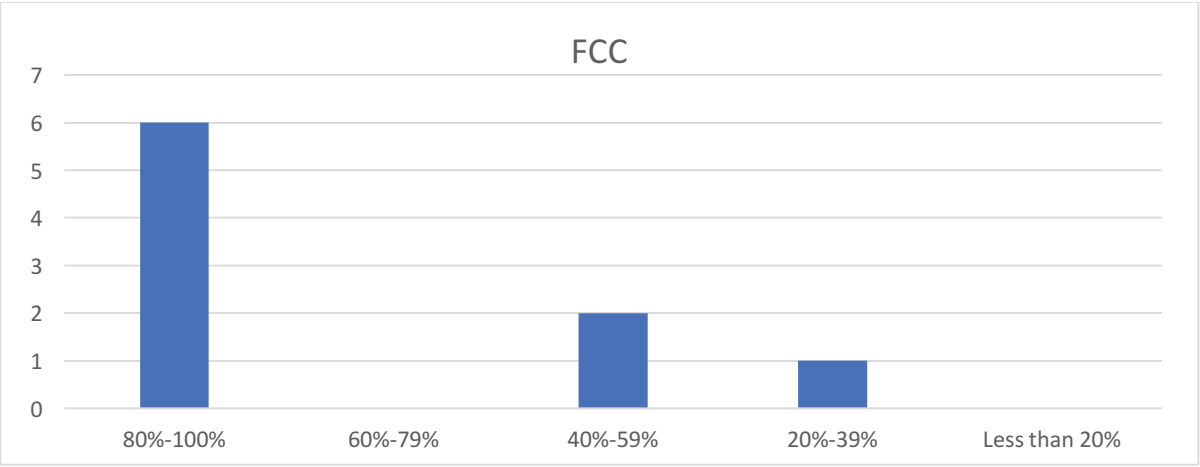
FCC	Percentage (N)
No extra work	27.3% (3)
Some extra work	18.2% (2)
A lot of extra work	54.5% (6)

31. CCC: If the curriculum produces extra work, what percentage (%) of the extra work do you feel is important?



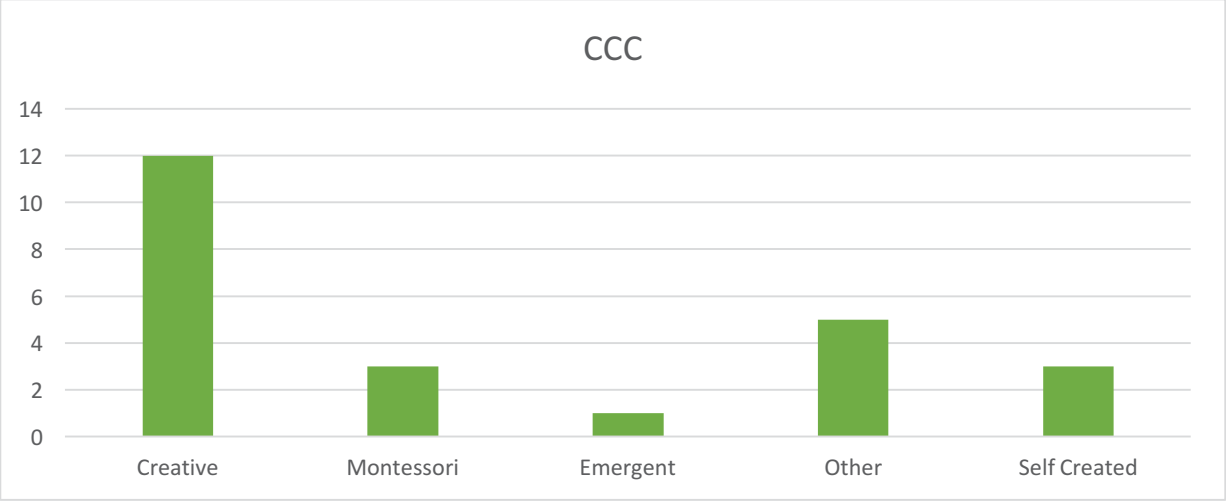
CCC	Percentage (N)
80%-100%	56.5% (13)
60%-79%	8.7% (2)
40%-59%	17.4% (4)
20%-39%	8.7% (2)
Less than 20%	8.7% (2)

FCC: If the curriculum produces extra work, what percentage (%) of the extra work do you feel is important?



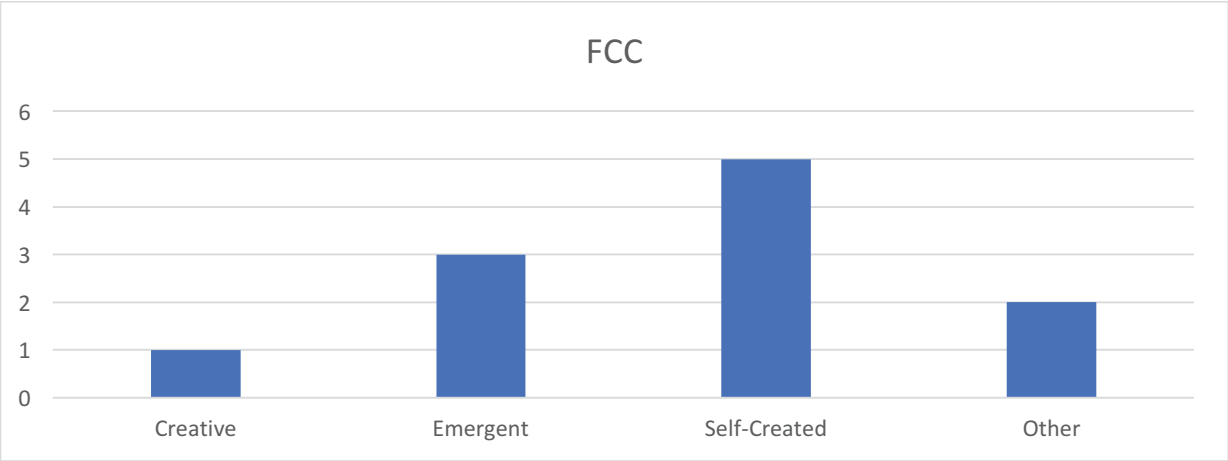
FCC	Percentage (N)
80%-100%	66.7% (6)
60%-79%	0.0% (0)
40%-59%	22.2% (2)
20%-39%	11.1% (1)
Less than 20%	0.0% (0)

32. CCC: Think about the different curriculums you/your staff have used in the past. If you could choose one to be your primary curriculum, which one would it be?



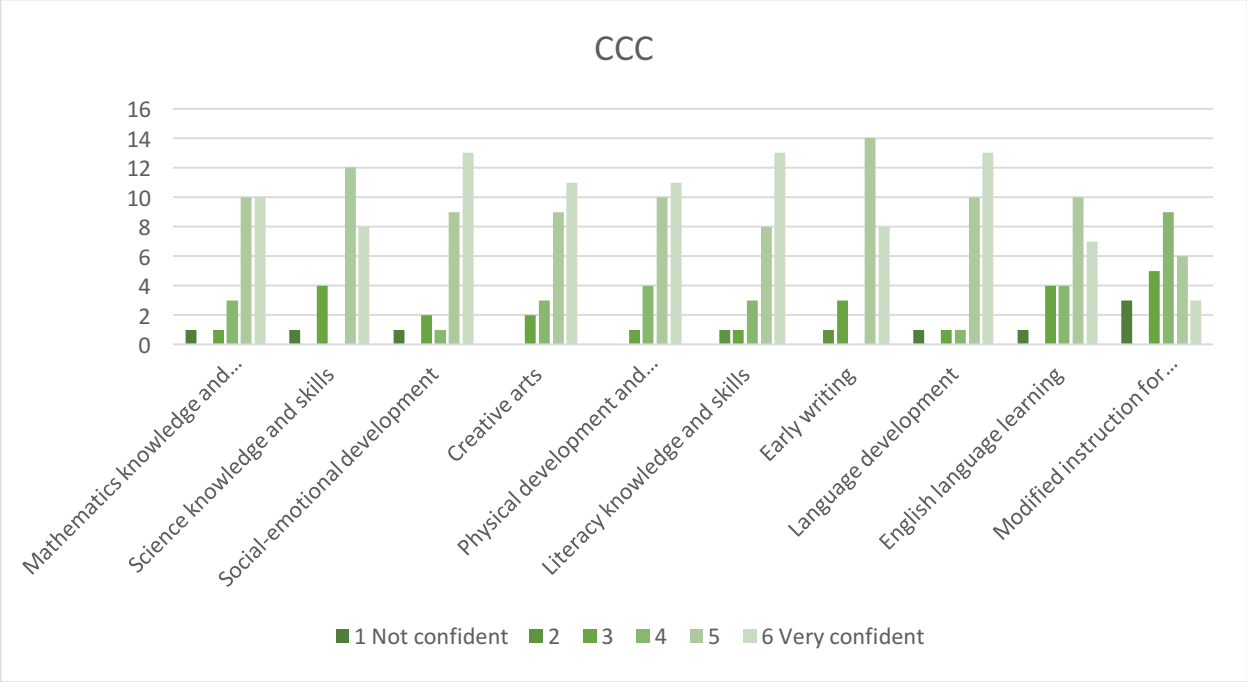
CCC	Percentage (N)
Creative	50.0% (12)
Montessori	12.5% (3)
Emergent	4.2% (1)
Other	20.8% (5)
Self Created	12.5% (3)

FCC: Think about the different curriculums you have used in the past. If you could choose one to be your primary curriculum, which one would it be?



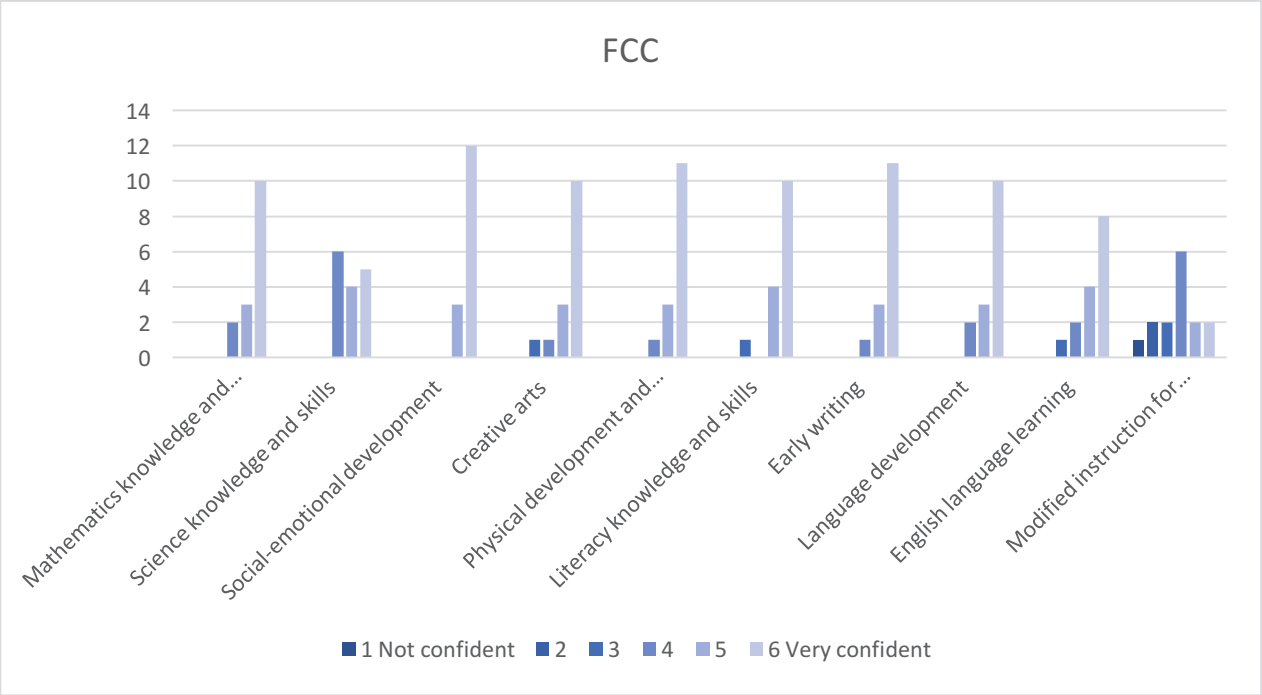
FCC	Percentage (N)
Creative	9.1% (1)
Emergent	27.3% (3)
Self-Created	18.2% (2)
Other	45.5% (5)

33. CCC: If your role as a director includes teaching in the classroom, please rate how confident you feel teaching the following to young children (if applicable):



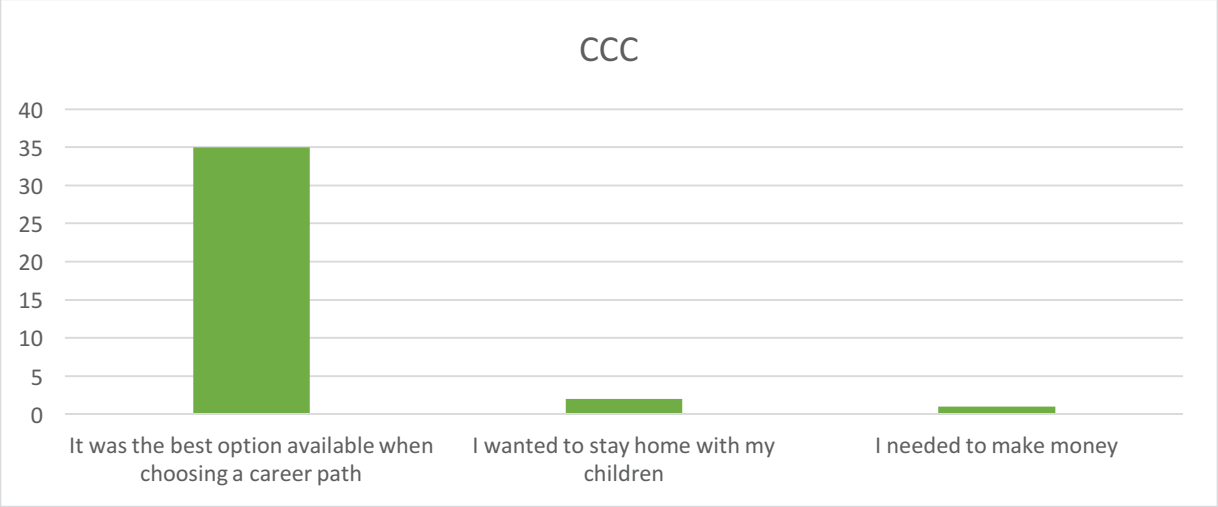
CCC	1 Not confident	2	3	4	5	6 Very confident
Mathematics knowledge and skills	4.0% (1)	0.0% (0)	4.0% (1)	12.0% (3)	40.0% (10)	40.0% (10)
Science knowledge and skills	4.0% (1)	0.0% (0)	16.0% (4)	0.0% (0)	48.0% (12)	32.0% (8)
Social-emotional development	3.8% (1)	0.0% (0)	7.7% (2)	3.8% (1)	34.6% (9)	50.0% (13)
Creative arts	0.0% (0)	0.0% (0)	8.0% (2)	12.0% (3)	36.0% (9)	44.0% (11)
Physical development and health	0.0% (0)	0.0% (0)	3.8% (1)	15.4% (4)	38.5% (10)	42.3% (11)
Literacy knowledge and skills	0.0% (0)	3.8% (1)	3.8% (1)	11.5% (3)	30.8% (8)	50.0% (13)
Early writing	0.0% (0)	3.8% (1)	11.5% (3)	0.0% (0)	53.8% (14)	30.8% (8)
Language development	3.8% (1)	0.0% (0)	3.8% (1)	3.8% (1)	38.5% (10)	50.0% (13)
English language learning	3.8% (1)	0.0% (0)	15.4% (4)	15.4% (4)	38.5% (10)	26.9% (7)
Modified instruction for special needs	11.5% (3)	0.0% (0)	19.2% (5)	34.6% (9)	23.1% (6)	11.5% (3)

FCC: Please rate how confident you feel teaching the following to young children (if applicable):



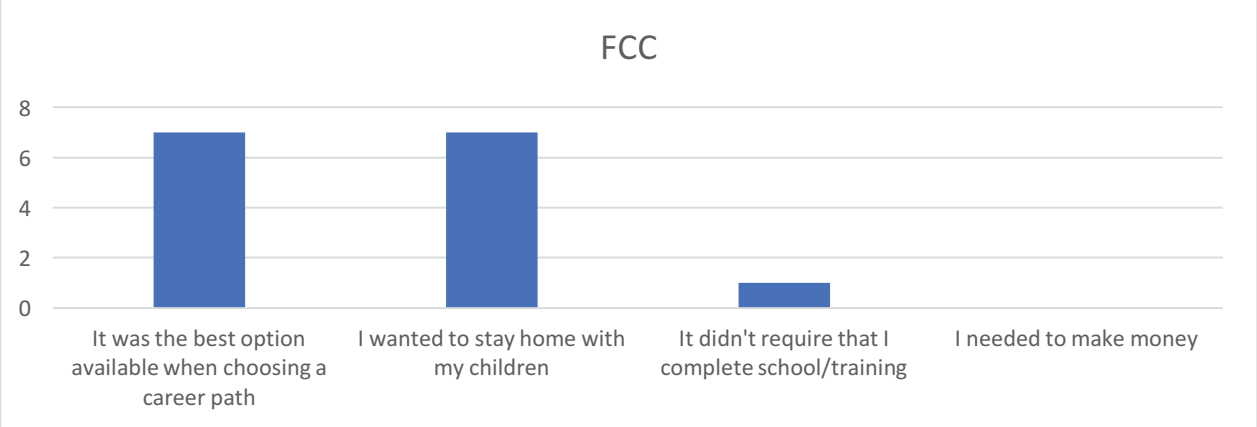
FCC	1 Not confident	2	3	4	5	6 Very confident
Mathematics knowledge and skills	0.0% (0)	0.0% (0)	0.0% (0)	13.3% (2)	20.0% (3)	66.7% (10)
Science knowledge and skills	0.0% (0)	0.0% (0)	0.0% (0)	40.0% (6)	26.7% (4)	33.3% (5)
Social-emotional development	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	20.0% (3)	80.0% (12)
Creative arts	0.0% (0)	0.0% (0)	6.7% (1)	6.7% (1)	20.0% (3)	66.7% (10)
Physical development and health	0.0% (0)	0.0% (0)	0.0% (0)	6.7% (1)	20.0% (3)	73.3% (11)
Literacy knowledge and skills	0.0% (0)	0.0% (0)	6.7% (1)	0.0% (0)	26.7% (4)	66.7% (10)
Early writing	0.0% (0)	0.0% (0)	0.0% (0)	6.7% (1)	20.0% (3)	73.3% (11)
Language development	0.0% (0)	0.0% (0)	0.0% (0)	13.3% (2)	20.0% (3)	66.7% (10)
English language learning	0.0% (0)	0.0% (0)	6.7% (1)	13.3% (2)	26.7% (4)	53.3% (8)
Modified instruction for special needs	6.7% (1)	13.3% (2)	13.3% (2)	40.0% (6)	13.3% (2)	13.3% (2)

34. CCC: Professionals choose to work in the field of early childhood education for many reasons. *Out of the four options below*, which most accurately represents your reason for entering the field? (mark one)



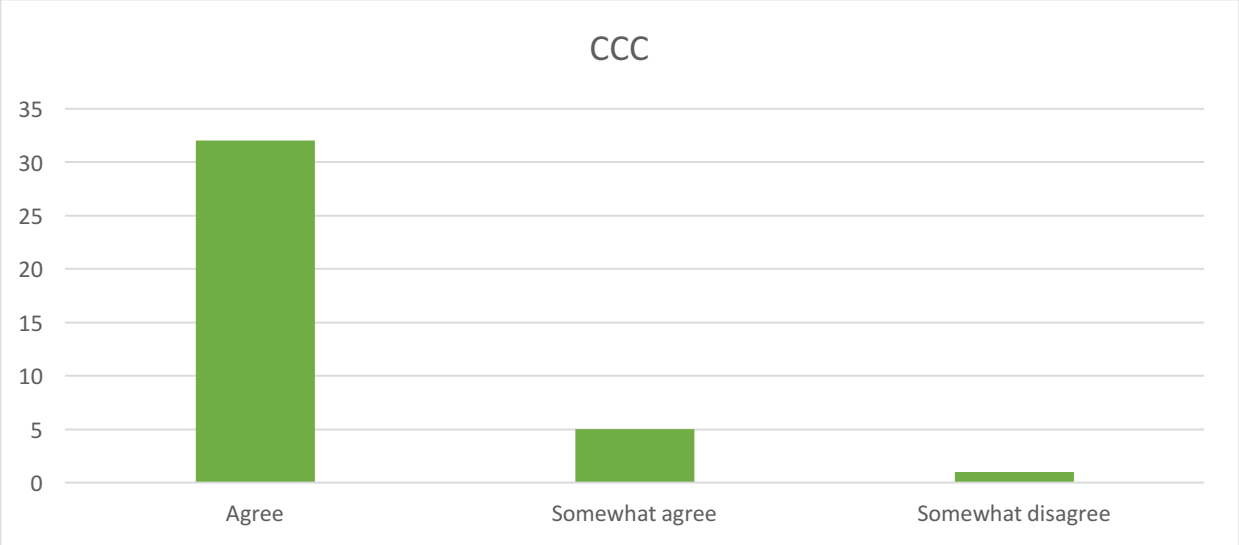
CCC	Percentage (N)
It was the best option available when choosing a career path	92.1% (35)
I wanted to stay home with my children	5.3% (2)
I needed to make money	2.6% (1)

FCC: Professionals choose to work in the field of early childhood education for many reasons. *Out of the four options below*, which most accurately represents your reason for entering the field? (mark one)



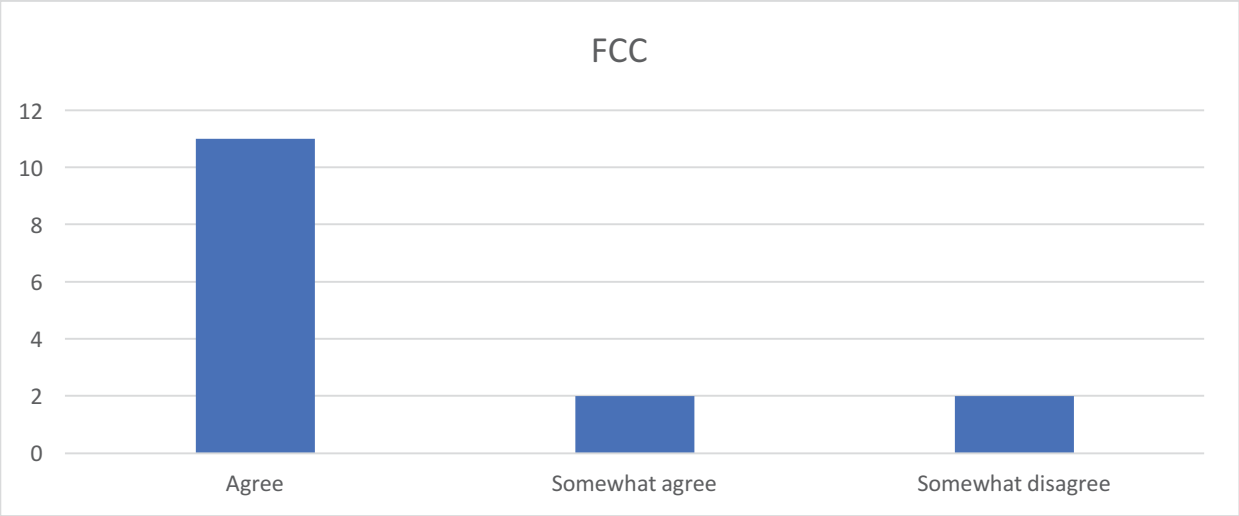
FCC	Percentage (N)
It was the best option available when choosing a career path	46.7% (7)
I wanted to stay home with my children	46.7% (7)
It didn't require that I complete school/training	6.7% (1)
I needed to make money	0.0% (0)

35. CCC: I see myself staying in the field of early childhood education for the remainder of my professional career.



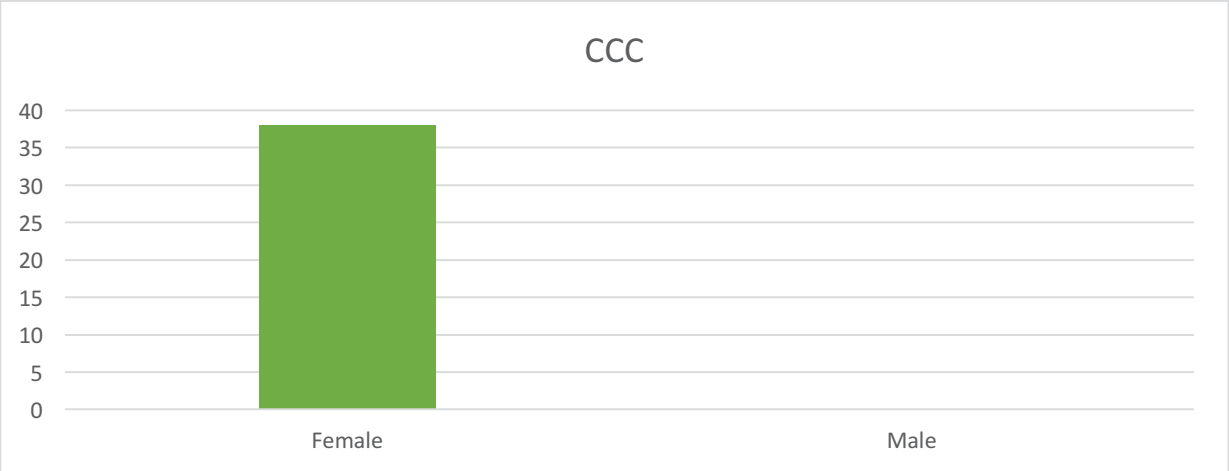
CCC	Percentage (N)
Agree	84.2% (32)
Somewhat agree	13.2% (5)
Somewhat disagree	2.6% (1)
Disagree	0.0% (0)

FCC: I see myself staying in the field of early childhood education for the remainder of my professional career.



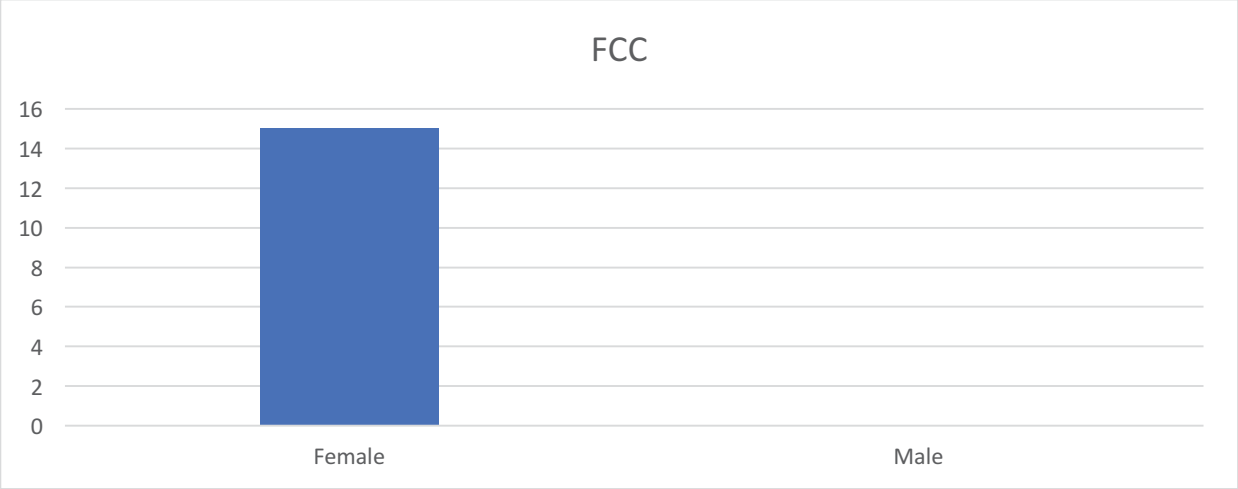
FCC	Percentage (N)
Agree	73.3% (11)
Somewhat agree	13.3% (2)
Somewhat disagree	13.3% (2)
Disagree	0.0% (0)

36. CCC: What is your gender?



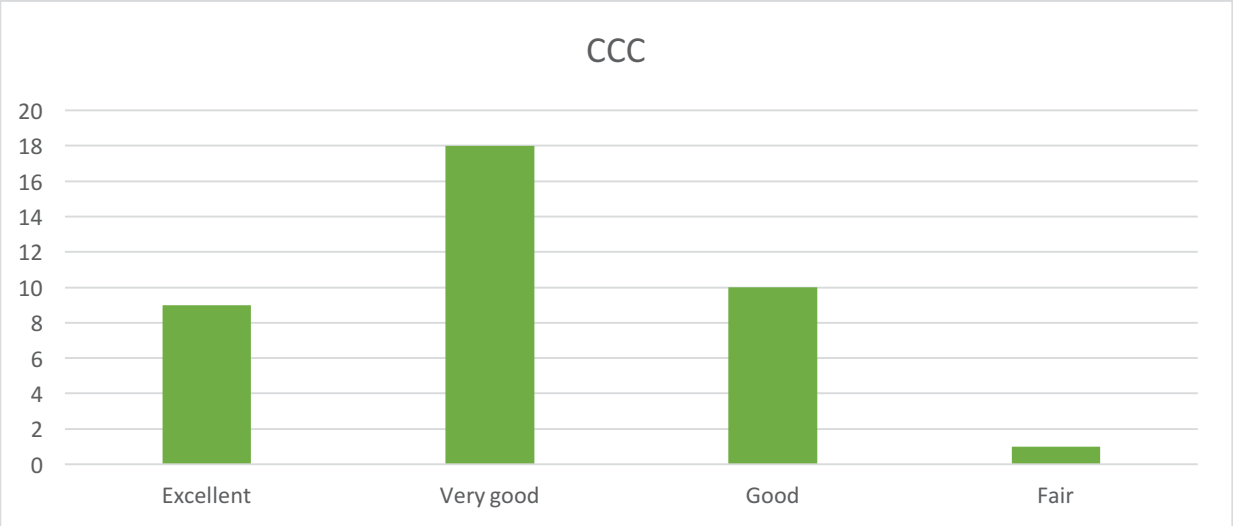
CCC	Percentage (N)
Female	100.0% (38)
Male	0.0% (0)

FCC: What is your gender?



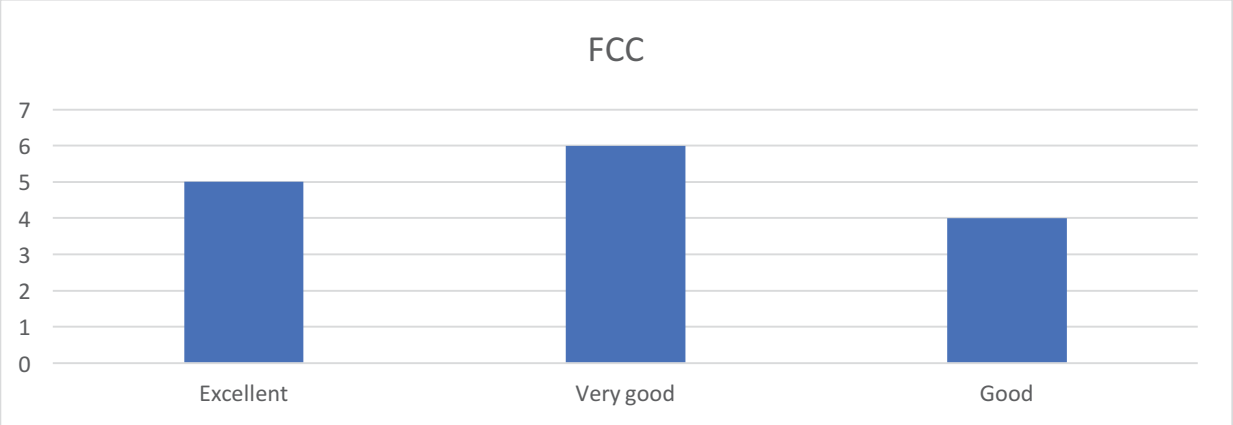
FCC	Percentage (N)
Female	100.0% (15)
Male	0.0% (0)

37. CCC: How would you rate your current health status?



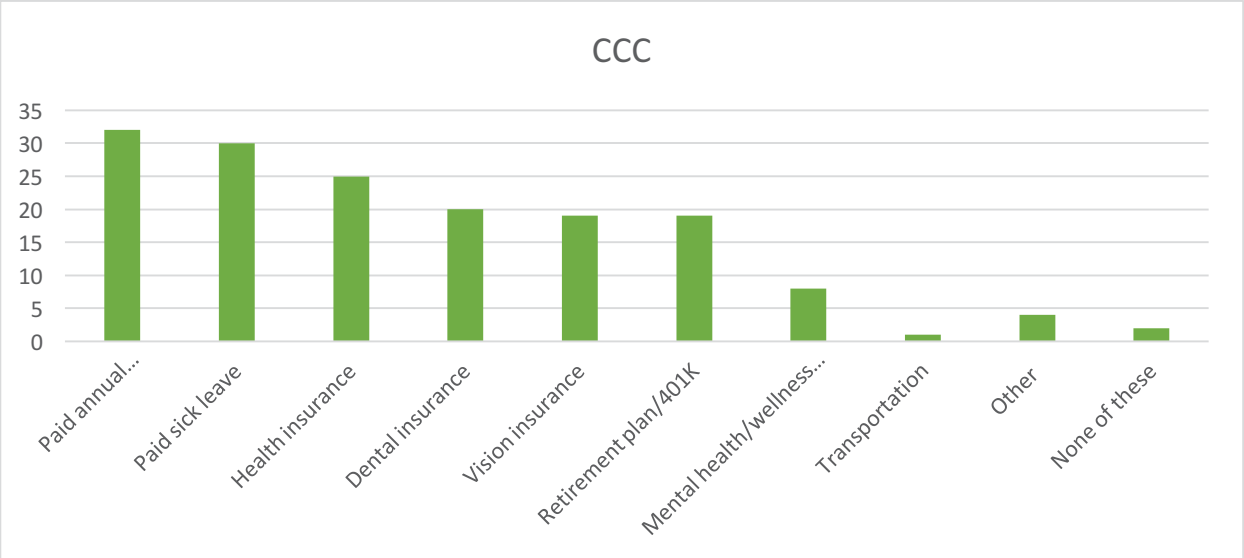
CCC	Percentage (N)
Excellent	23.7% (9)
Very good	47.4% (18)
Good	26.3% (10)
Fair	2.6% (1)
Poor	0.0% (0)

FCC: How would you rate your current health status?



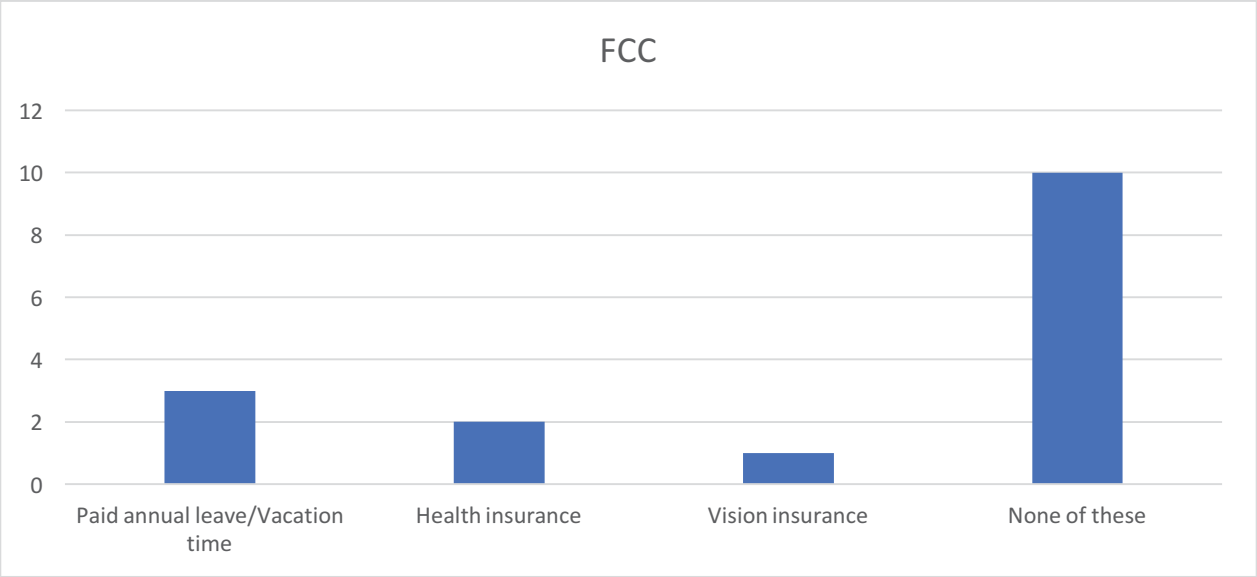
CCC	Percentage (N)
Excellent	33.3% (5)
Very good	40.0% (6)
Good	26.7% (4)
Fair	0.0% (0)
Poor	0.0% (0)

38. CCC: What benefits do you receive from your position? (check all that apply)



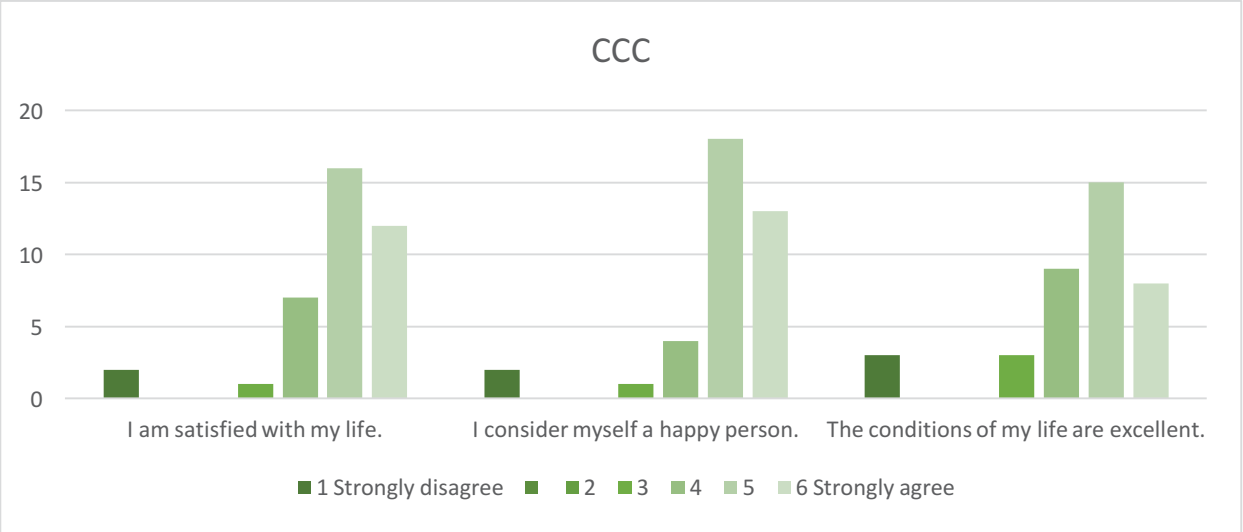
CCC	Percentage (N)
Paid annual leave/Vacation time	84.2% (32)
Paid sick leave	78.9% (30)
Health insurance	65.8% (25)
Dental insurance	52.6% (20)
Vision insurance	50.0% (19)
Retirement plan/401K	50.0% (19)
Mental health/wellness support	21.1% (8)
Transportation	2.6% (1)
Other	10.5% (4)
None of these	5.3% (2)

FCC: What benefits do you receive from your position? (check all that apply)



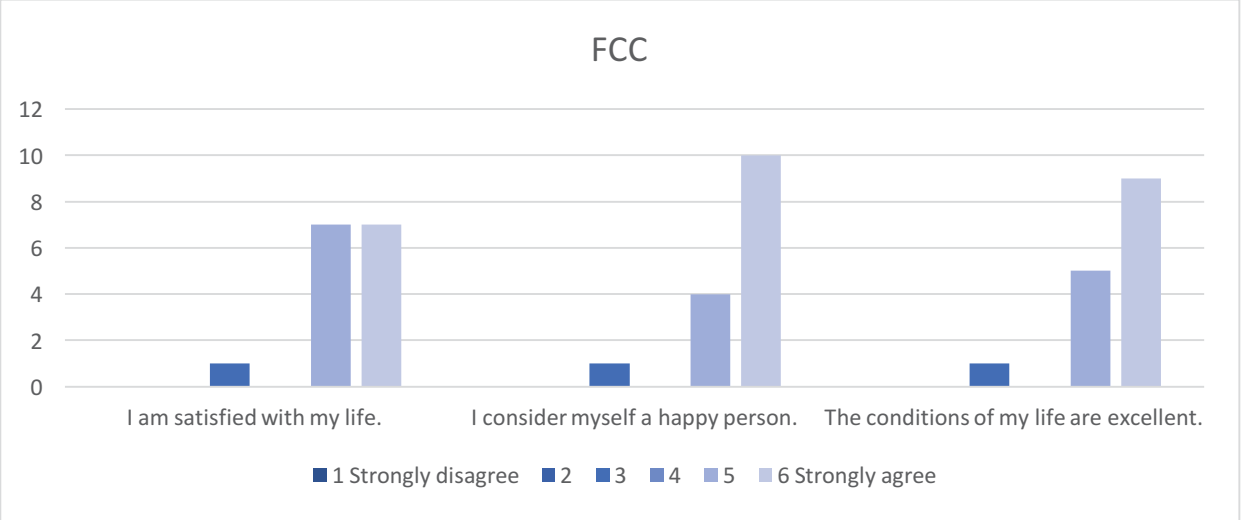
FCC	Percentage (N)
Paid annual leave/Vacation time	20.0% (3)
Health insurance	13.3% (2)
Vision insurance	6.7% (1)
Dental insurance	0.0% (0)
Paid sick leave	0.0% (0)
Retirement plan/401K	0.0% (0)
Transportation	0.0% (0)
Mental health/wellness support	0.0% (0)
Other	0.0% (0)
None of these	66.7% (10)

39. CCC: Please indicate how much you agree or disagree with the following statements …



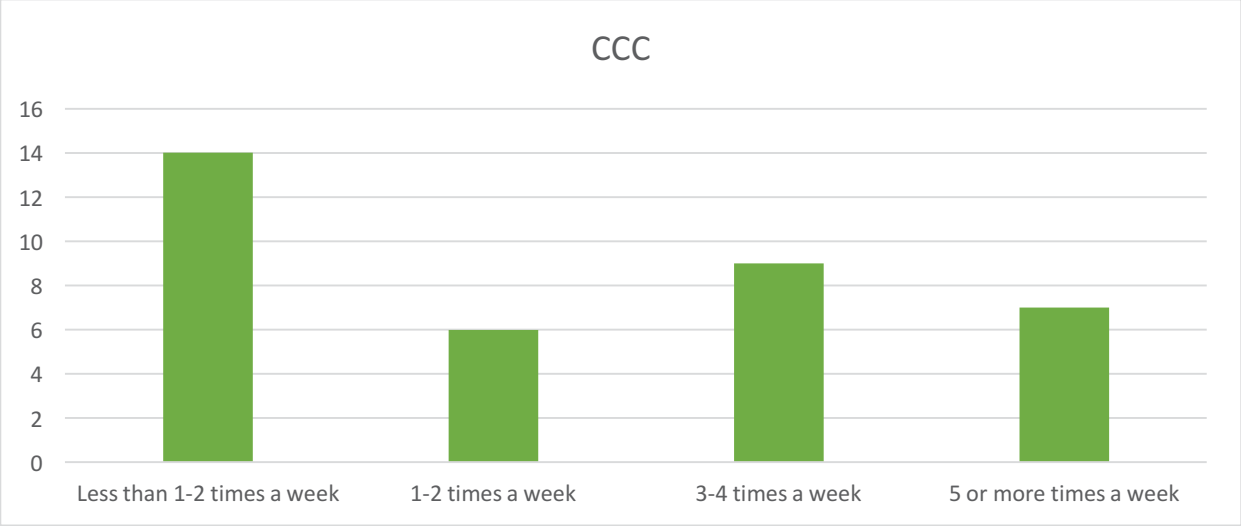
CCC	1 Strongly disagree	2	3	4	5	6 Strongly agree
I am satisfied with my life.	5.3% (2)	0.0% (0)	2.6% (1)	18.47% (7)	42.1% (16)	31.6% (12)
I consider myself a happy person.	5.3% (2)	0.0% (0)	2.6% (1)	10.5% (4)	47.4% (18)	34.2% (13)
The conditions of my life are excellent.	7.9% (3)	0.0% (0)	7.9% (3)	23.7% (9)	39.5% (15)	21.1% (8)

FCC: Please indicate how much you agree or disagree with the following statements …



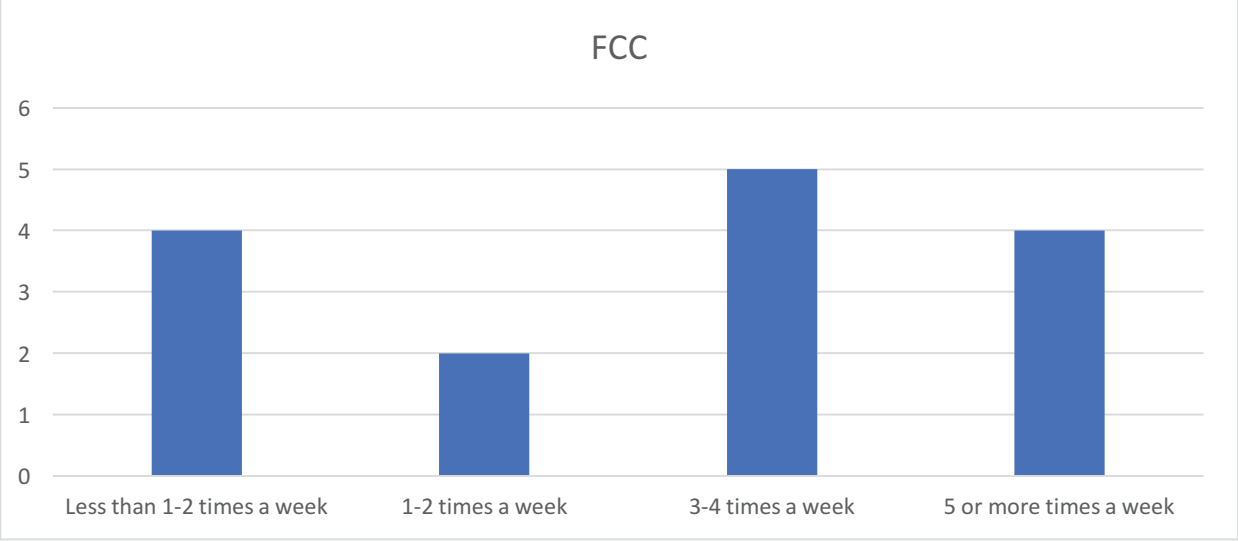
FCC	1 Strongly disagree	2	3	4	5	6 Strongly agree
I am satisfied with my life.	0.0% (0)	0.0% (0)	6.7% (1)	0.0% (0)	46.7% (7)	46.7% (7)
I consider myself a happy person.	0.0% (0)	0.0% (0)	6.7% (1)	0.0% (0)	26.7% (4)	66.7% (10)
The conditions of my life are excellent.	0.0% (0)	0.0% (0)	6.7% (1)	0.0% (0)	33.3% (5)	60.0% (9)

40. CCC: How often do you take time out of your daily schedule to exercise for at least 20 minutes?



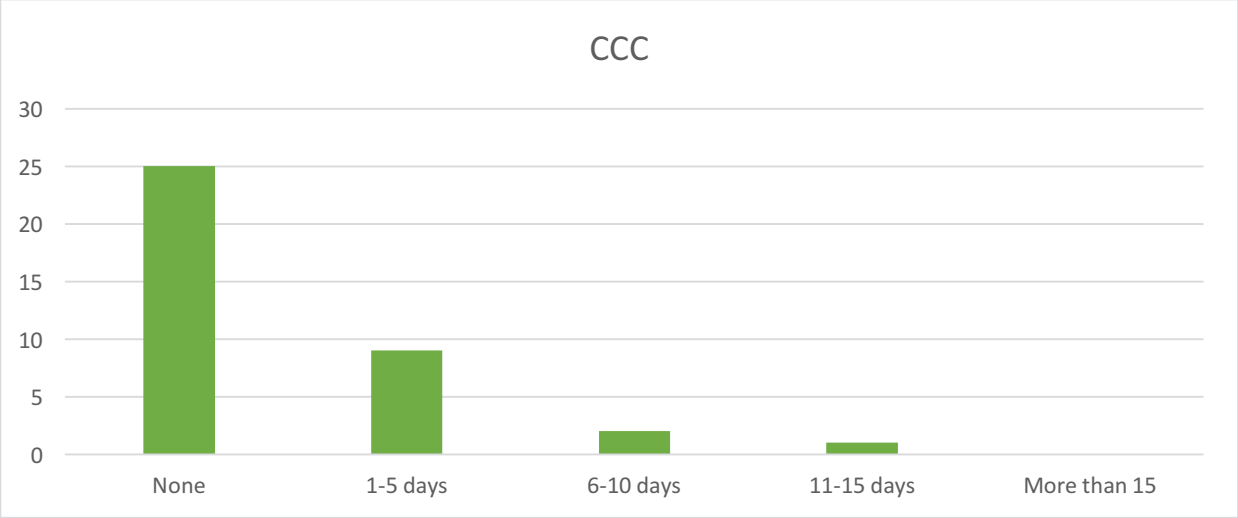
CCC	Percentage (N)
Less than 1-2 times a week	38.9% (14)
1-2 times a week	16.7% (6)
3-4 times a week	25.0% (9)
5 or more times a week	19.4% (7)

FCC: How often do you take time out of your daily schedule to exercise for at least 20 minutes?



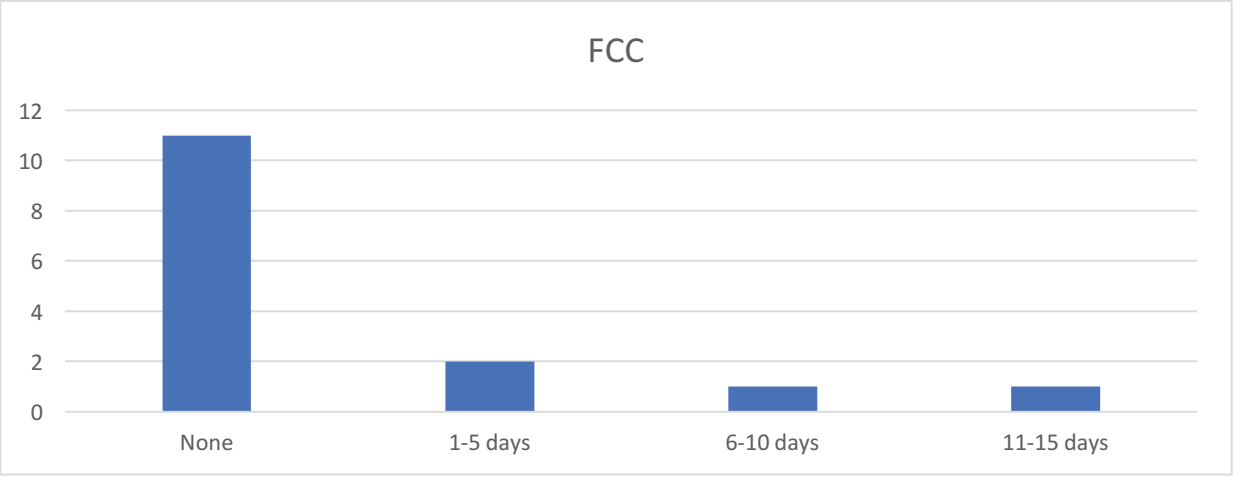
FCC	Percentage (N)
Less than 1-2 times a week	26.7% (4)
1-2 times a week	13.3% (2)
3-4 times a week	33.3% (5)
5 or more times a week	26.7% (4)

41. CCC: Thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?



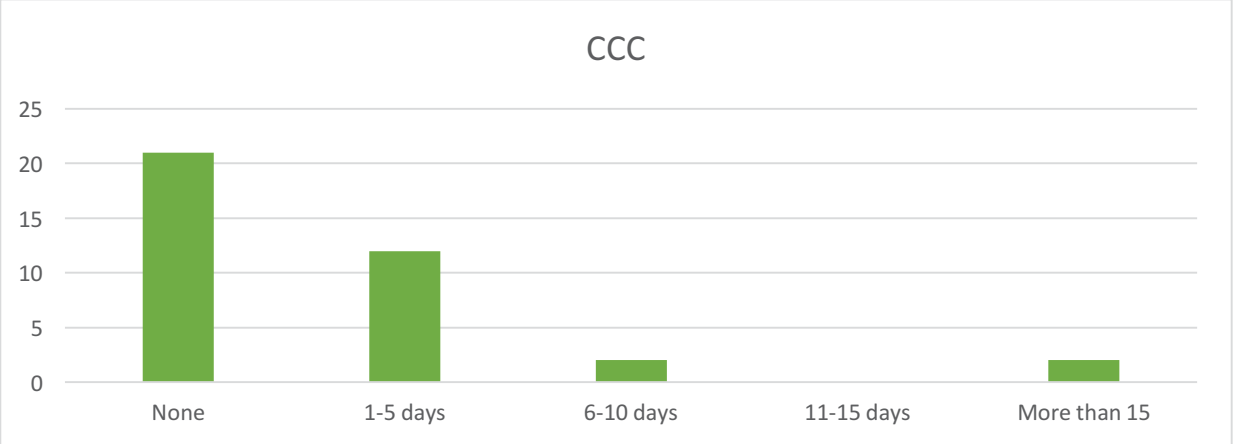
CCC	Percentage (N)
None	67.6% (25)
1-5 days	24.3% (9)
6-10 days	5.4% (2)
11-15 days	2.7% (1)
More than 15	0.0% (0)

FCC: Thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?



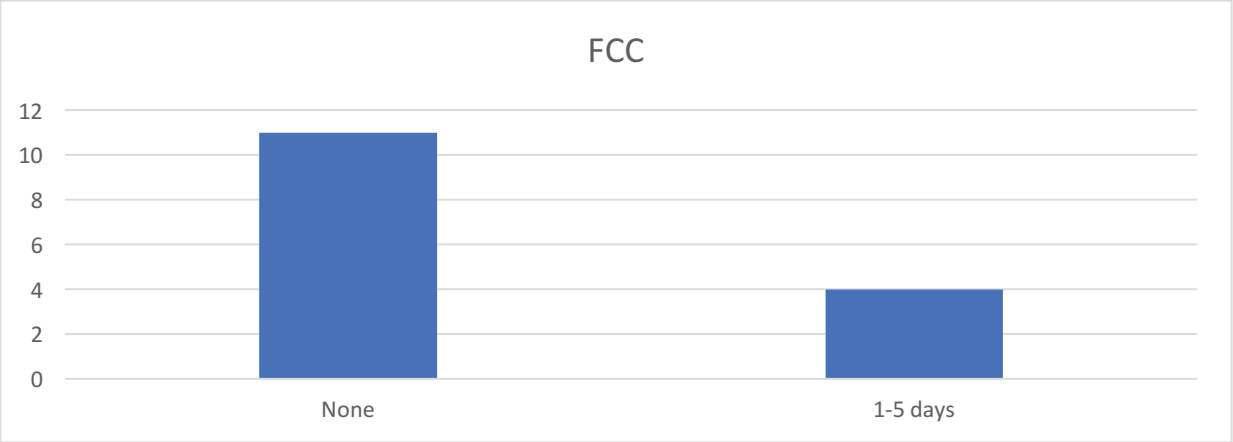
FCC	Percentage (N)
None	73.3% (11)
1-5 days	13.3% (2)
6-10 days	6.7% (1)
11-15 days	6.7% (1)
More than 15	0.0% (0)

42. CCC: During the past 12 months, about how many days did you miss work because of your own illness or injury (do not include maternity leave)?



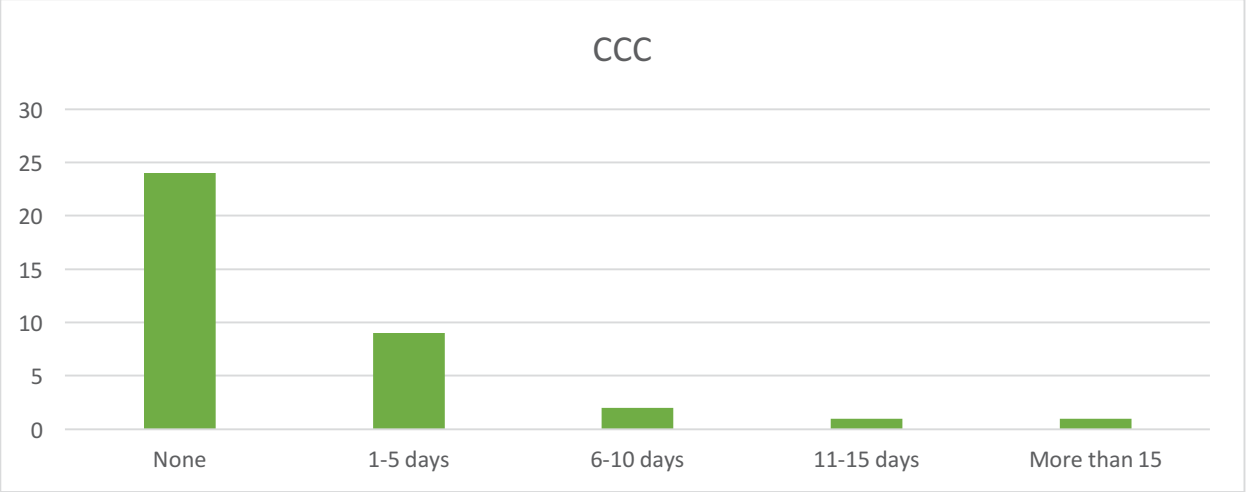
CCC	Percentage (N)
None	56.8% (21)
1-5 days	32.4% (12)
6-10 days	5.4% (2)
11-15 days	0.0% (0)
More than 15	5.4% (2)

FCC: During the past 12 months, about how many days did you miss work because of your own illness or injury (do not include maternity leave)?



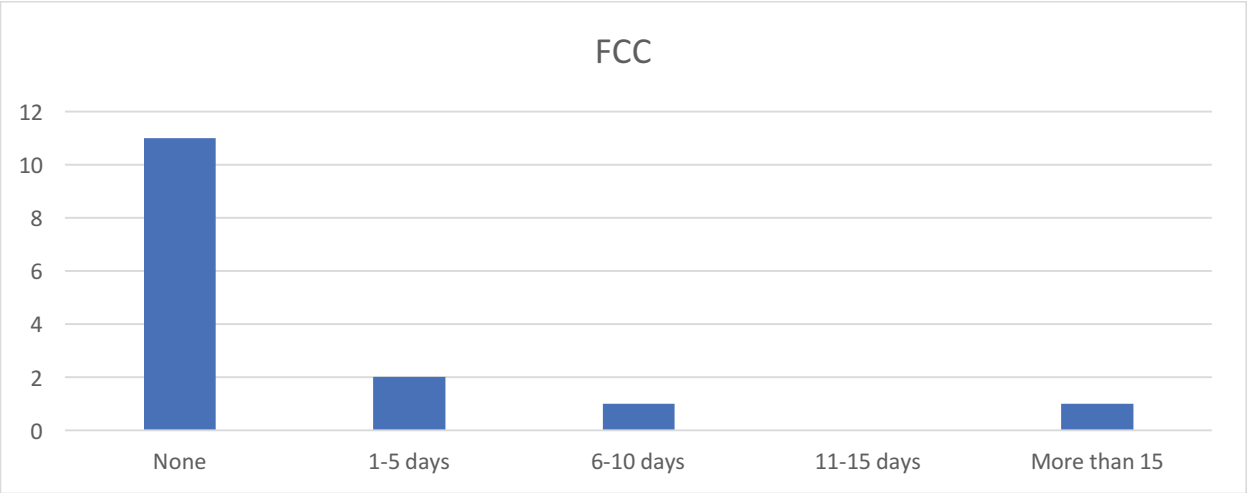
FCC	Percentage (N)
None	73.3% (11)
1-5 days	26.7% (4)
6-10 days	0.0% (0)
11-15 days	0.0% (0)
More than 15	0.0% (0)

43. CCC: Thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?



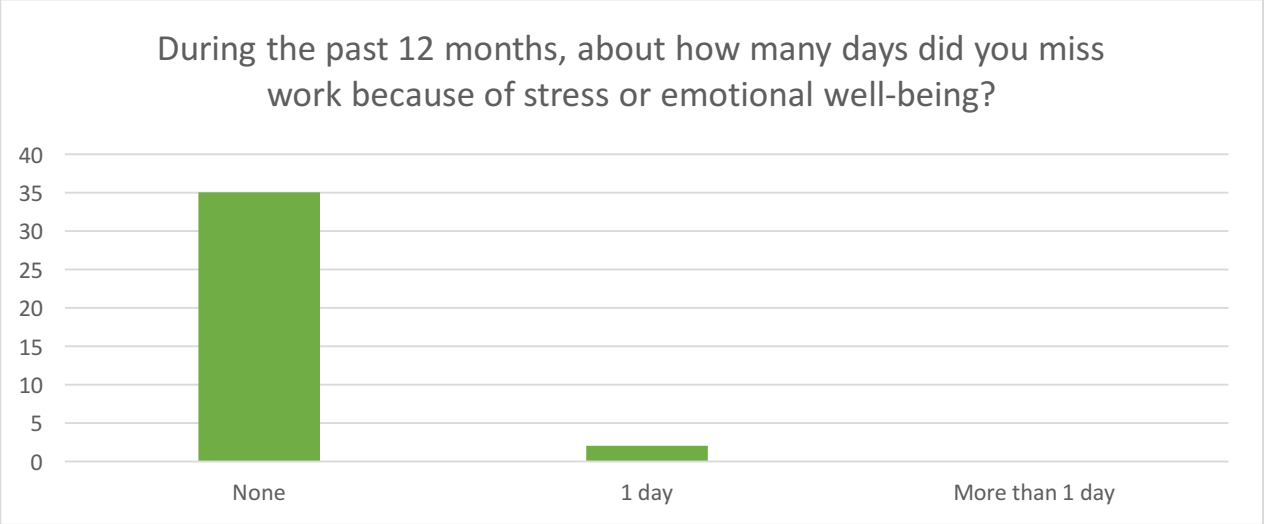
CCC	Percentage (N)
None	64.9% (24)
1-5 days	24.3% (9)
6-10 days	5.4% (2)
11-15 days	2.7% (1)
More than 15	2.7% (1)

FCC: Thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?



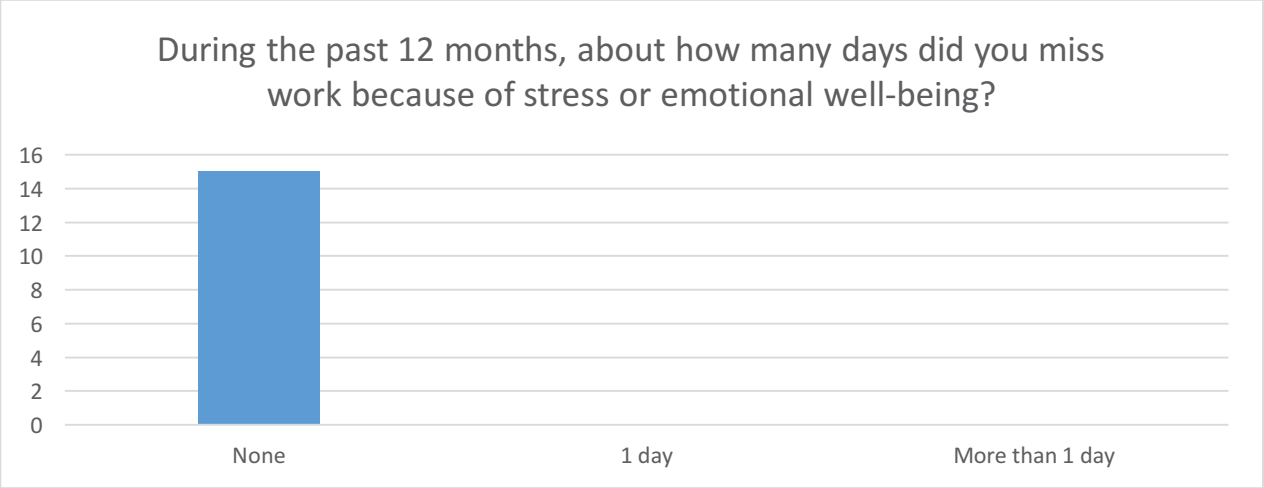
FCC	Percentage (N)
None	73.3% (11)
1-5 days	13.3% (2)
6-10 days	6.7% (1)
11-15 days	0.0% (0)
More than 15	6.7% (1)

44. CCC: During the past 12 months, about how many days did you miss work because of stress or emotional well-being?



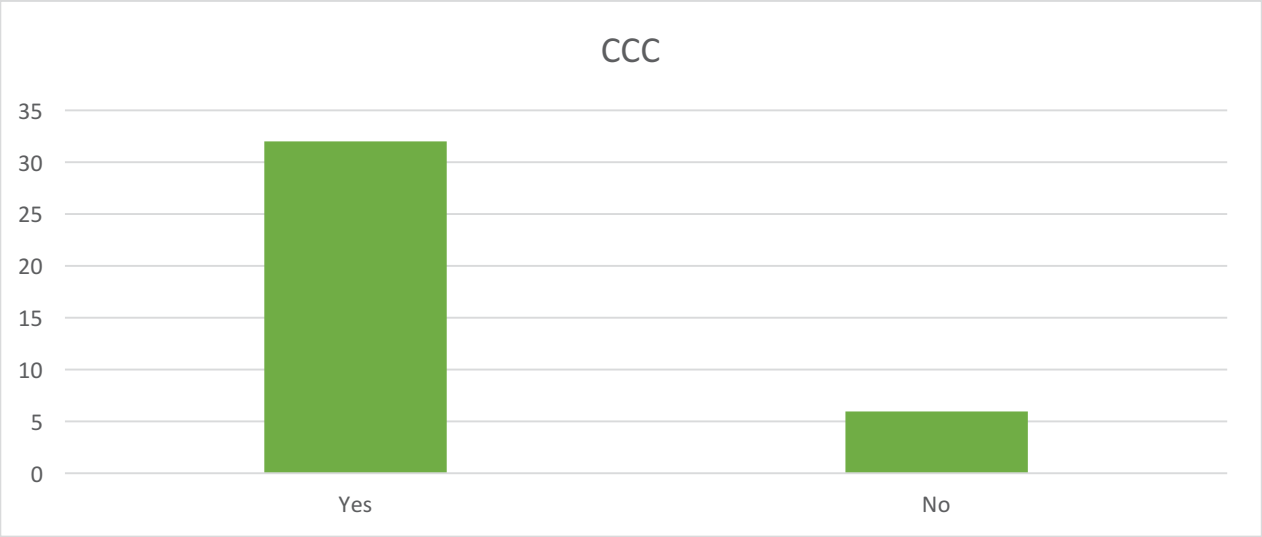
CCC	Percentage (N)
None	94.6% (35)
1 day	5.4% (2)
More than 1 day	0.0% (0)

FCC: During the past 12 months, about how many days did you miss work because of stress or emotional well-being?



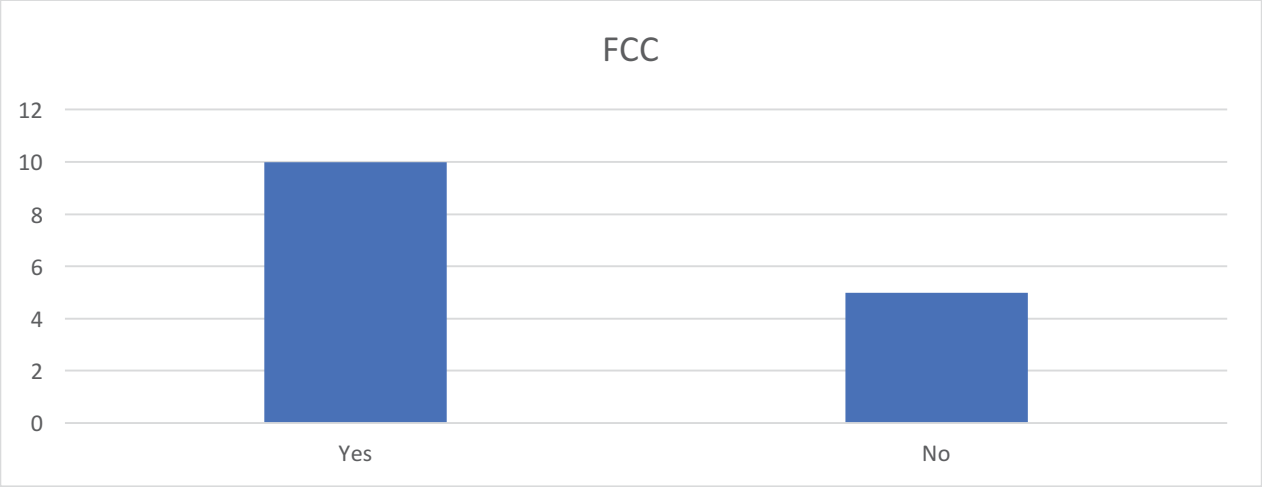
FCC	Percentage (N)
None	100.0% (15)
1 day	0.0% (0)
More than 1 day	0.0% (0)

45. CCC: Do you currently have a primary care physician or doctor that you see regularly?



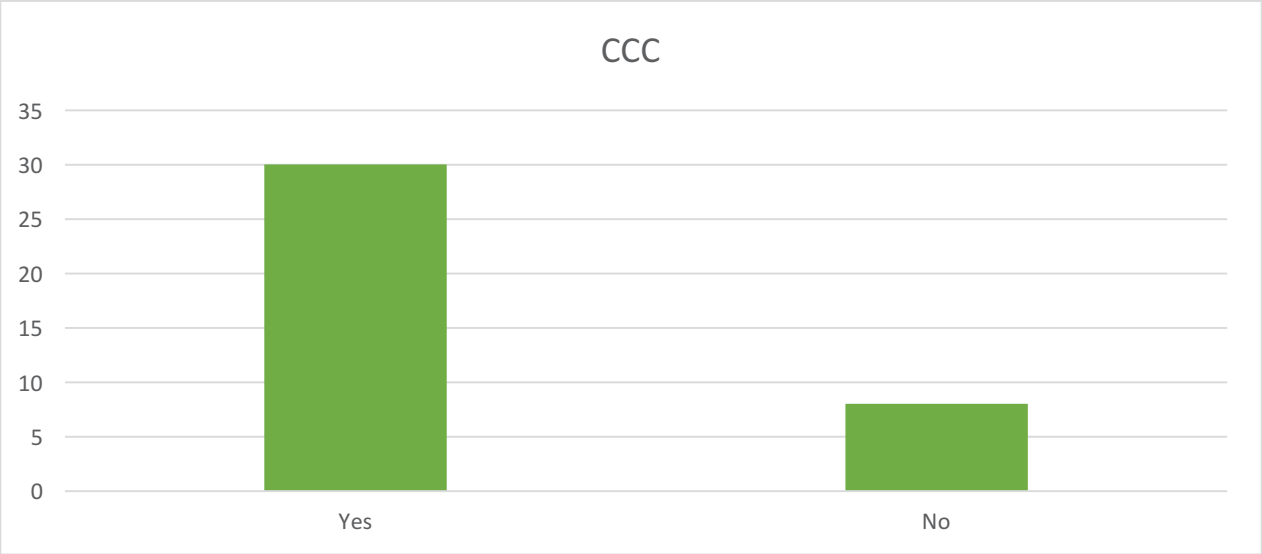
CCC	Percentage (N)
Yes	84.2% (32)
No	15.8% (6)

FCC: Do you currently have a primary care physician or doctor that you see regularly?



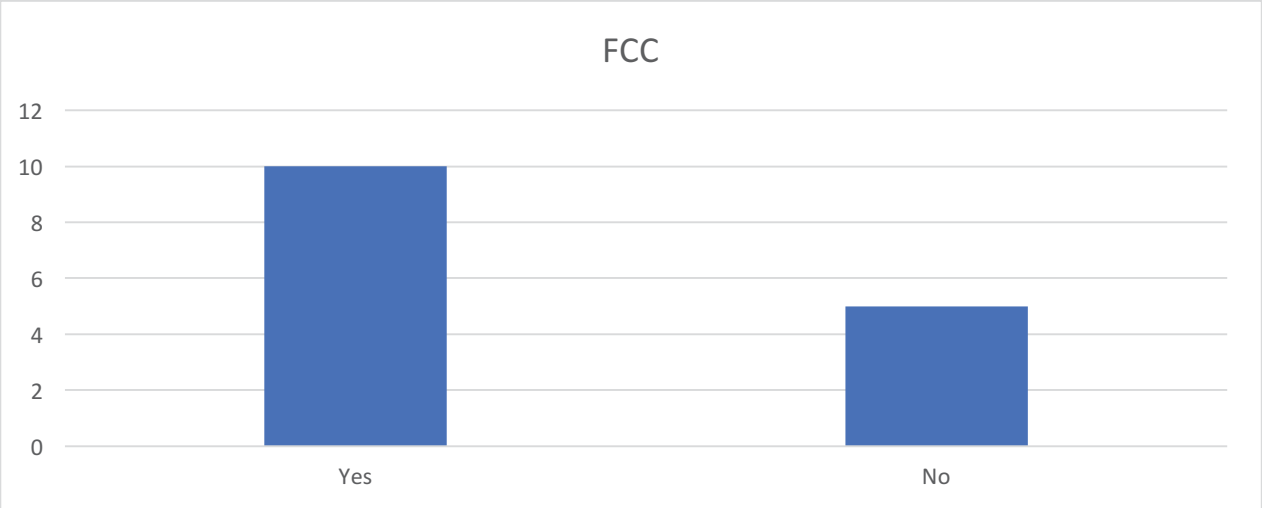
FCC	Percentage (N)
Yes	66.7% (10)
No	33.3% (5)

46. CCC: Have you visited a dentist in the last 12 months?



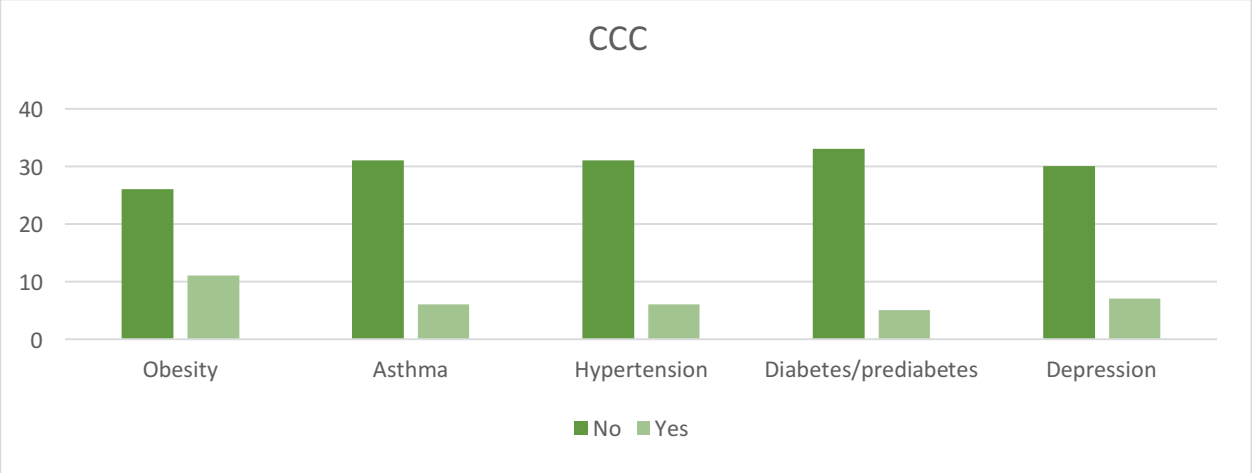
CCC	Percentage (N)
Yes	78.9% (30)
No	21.1% (8)

FCC: Have you visited a dentist in the last 12 months?



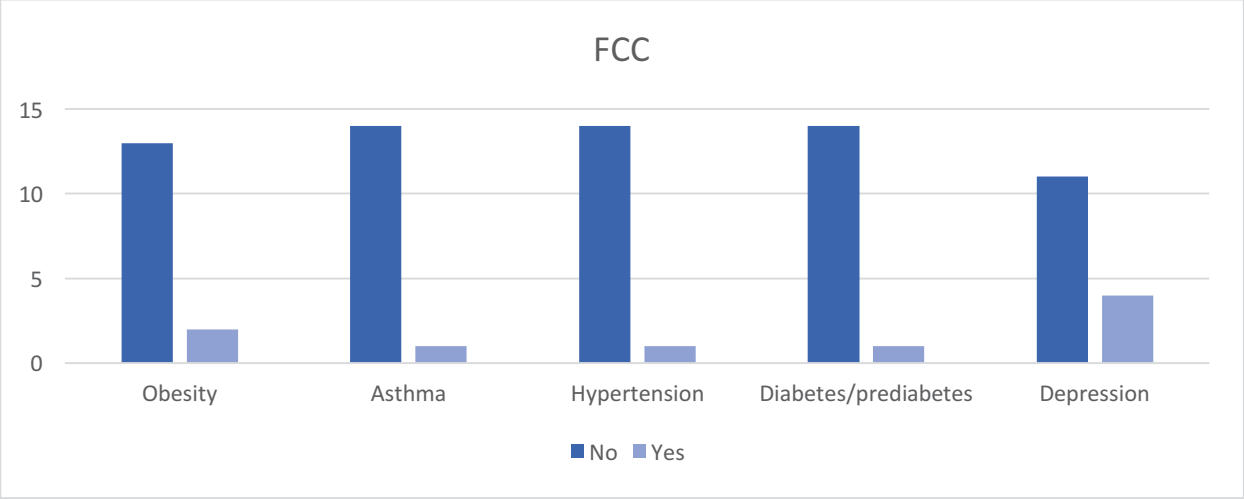
FCC	Percentage (N)
Yes	66.7% (10)
No	33.3% (5)

47. CCC: Have you ever been told by a doctor or other health professional that you have any of the following?



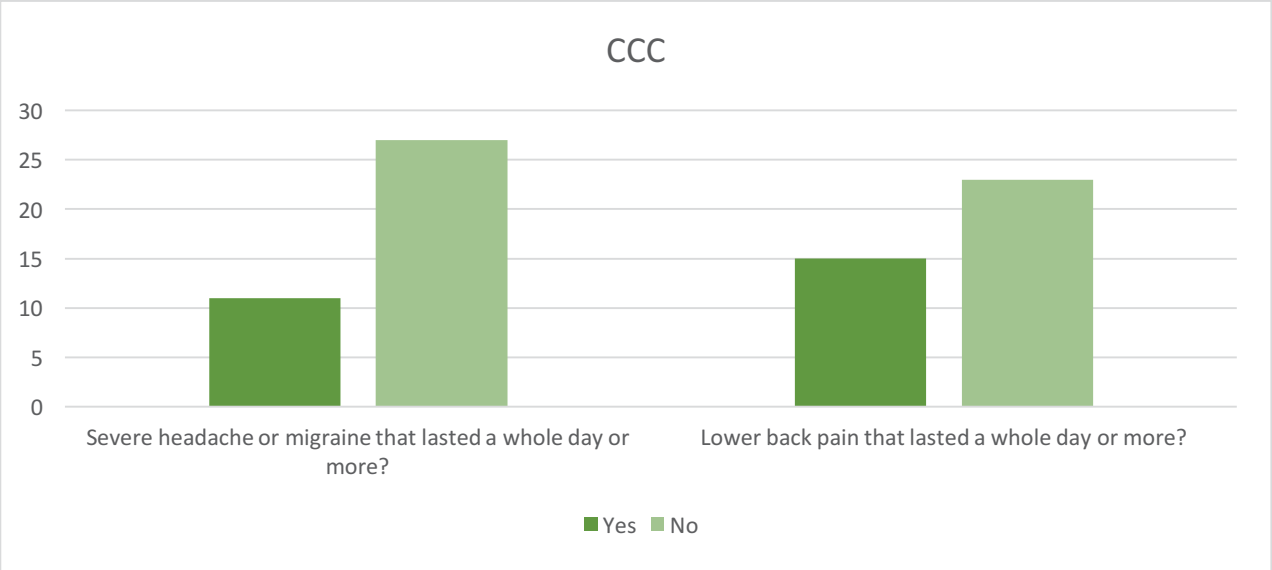
CCC	No	Yes
Obesity	70.3% (26)	29.7% (11)
Asthma	83.8% (31)	16.2% (6)
Hypertension	83.8% (31)	16.2% (6)
Diabetes/prediabetes	86.8% (33)	13.2% (5)
Depression	81.1% (30)	18.9% (7)

FCC: Have you ever been told by a doctor or other health professional that you have any of the following?



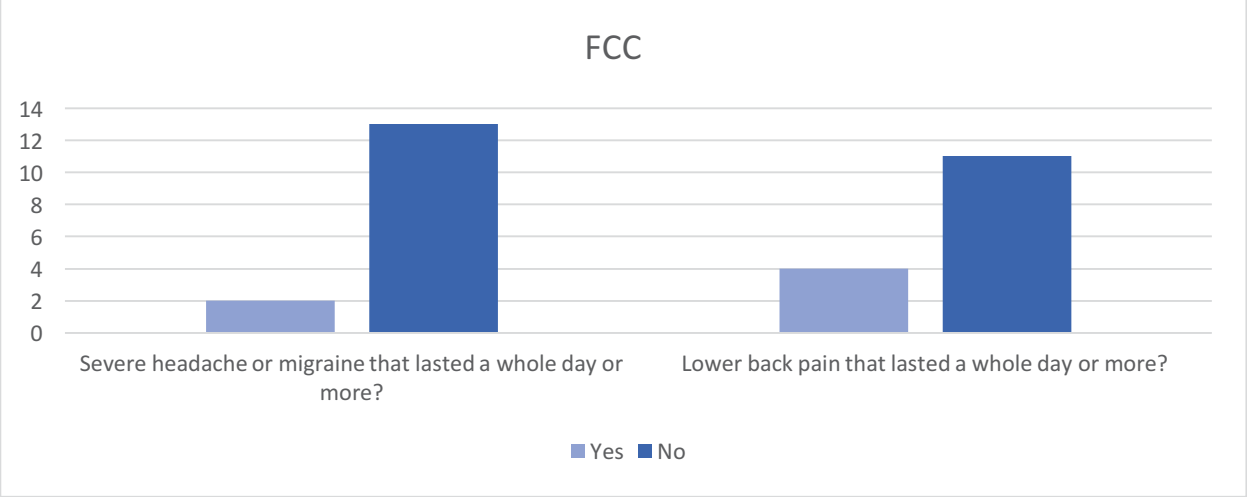
FCC	No	Yes
Obesity	86.7% (13)	13.3% (2)
Asthma	93.3% (14)	6.7% (1)
Hypertension	93.3% (14)	6.7% (1)
Diabetes/prediabetes	93.3% (14)	6.7% (1)
Depression	73.3% (11)	26.7% (4)

48. CCC: During the previous three (3) months, have you had…



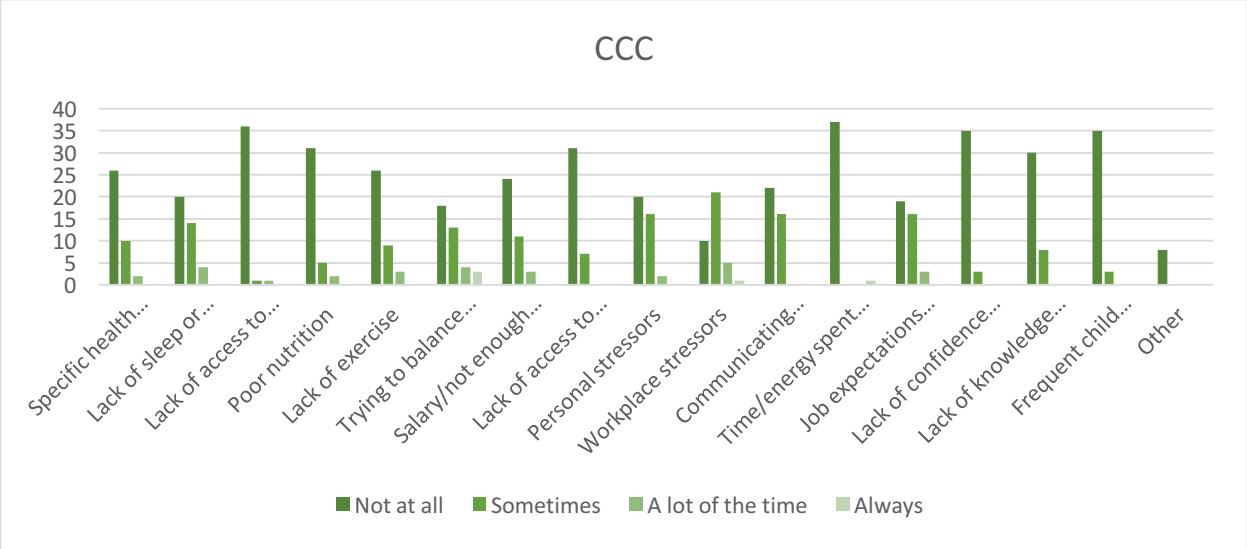
CCC	Yes	No
Severe headache or migraine that lasted a whole day or more?	28.9% (11)	71.1% (27)
Lower back pain that lasted a whole day or more?	39.5% (15)	60.5% (23)

FCC: During the previous three (3) months, have you had…



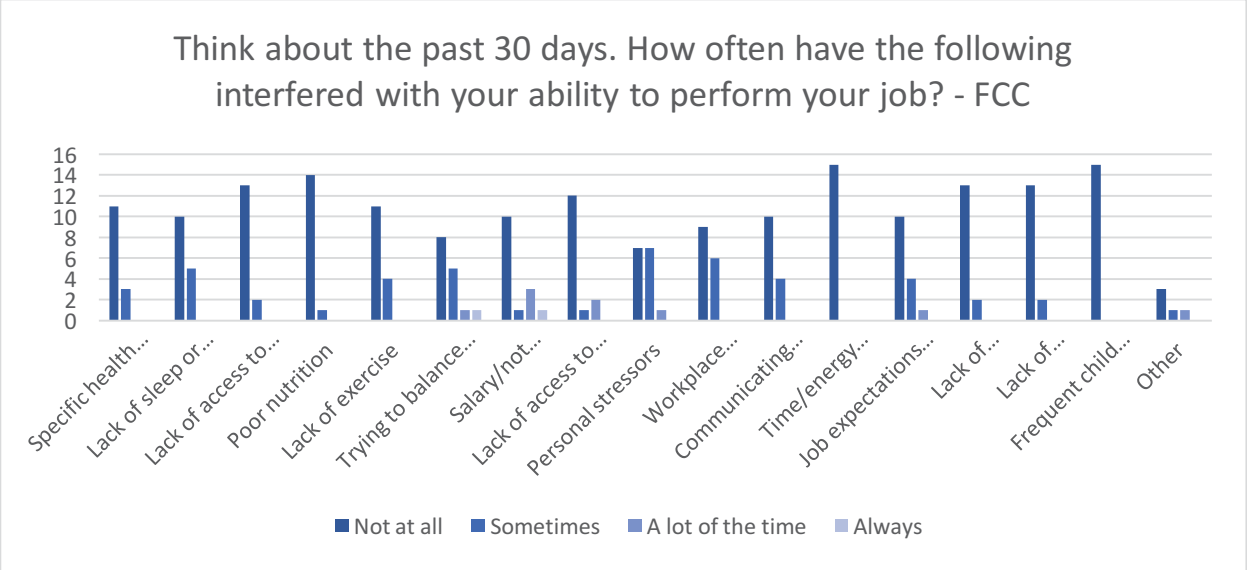
FCC	Yes	No
Severe headache or migraine that lasted a whole day or more?	13.3% (2)	86.7% (13)
Lower back pain that lasted a whole day or more?	26.7% (4)	73.3% (11)

49. CCC: Think about the past 30 days. How often have the following interfered with your ability to perform your job?



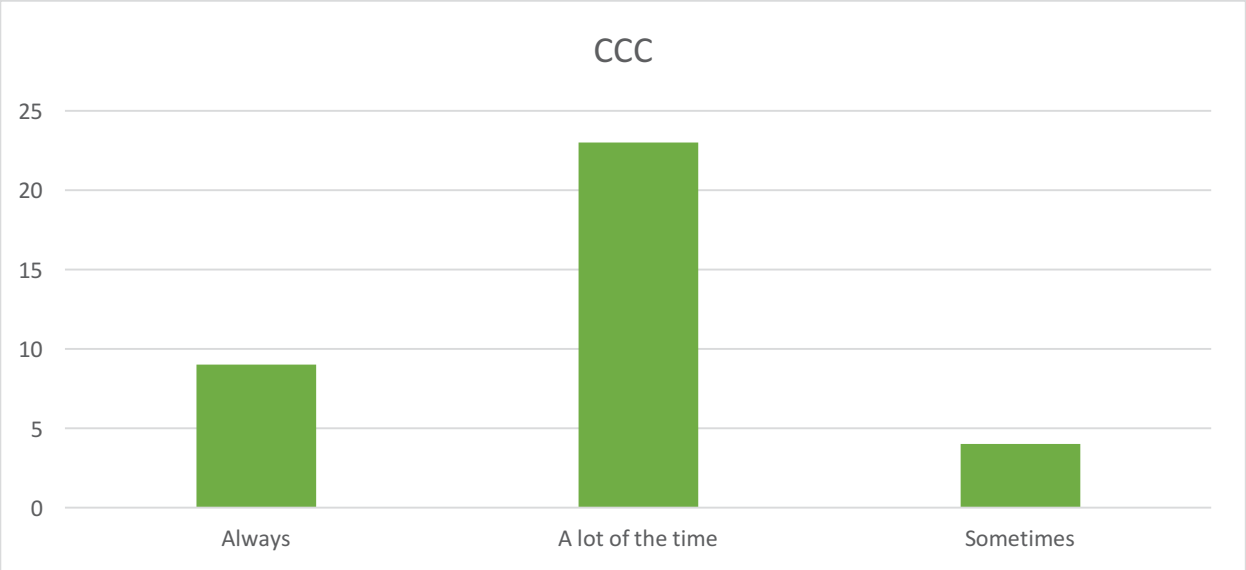
CCC	Not at all	Sometimes	A lot of the time	Always
Specific health issues (e.g., migraines, injury, depression)	68.4% (26)	26.3% (10)	5.3% (2)	0.0% (0)
Lack of sleep or sleep difficulties	52.6% (20)	36.8% (14)	10.5% (4)	0.0% (0)
Lack of access to good health care	94.7% (36)	2.6% (1)	2.6% (1)	0.0% (0)
Poor nutrition	81.6% (31)	13.2% (5)	5.3% (2)	0.0% (0)
Lack of exercise	68.4% (26)	23.7% (9)	7.9% (3)	0.0% (0)
Trying to balance work and family time	47.4% (18)	34.2% (13)	10.5% (4)	7.9% (3)
Salary/not enough money	63.2% (24)	28.9% (11)	7.9% (3)	0.0% (0)
Lack of access to materials/resources	81.6% (31)	18.4% (7)	0.0% (0)	0.0% (0)
Personal stressors	52.6% (20)	42.1% (16)	5.3% (2)	0.0% (0)
Workplace stressors	27.0% (10)	56.8% (21)	13.5%(5)	2.7% (1)
Communicating with/reaching out to parents	57.9% (22)	42.1% (16)	0.0% (0)	0.0% (0)
Time/energy spent working a second job	97.4% (37)	0.0% (0)	0.0% (0)	2.6% (1)
Job expectations (e.g., trainings, assessments, raising EA rating)	50.0% (19)	42.1% (16)	7.9% (3)	0.0% (0)
Lack of confidence in abilities as a teacher	92.1% (35)	7.9% (3)	0.0% (0)	0.0% (0)
Lack of knowledge in specific areas of early childhood education	78.9% (30)	21.1% (8)	0.0% (0)	0.0% (0)
Frequent child absences and/or mobility (transitioning in or out)	92.1% (35)	7.9% (3)	0.0% (0)	0.0% (0)
Other	100.0% (8)	0.0% (0)	0.0% (0)	0.0% (0)

FCC: Think about the past 30 days. How often have the following interfered with your ability to perform your job?



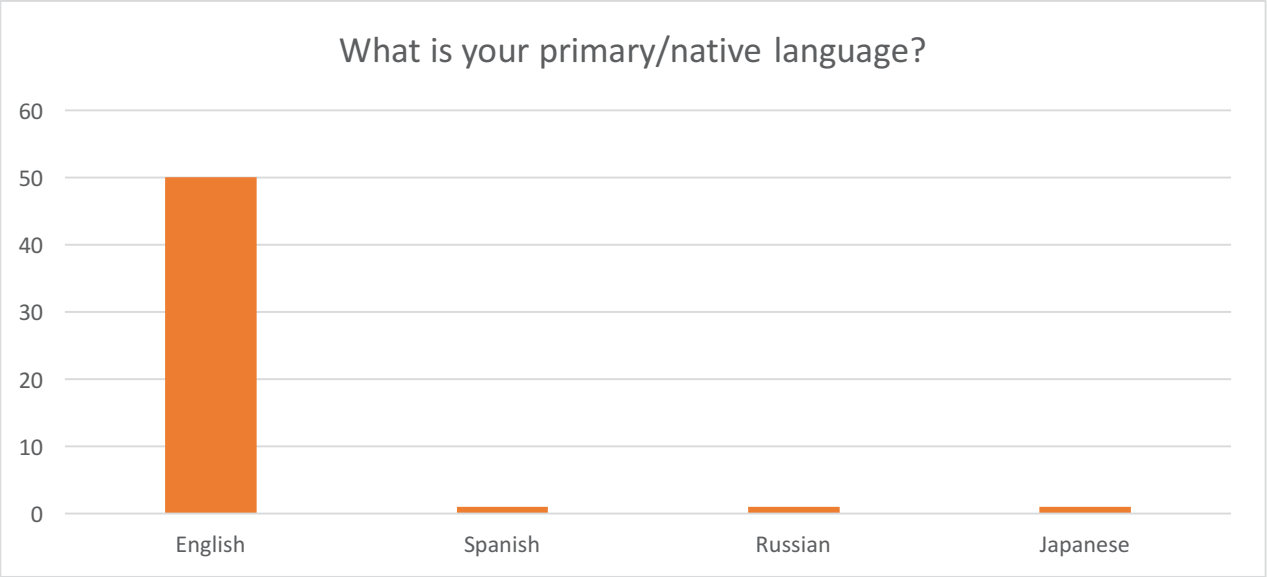
FCC	Not at all	Sometimes	A lot of the time	Always
Specific health issues (e.g., migraines, injury, depression)	78.6% (11)	21.4% (3)	0.0% (0)	0.0% (0)
Lack of sleep or sleep difficulties	66.7% (10)	33.3% (5)	0.0% (0)	0.0% (0)
Lack of access to good health care	86.7% (13)	13.3% (2)	0.0% (0)	0.0% (0)
Poor nutrition	93.3% (14)	6.7% (1)	0.0% (0)	0.0% (0)
Lack of exercise	73.3% (11)	26.7% (4)	0.0% (0)	0.0% (0)
Trying to balance work and family time	53.3% (8)	33.3% (5)	6.7% (1)	6.7% (1)
Salary/not enough money	66.7% (10)	6.7% (1)	20.0% (3)	6.7% (1)
Lack of access to materials/resources	80.0% (12)	6.7% (1)	13.3% (2)	0.0% (0)
Personal stressors	46.7% (7)	46.7% (7)	6.7% (1)	0.0% (0)
Workplace stressors	60.0% (9)	40.0% (6)	0.0% (0)	0.0% (0)
Communicating with/reaching out to parents	71.4% (10)	28.6% (4)	0.0% (0)	0.0% (0)
Time/energy spent working a second job	100.0% (15)	0.0% (0)	0.0% (0)	0.0% (0)
Job expectations (e.g., trainings, assessments, raising EA rating)	66.7 (10)%	26.7% (4)	6.7% (1)	0.0% (0)
Lack of confidence in abilities as a teacher	86.7% (13)	13.3% (2)	0.0% (0)	0.0% (0)
Lack of knowledge in specific areas of early childhood education	86.7% (13)	13.3% (2)	0.0% (0)	0.0% (0)
Frequent child absences and/or mobility (transitioning in or out)	100.0% (15)	0.0% (0)	0.0% (0)	0.0% (0)
Other	60.0 (3)%	20.0% (1)	20.0% (1)	0.0% (0)

50. CCC Only: Does your staff feel that their thoughts and opinions about day-to-day operations within your program are valued?



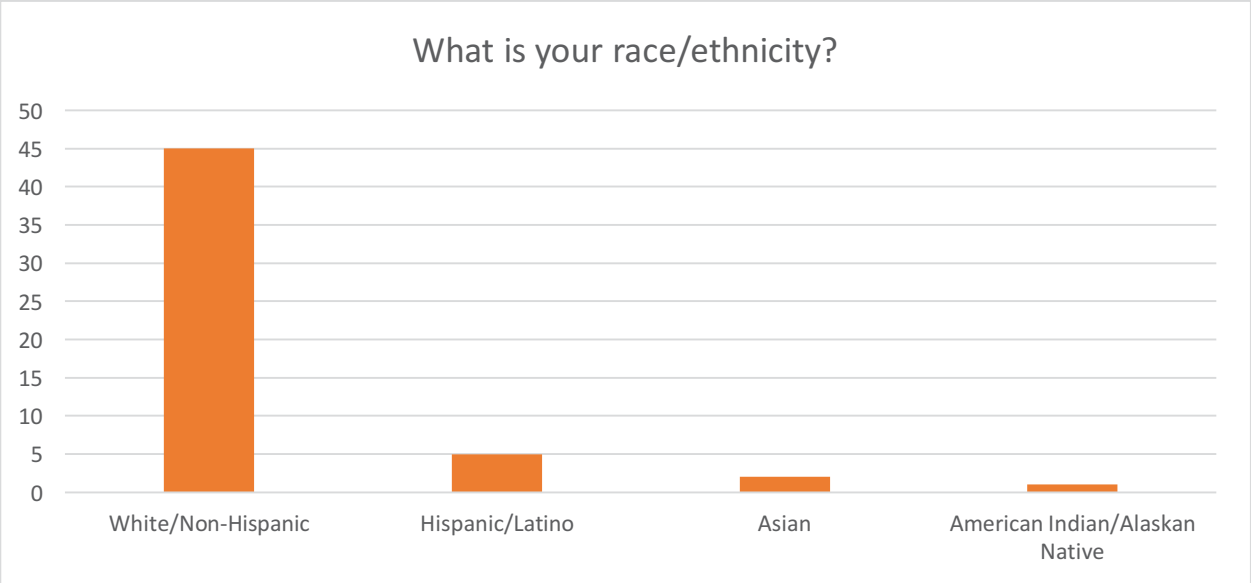
CCC	Percentage (N)
Always	25.0% (9)
A lot of the time	63.9% (23)
Sometimes	11.1% (4)
Not at all	0.0% (0)

51. What is your primary/native language?



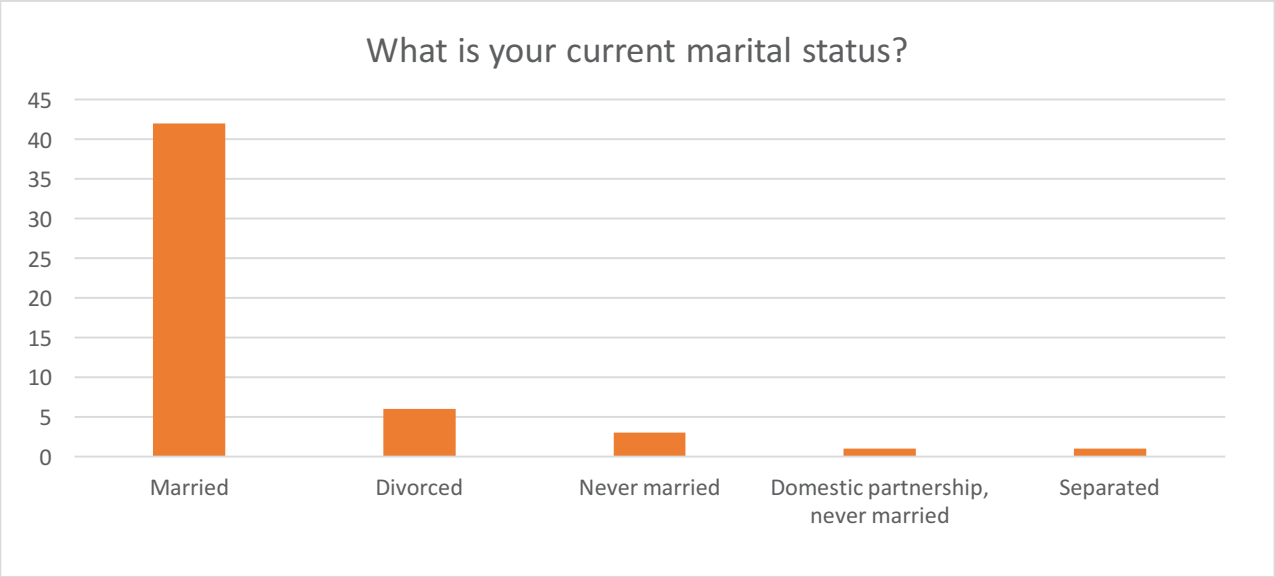
What is your primary/native language?	Percentage (N)
English	94.3% (50)
Spanish	1.9% (1)
Russian	1.9% (1)
Japanese	1.9% (1)

52. What is your race/ethnicity?



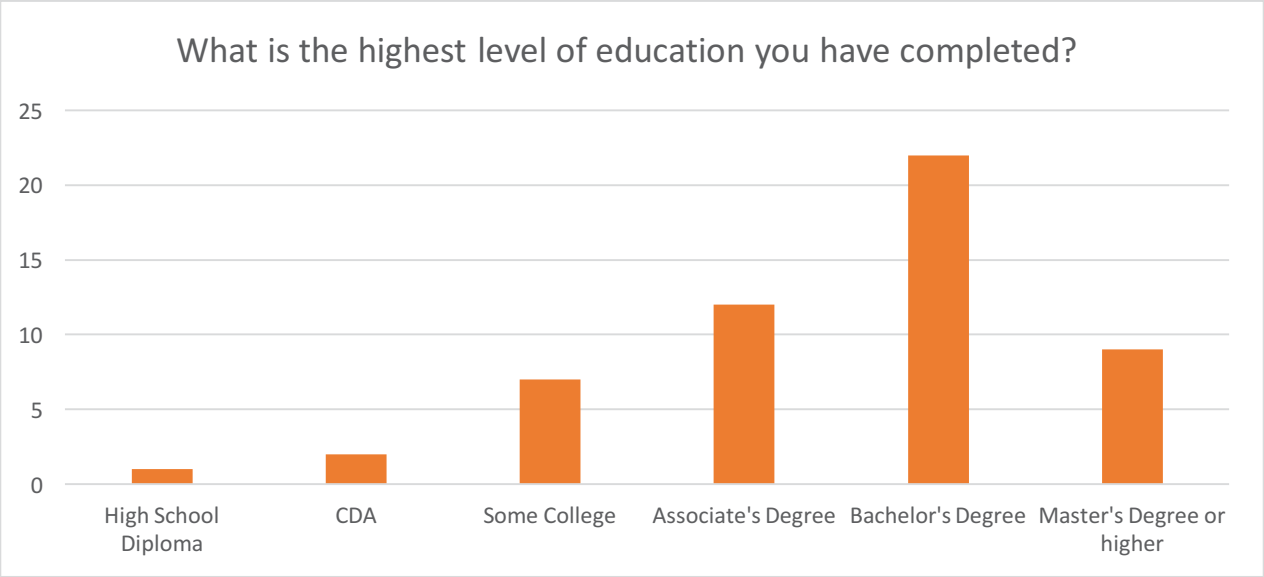
What is your race/ethnicity?	Percentage (N)
White/Non-Hispanic	84.9% (45)
Hispanic/Latino	9.4% (5)
Asian	3.8% (2)
American Indian/Alaskan Native	1.9% (1)

53. What is your current marital status?



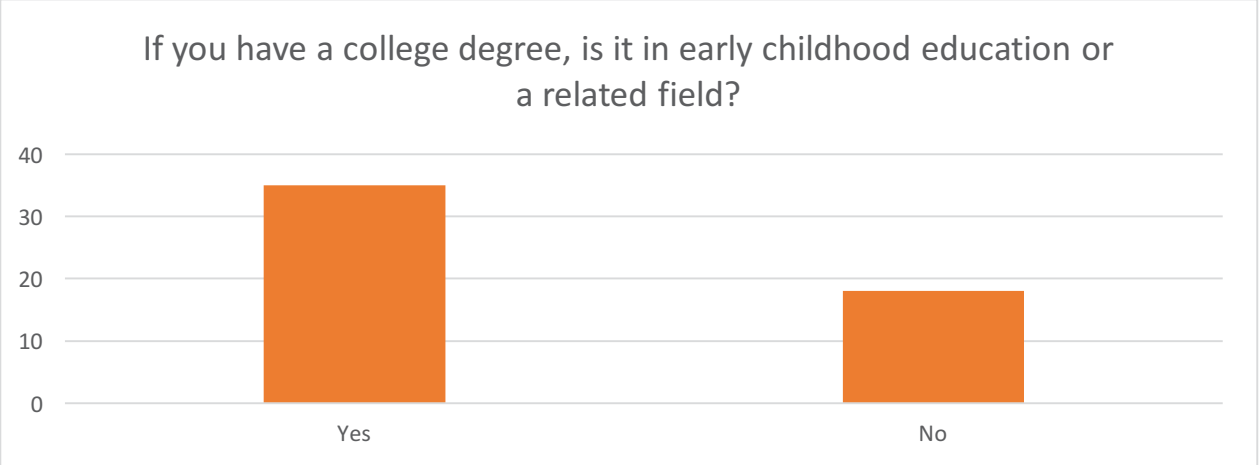
What is your current marital status?	Percentage (N)
Married	79.2% (42)
Divorced	11.3% (6)
Never married	5.7% (3)
Domestic partnership, never married	1.9% (1)
Separated	1.9% (1)
Widowed	0.0% (0)

54. What is the highest level of education you have completed?



What is the highest level of education you have completed?	Percentage (N)
High School Diploma	1.9% (1)
CDA	3.8% (2)
Some College	13.2% (7)
Associate's Degree	22.6% (12)
Bachelor's Degree	41.5% (22)
Master's Degree or higher	17.0% (9)

55. If you have a college degree, is it in early childhood education or a related field?

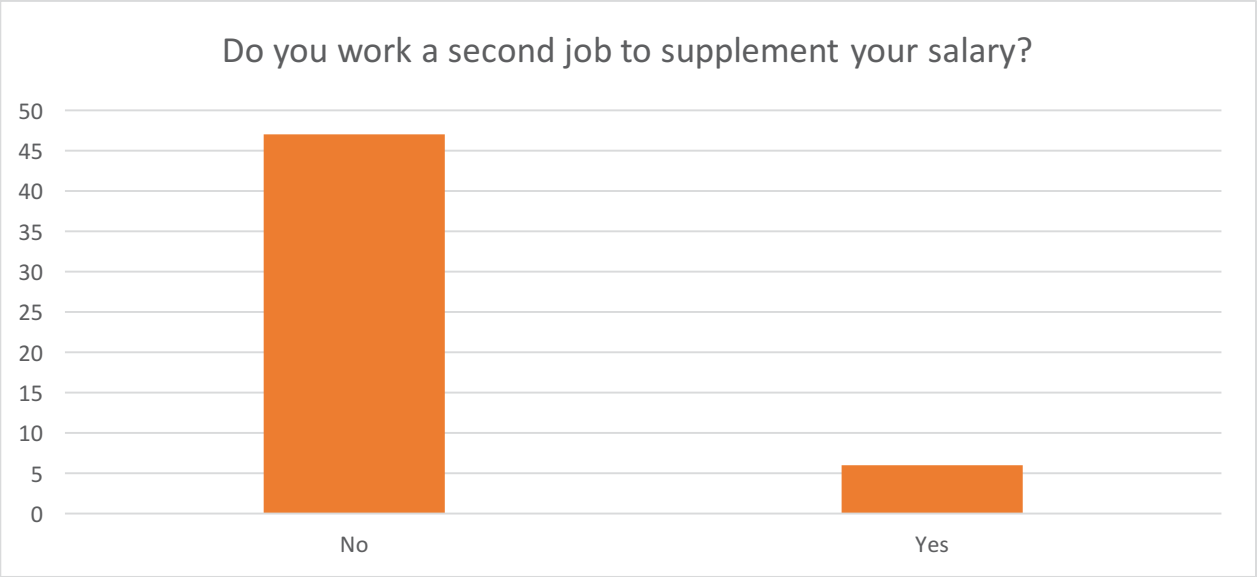


If you have a college degree, is it in early childhood education or a related field?	Percentage (N)
Yes	66.0% (35)
No	34.0% (18)

56. What is your current annual salary as a director/owner?

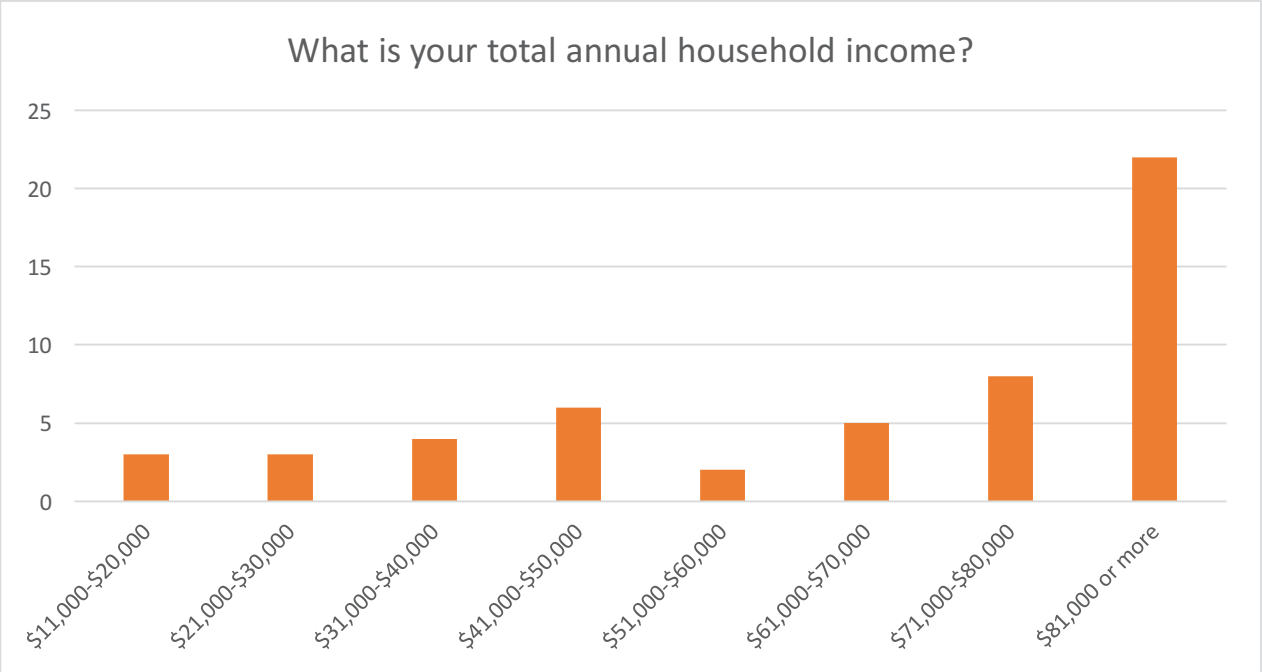
What is your current annual salary as a director/owner?	Percentage (N)
$10,000 or less	3.8% (2)
$11,000-$20,000	7.5% (4)
$21,000-$30,000	11.3% (6)
$31,000-$40,000	24.5% (13)
$41,000-$50,000	18.9% (10)
$51,000-$60,000	20.8% (11)
$61,000-$70,000	9.4% (5)
$71,000-$80,000	1.9% (1)
$81,000 or more	1.9% (1)

57. Do you work a second job to supplement your salary?



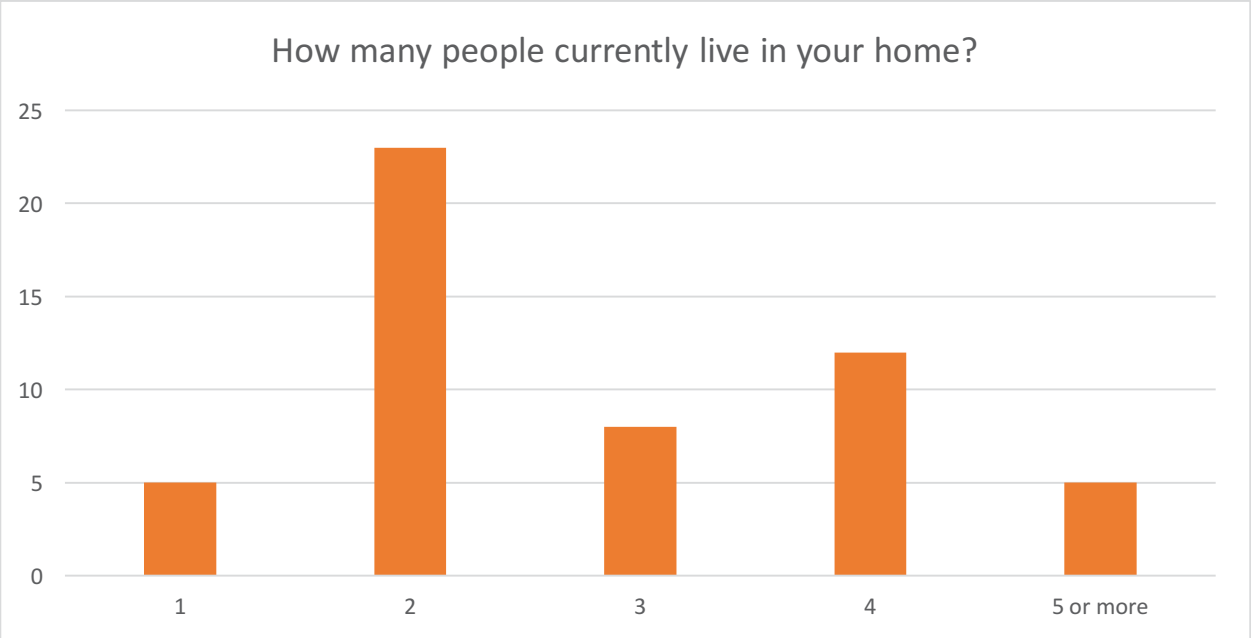
Do you work a second job to supplement your salary?	Percentage (N)
No	88.7% (47)
Yes	11.3% (6)

58. What is your total annual household income?



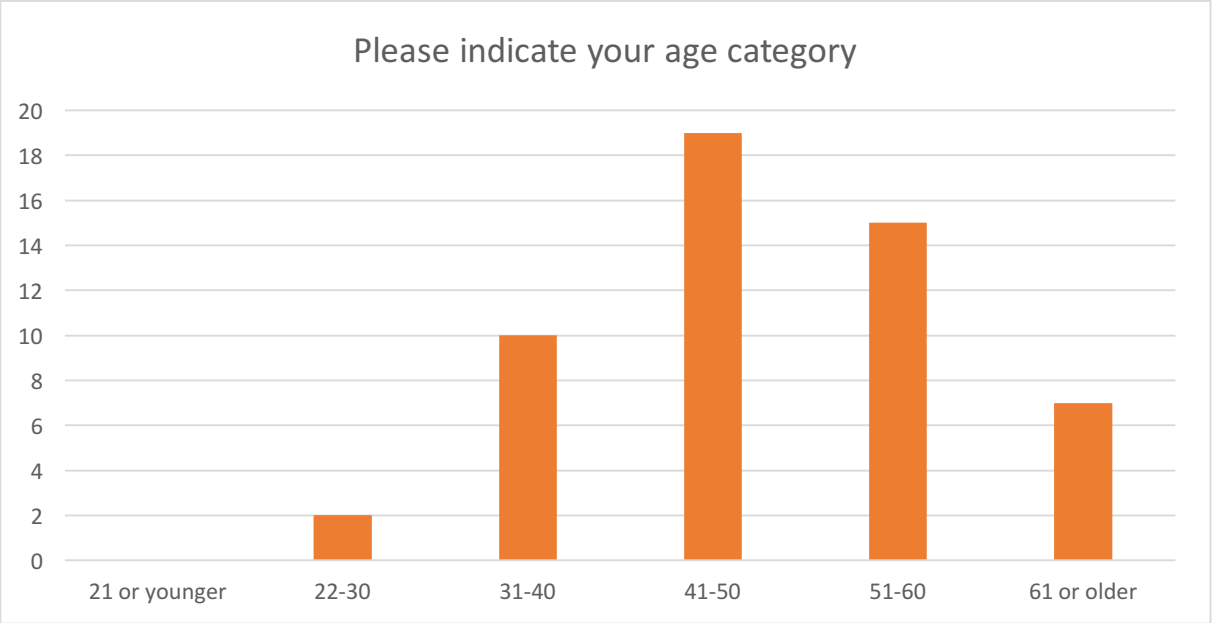
What is your total annual household income?	Percentage (N)
$10,000 or less	0.0% (0)
$11,000-$20,000	5.7% (3)
$21,000-$30,000	5.7% (3)
$31,000-$40,000	7.5% (4)
$41,000-$50,000	11.3% (6)
$51,000-$60,000	3.8% (2)
$61,000-$70,000	9.4% (5)
$71,000-$80,000	15.1% (8)
$81,000 or more	41.5% (22)

59. How many people currently live in your home?



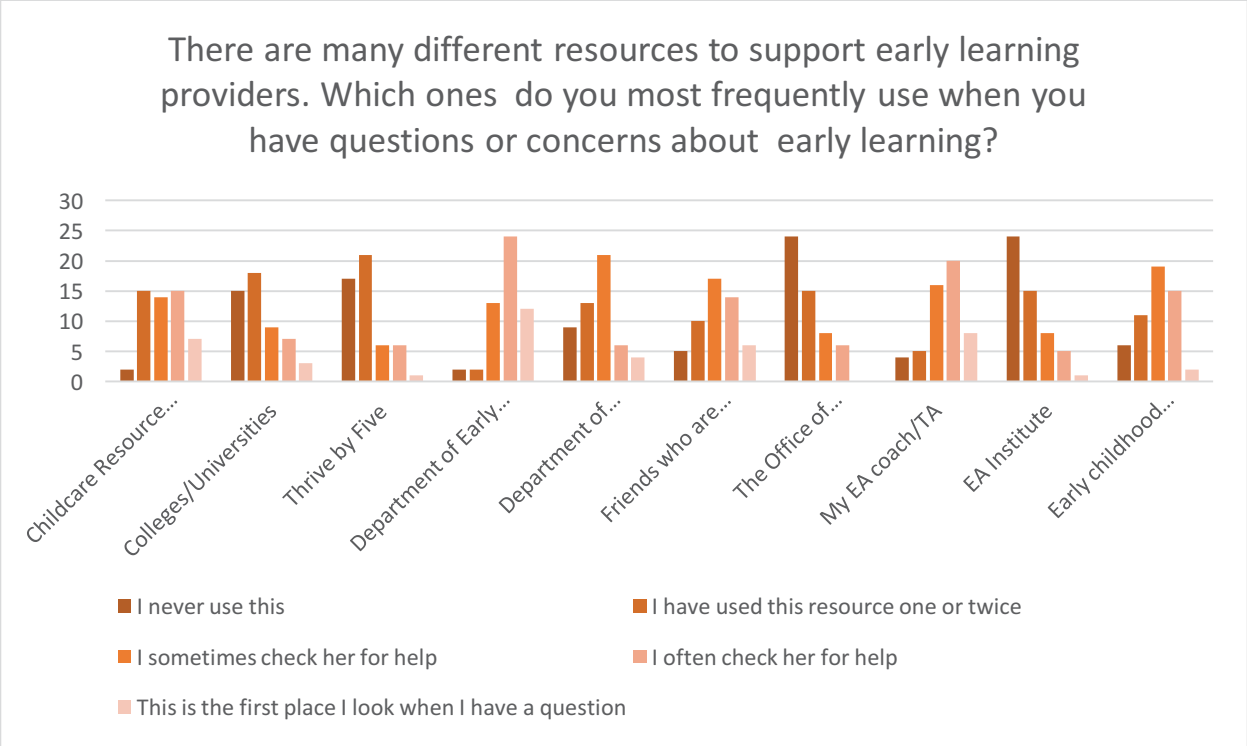
How many people currently live in your home?	Percentage (N)
1	9.4% (5)
2	43.4% (23)
3	15.1% (8)
4	22.6% (12)
5 or more	9.4% (5)

60. Please indicate your age category.



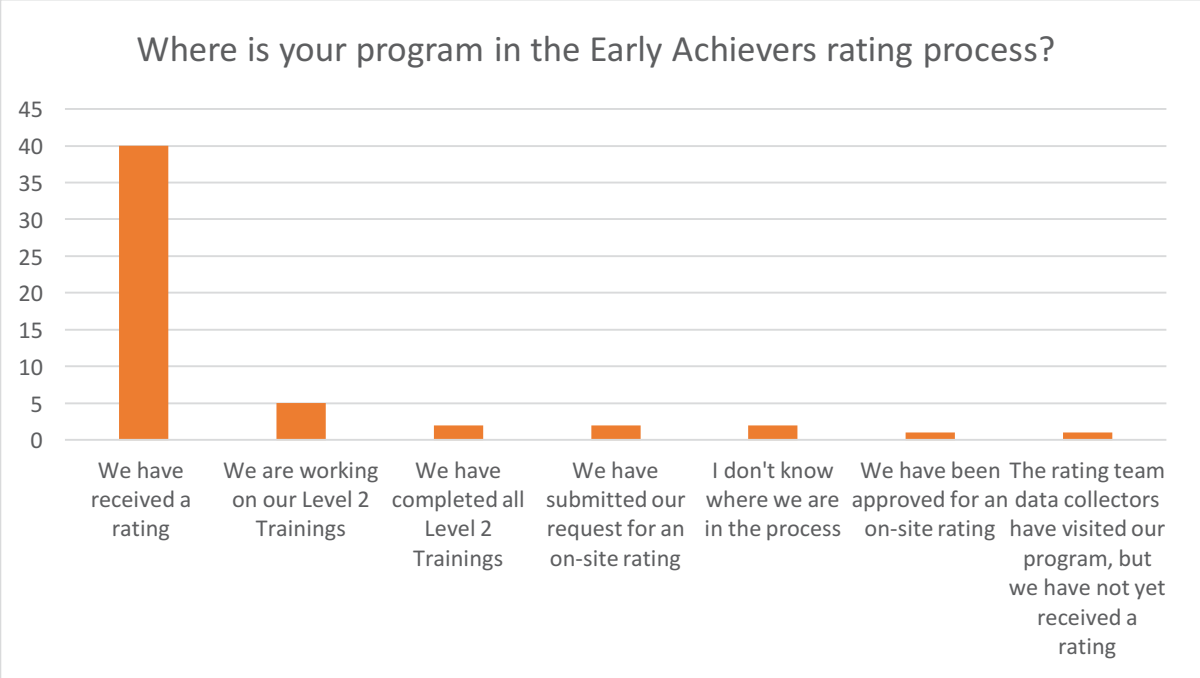
Please indicate your age category	Percentage (N)
21 or younger	0.0% (0)
22-30	3.8% (2)
31-40	18.9% (10)
41-50	35.8% (19)
51-60	28.3% (15)
61 or older	13.2% (7)

61. There are many different resources to support early learning providers. Which ones do you most frequently use when you have questions or concerns about early learning?



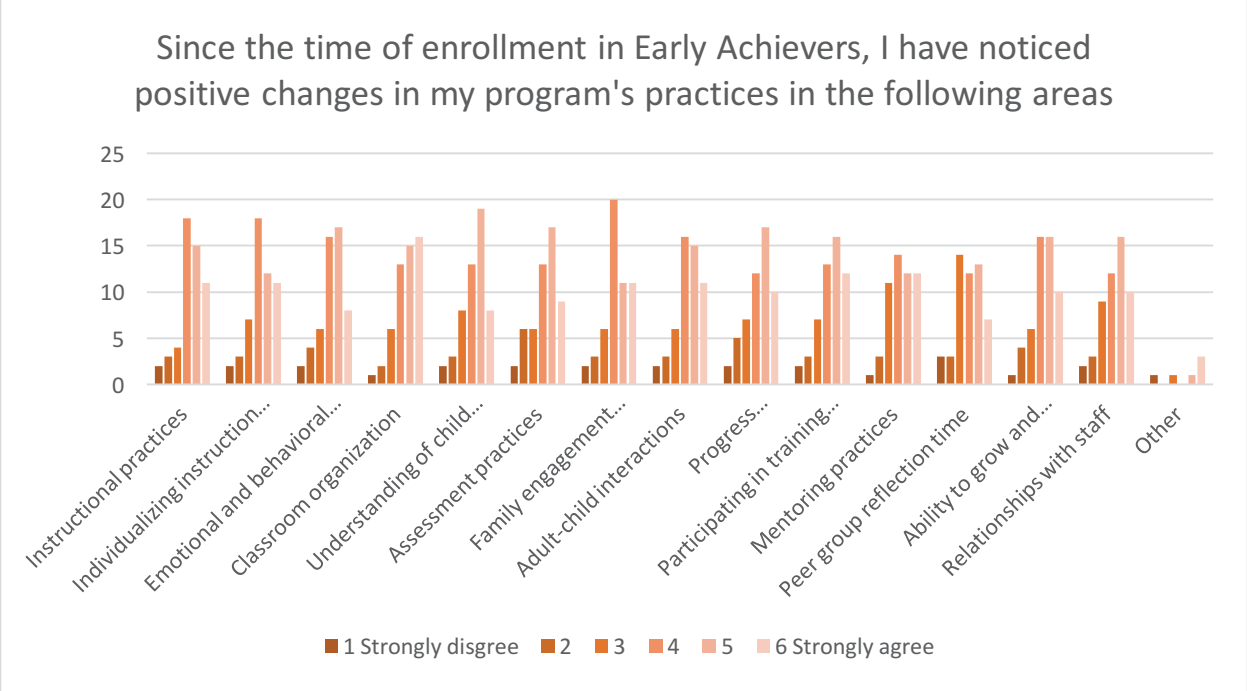
Which resources do you most frequently use when you have questions or concerns about early learning?	I never use this	I have used this resource one or twice	I sometimes check her for help	I often check her for help	This is the first place I look when I have a question
Childcare Resource and Referral	3.8% (2)	28.3% (15)	26.4% (14)	28.3% (15)	13.2% (7)
Colleges/Universities	28.8% (15)	34.6% (18)	17.3% (9)	13.5% (7)	5.8% (3)
Thrive by Five	33.3% (17)	41.2% (21)	11.8% (6)	11.8% (6)	2.0% (1)
Department of Early Learning (DEL)	3.8% (2)	3.8% (2)	24.5% (13)	45.3% (24)	22.6% (12)
Department of Social and Health Services (DSHS)	17.0% (9)	24.5% (13)	39.6% (21)	11.3% (6)	7.5% (4)
Friends who are also early learning providers	9.6% (5)	19.2% (10)	32.7% (17)	26.9% (14)	11.5% (6)
The Office of Superintendent of Public Instruction (OSPI)	45.3% (24)	28.3% (15)	15.1% (8)	11.3% (6)	0.0% (0)
My EA coach/TA	7.5% (4)	9.4% (5)	30.2% (16)	37.7% (20)	15.1% (8)
EA Institute	45.3% (24)	28.3% (15)	15.1% (8)	9.4% (5)	1.9% (1)
Early childhood education conferences	11.3% (6)	20.8% (11)	35.8% (19)	28.3% (15)	3.8% (2)

62. Where is your program in the Early Achievers rating process?



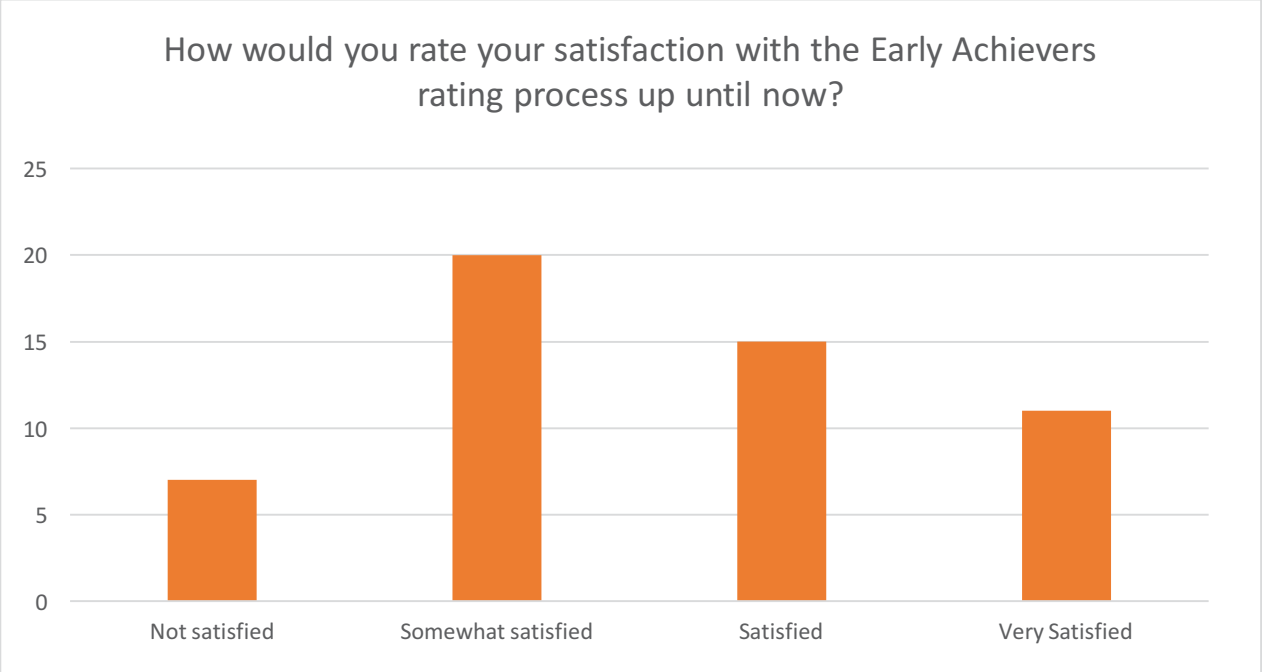
Where is your program in the Early Achievers rating process?	Percentage (N)
We have received a rating	75.5% (40)
We are working on our Level 2 Trainings	9.4% (5)
We have completed all Level 2 Trainings	3.8% (2)
We have submitted our request for an on-site rating	3.8% (2)
I don't know where we are in the process	3.8% (2)
We have been approved for an on-site rating	1.9% (1)
The rating team data collectors have visited our program, but we have not yet received a rating	1.9% (1)

63. Since the time of enrollment in Early Achievers, I have noticed positive changes in my program's practices in the following areas (Please rate on a scale of 1 to 6, with 1 being strongly disagree and 6 being strongly agree):



Since the time of enrollment in Early Achievers, I have noticed positive changes in my program's practices in the following areas:	1 Strongly disagree	2	3	4	5	6 Strongly agree
Instructional practices	3.8% (2)	5.7% (3)	7.5% (4)	34.0% (18)	28.3% (15)	20.8% (11)
Individualizing instruction for children	3.8% (2)	5.7% (3)	13.2% (7)	34.0% (18)	22.6% (12)	20.8% (11)
Emotional and behavioral support	3.8% (2)	7.5% (4)	11.3% (6)	30.2% (16)	32.1% (17)	15.1% (8)
Classroom organization	1.9% (1)	3.8% (2)	11.3% (6)	24.5% (13)	28.3% (15)	30.2% (16)
Understanding of child development	3.8% (2)	5.7% (3)	15.1% (8)	24.5% (13)	35.8% (19)	15.1% (8)
Assessment practices	3.8% (2)	11.3% (6)	11.3% (6)	24.5% (13)	32.1% (17)	17.0% (9)
Family engagement practices	3.8% (2)	5.7 (3)%	11.3% (6)	37.7% (20)	20.8% (11)	20.8% (11)
Adult-child interactions	3.8% (2)	5.7% (3)	11.3% (6)	30.2% (16)	28.3% (15)	20.8% (11)
Progress monitoring/developmental screening	3.8% (2)	9.4% (5)	13.2% (7)	22.6% (12)	32.1% (17)	18.9% (10)
Participating in training activities	3.8% (2)	5.7% (3)	13.2% (7)	24.5% (13)	30.2% (16)	22.6% (12)
Mentoring practices	1.9% (1)	5.7% (3)	20.8% (11)	26.4% (14)	22.6% (12)	22.6% (12)
Peer group reflection time	5.8% (3)	5.8% (3)	26.9% (14)	23.1% (12)	25.0% (13)	13.5% (7)
Ability to grow and develop in this field	1.9% (1)	7.5% (4)	11.3% (6)	30.2% (16)	30.2% (16)	18.9% (10)
Relationships with staff	3.8% (2)	5.8% (3)	17.3% (9)	23.1% (12)	30.8% (16)	19.2% (10)
Other	16.7% (1)	0.0% (0)	16.7% (1)	0.0% (0)	16.7% (1)	50.0% (3)

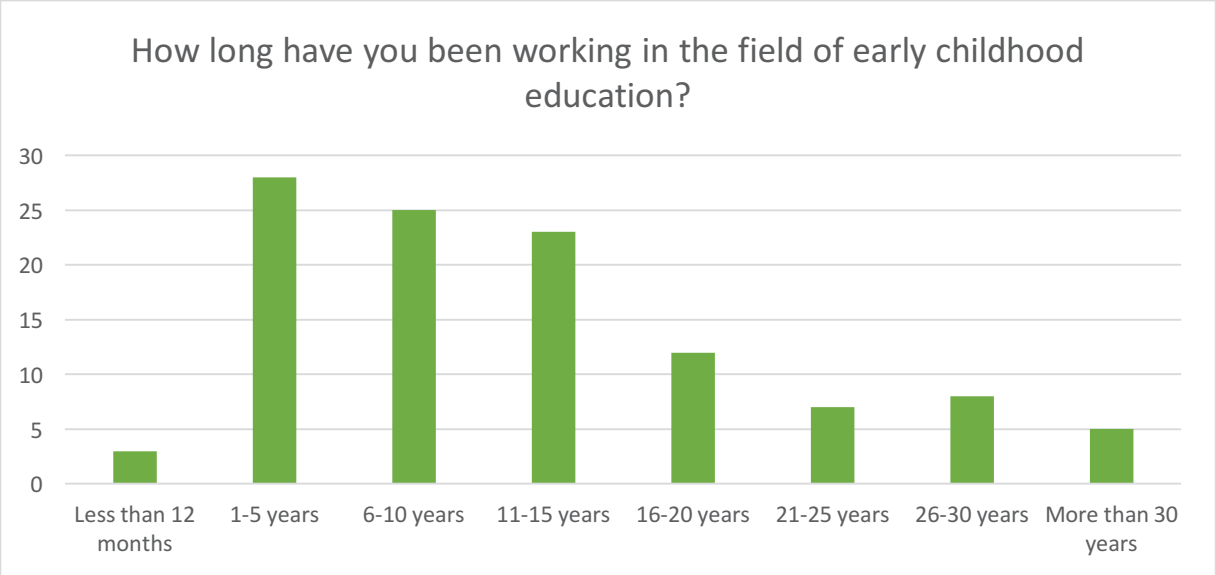
64. How would you rate your satisfaction with the Early Achievers rating process up until now?



How would you rate your satisfaction with the Early Achievers rating process up until now?	Percentage (N)
Not satisfied	13.2% (7)
Somewhat satisfied	37.7% (20)
Satisfied	28.3% (15)
Very Satisfied	20.8% (11)

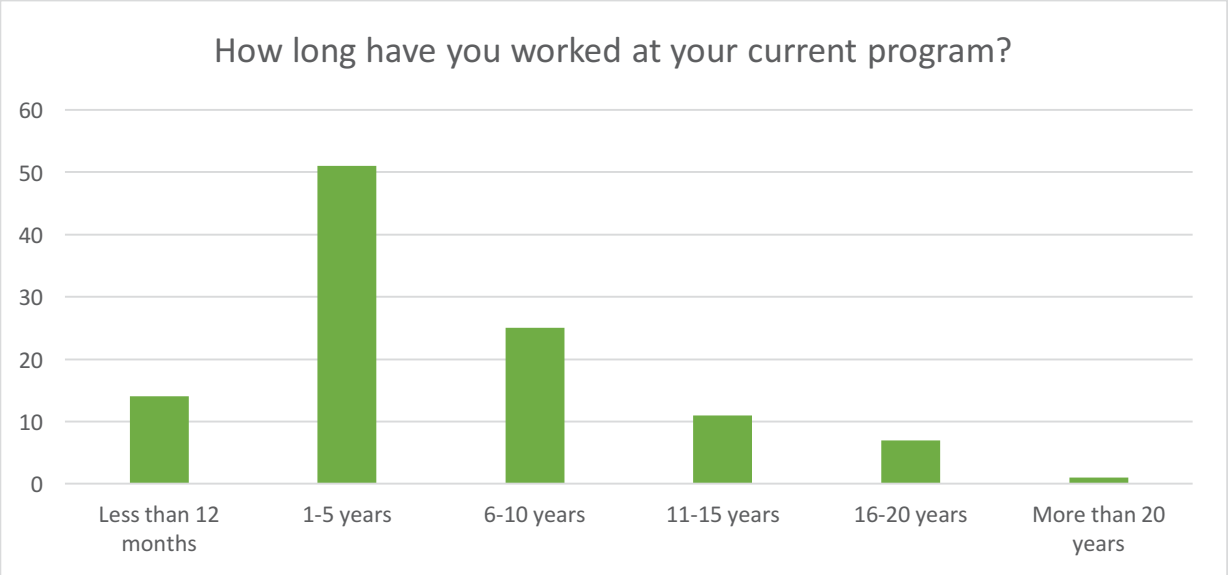
Appendix J

1. How long have you been working in the field of early childhood education?



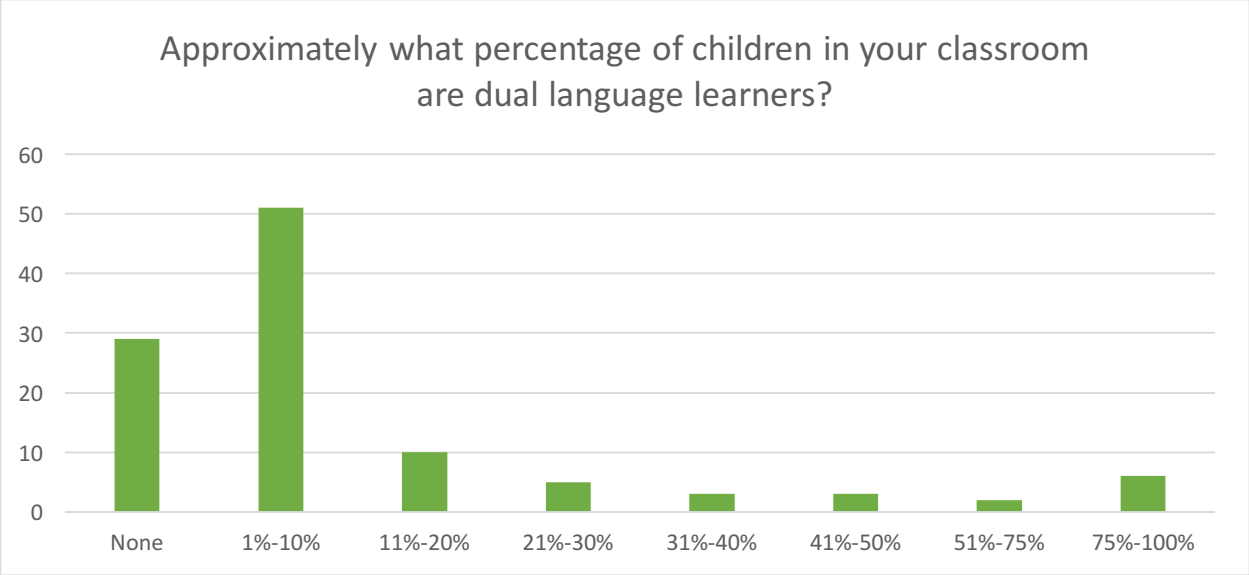
How long have you been working in the field of early childhood education?	Percentage (N)
Less than 12 months	2.7% (3)
1-5 years	25.2% (28)
6-10 years	22.5% (25)
11-15 years	20.7% (23)
16-20 years	10.8% (12)
21-25 years	6.3% (7)
26-30 years	7.2% (8)
More than 30 years	4.5% (5)

2. How long have you worked at your current program?



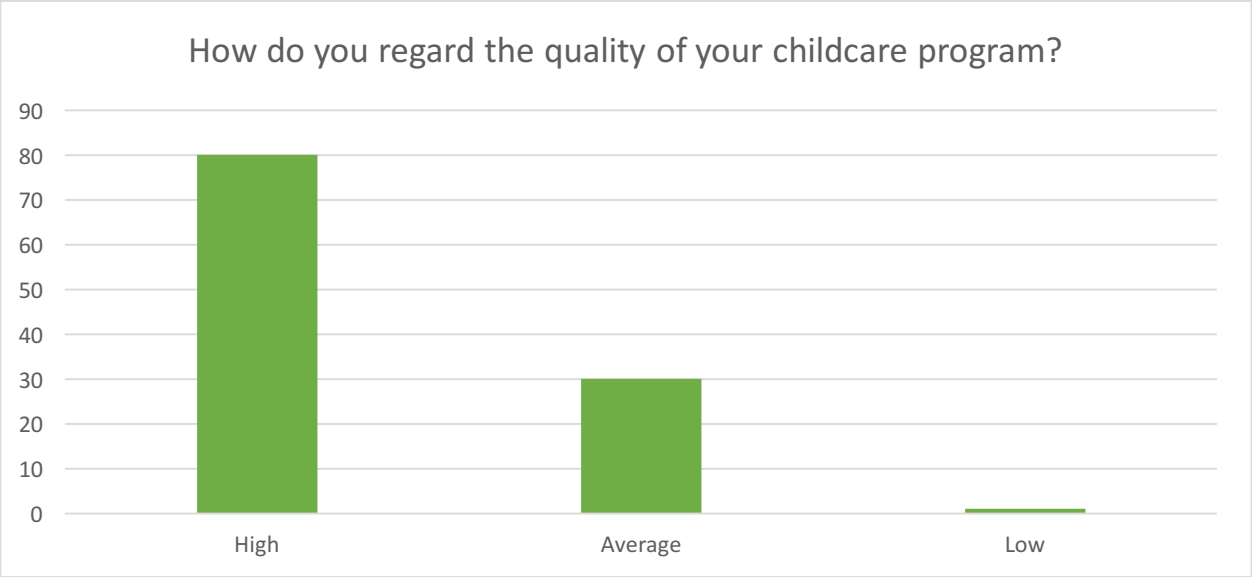
How long have you worked at your current program?	Percentage (N)
Less than 12 months	12.8% (14)
1-5 years	46.8% (51)
6-10 years	22.9% (25)
11-15 years	10.1% (11)
16-20 years	6.4% (7)
More than 20 years	0.9% (1)

3. Approximately what percentage of children in your classroom are dual language learners (children who are learning a language other than their primary language; "bilingual")?



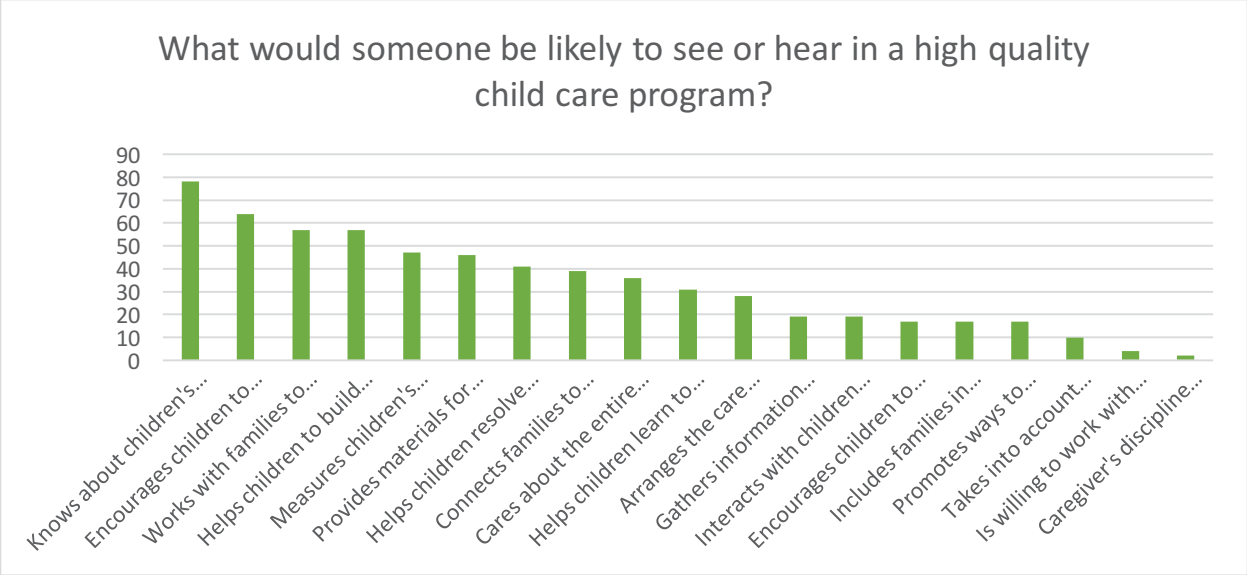
Approximately what percentage of children in your classroom are dual language learners?	Percentage (N)
None	26.6% (29)
1%-10%	48.8% (51)
11%-20%	9.2% (10)
21%-30%	4.6% (5)
31%-40%	2.8% (3)
41%-50%	2.8% (3)
51%-75%	1.8% (2)
75%-100%	5.5% (6)

4. How do you regard the quality of your childcare program?



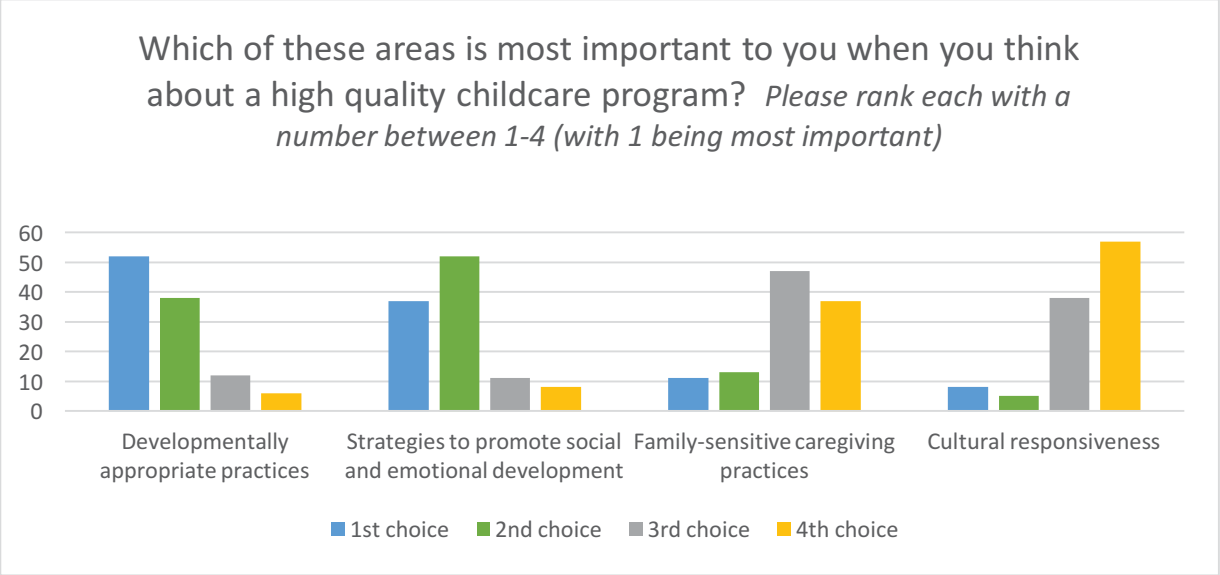
How do you regard the quality of your childcare program?	Percentage (N)
High	72.1% (80)
Average	27.0% (30)
Low	0.9% (1)

5. What would someone be likely to see or hear in a high quality childcare program? Please select the most important, in your opinion: *(Choose no more than 6)*



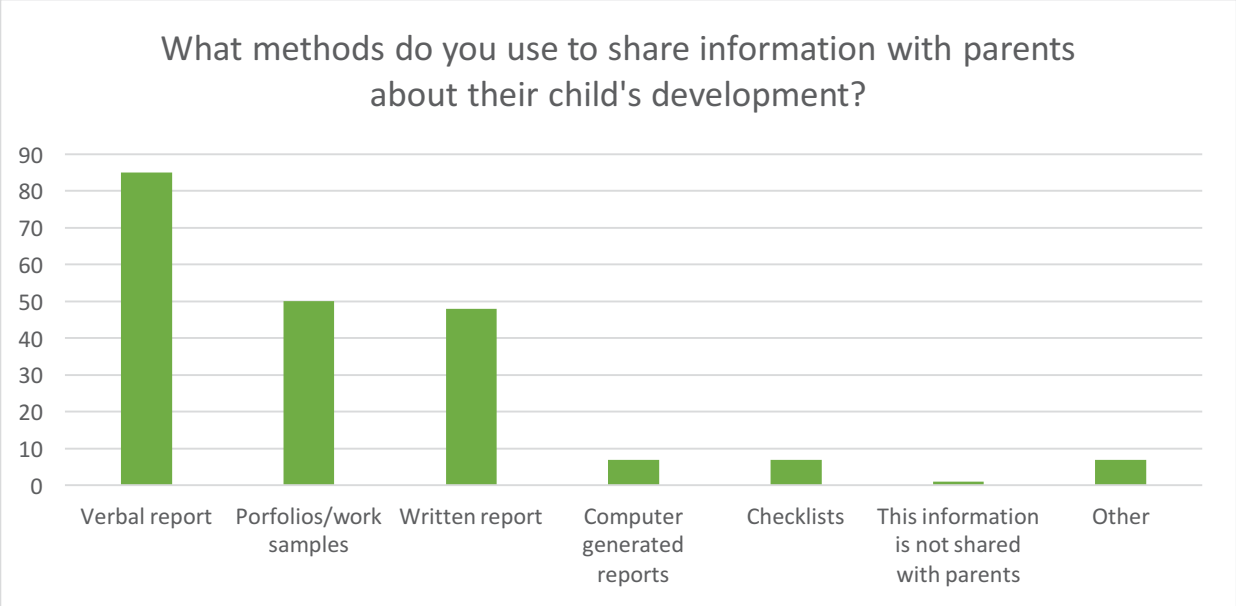
What would someone be likely to see or hear in a high quality childcare program?	Percentage (N)
Knows about children's changing needs as they grow and develop	71.6% (78)
Encourages children to express thoughts and feelings	58.7% (64)
Works with families to set individual plans and goals for children	52.3% (57)
Helps children to build relationships with peers and other adults	52.3% (57)
Measures children's development over time to determine how they're doing	43.1% (47)
Provides materials for play and learning	42.2% (46)
Helps children resolve conflicts with other children	37.6% (41)
Connects families to community resources such as developmental screenings for children, economic assistance, or parenting information	35.8% (39)
Cares about the entire family, not just the child	33.0% (36)
Helps children learn to control their behavior	28.4% (31)
Arranges the care setting so that it reflects different cultural backgrounds of the children and their families	25.7% (28)
Gathers information about families' beliefs, customs, and ways that each family does things	17.4% (19)
Interacts with children in ways that are keeping with their family's beliefs, customs, and ways of doing things	17.4% (19)
Encourages children to recognize words/letters/numbers/shapes	15.6% (17)
Includes families in planning and decision making for the program and/or children's activities	15.6% (17)
Promotes ways to communicate with families who speak a language not spoken by the provider	15.6% (17)
Takes into account parents' ideas about caregiving	9.2% (10)
Is willing to work with parents about their work schedules	3.7% (4)
Caregiver's discipline and guidance style match the parents'	1.8% (2)

6. Which of these areas is most important to you when you think about a high quality childcare program? *Please rank each with a number between 1-4 (with 1 being most important)*



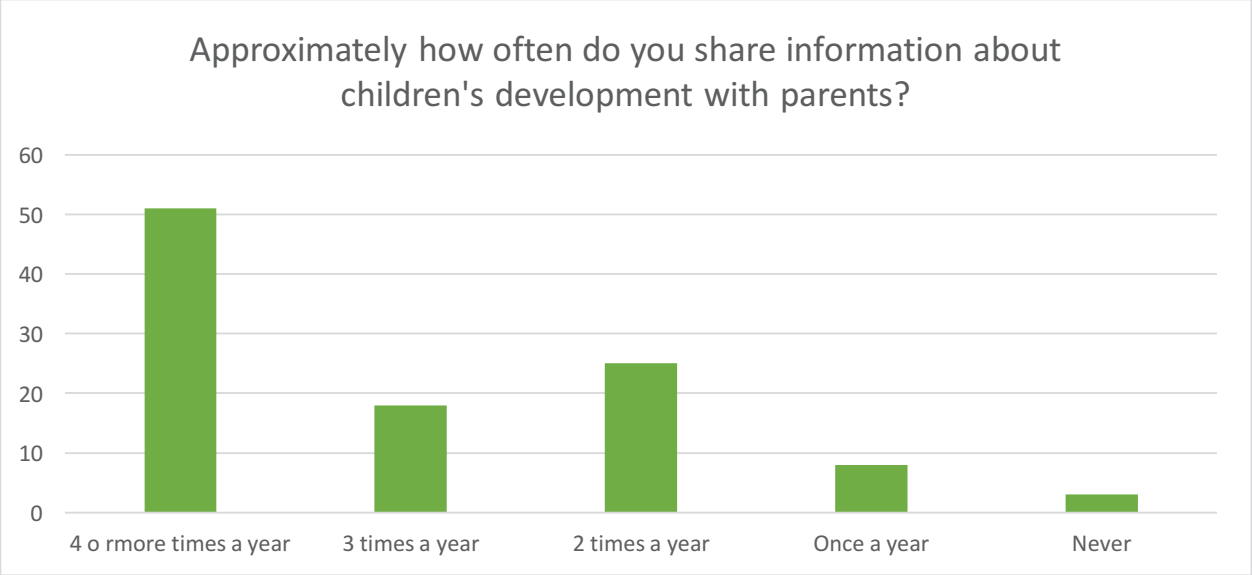
Which of these areas is most important to you when you think about a high quality childcare program?	1st Choice	2nd Choice	3rd Choice	4th Choice
Developmentally appropriate practices	48.1% (52)	35.2% (38)	11.1% (12)	5.6% (6)
Strategies to promote social and emotional development	34.3% (37)	48.1% (52)	10.2% (11)	7.4% (8)
Family-sensitive caregiving practices	10.2% (11)	12.0% (13)	43.5% (47)	34.3% (37)
Cultural responsiveness	7.4% (8)	4.6% (5)	35.2% (38)	52.8% (57)

7. What methods do you use to share information with parents about their child's development? *(Choose the two you use the most)*



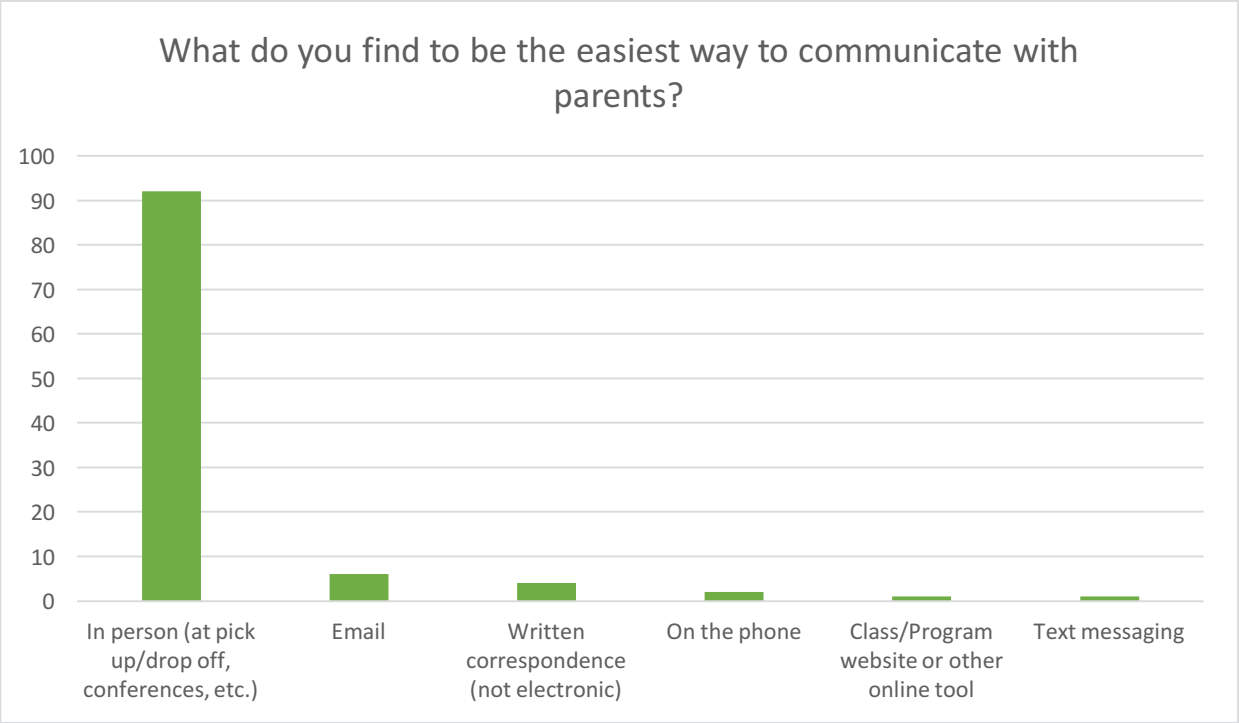
What methods do you use to share information with parents about their child's development?	Percentage (N)
Verbal report	80.2% (85)
Portfolios/work samples	47.2% (50)
Written report	45.3% (48)
Computer generated reports	6.6% (7)
Checklists	6.6% (7)
This information is not shared with parents	0.9% (1)
Other	6.6% (7)

8. Approximately how often do you share information about children's development with parents?



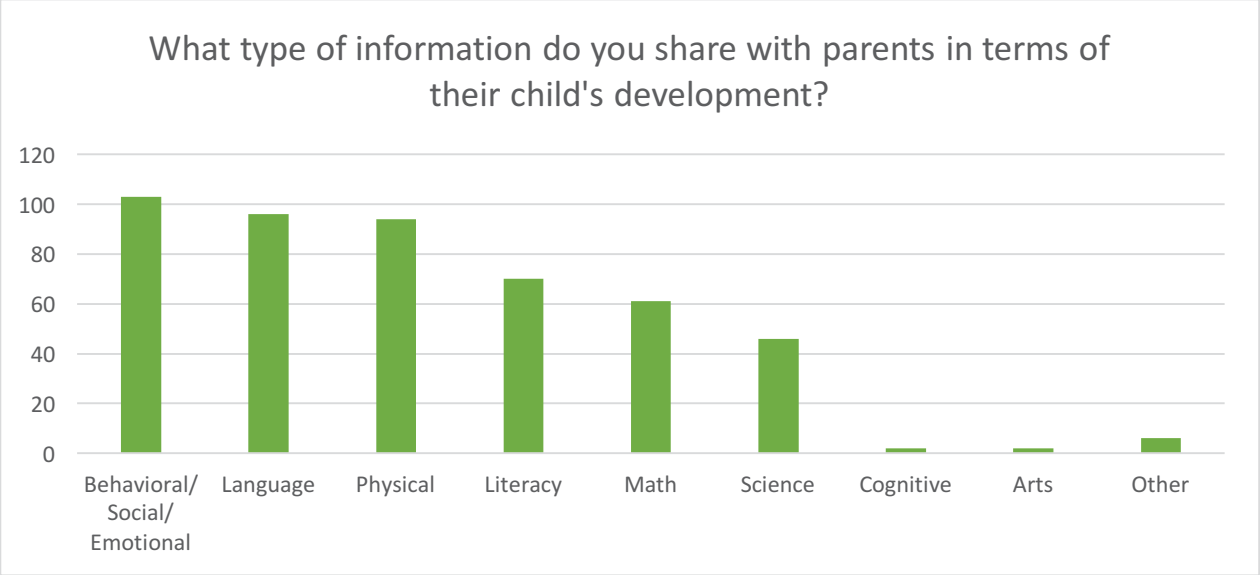
Approximately how often do you share information about children's development with parents?	Percentage (N)
4 or more times a year	48.6% (51)
3 times a year	17.1% (18)
2 times a year	23.8% (25)
Once a year	7.6% (8)
Never	2.9% (3)

9. What do you find to be the easiest way to communicate with parents? *(Choose one)*



What do you find to be the easiest way to communicate with parents?	Percentage (N)
In person (at pick up/drop off, conferences, etc.)	86.8% (92)
Email	5.7% (6)
Written correspondence (not electronic)	3.8% (4)
On the phone	1.9% (2)
Class/Program website or other online tool	0.9% (1)
Text messaging	0.9% (1)

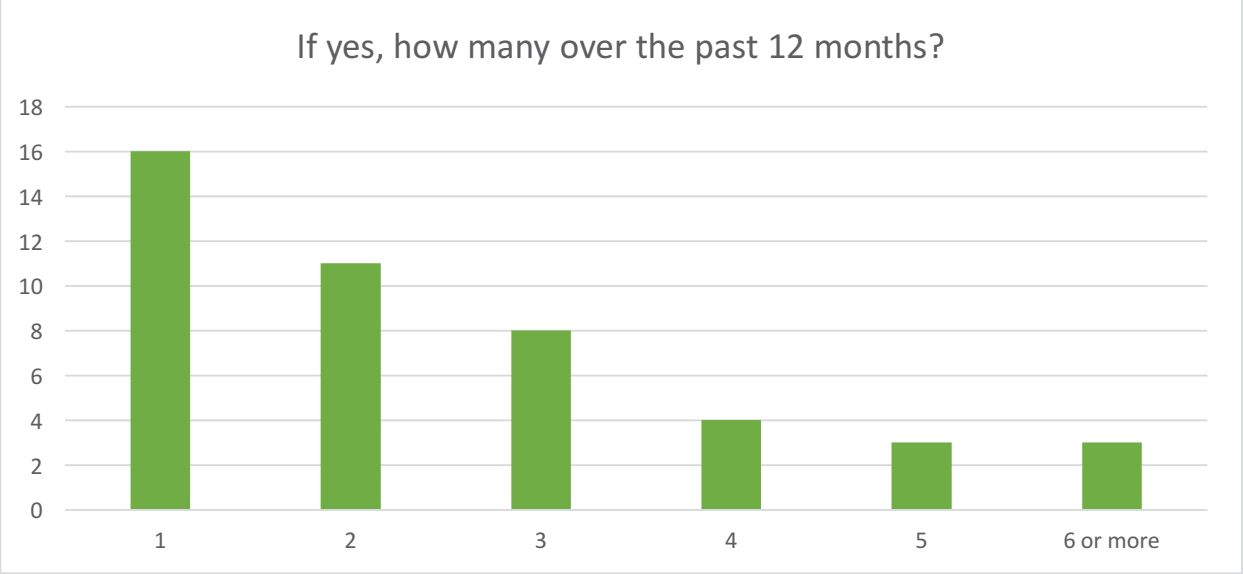
10. What type of information do you share with parents in terms of their child's development? *Check all that apply.*



What type of information do you share with parents in terms of their child's development?	Percentage (N)
Behavioral/Social/Emotional	96.3% (103)
Language	89.7% (96)
Physical	87.9% (94)
Literacy	65.4% (70)
Math	57.0% (61)
Science	43.0% (46)
Cognitive	1.9% (2)
Arts	1.9% (2)
Other	5.6% (6)

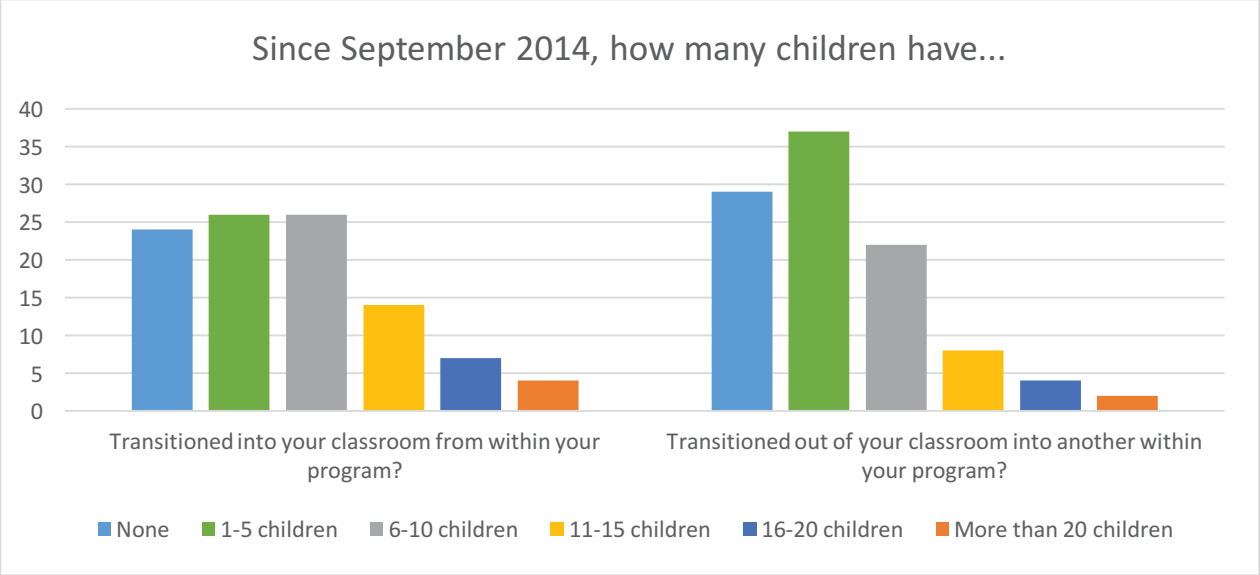
11. Over the past 12 months, have any children in your classroom been identified for special services?

Over the past 12 months, have any children in your classroom been identified for special services?	Percentage (N)
No	55.2% (58)
Yes	44.8% (47)



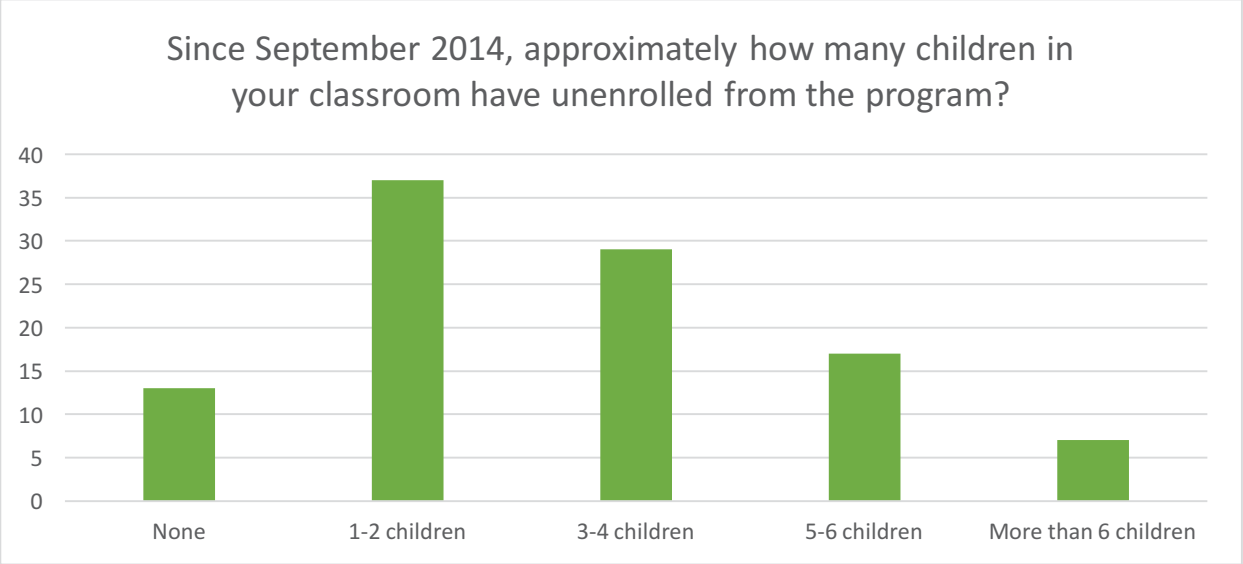
If yes, how many over the past 12 months?	Percentage (N)
1	35.6% (16)
2	24.4% (11)
3	17.8% (8)
4	8.9% (4)
5	6.7% (3)
6 or more	6.7% (3)

12. Since September 2014, how many children have... transitioned into your classroom from within your program? Transitioned out of your classroom into another within your program?



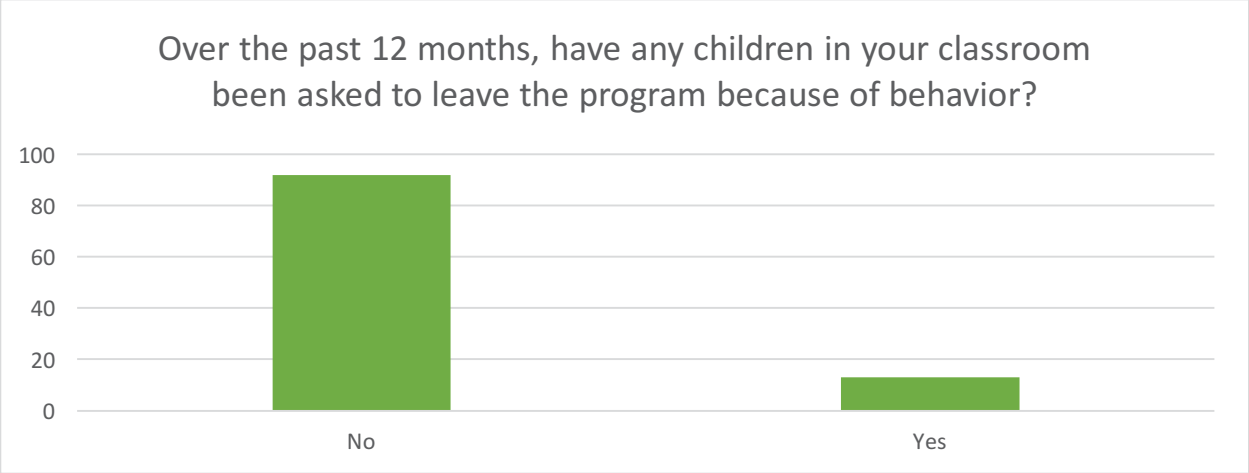
Since September 2014, how many children have...	Transitioned into your classroom from within your program?	Transitioned out of your classroom into another within your program?
None	23.8% (24)	28.4% (29)
1-5 children	25.7% (26)	36.3% (37)
6-10 children	25.7% (26)	21.6% (22)
11-15 children	13.9% (14)	7.8% (8)
16-20 children	6.9% (7)	3.9% (4)
More than 20 children	4.0% (4)	2.0% (2)

13. Since September 2014, approximately how many children in your classroom have unenrolled from the program?



Since September 2014, approximately how many children in your classroom have unenrolled from the program?	Percentage (N)
None	12.6% (13)
1-2 children	35.9% (37)
3-4 children	28.2% (29)
5-6 children	16.5% (17)
More than 6 children	6.8% (7)

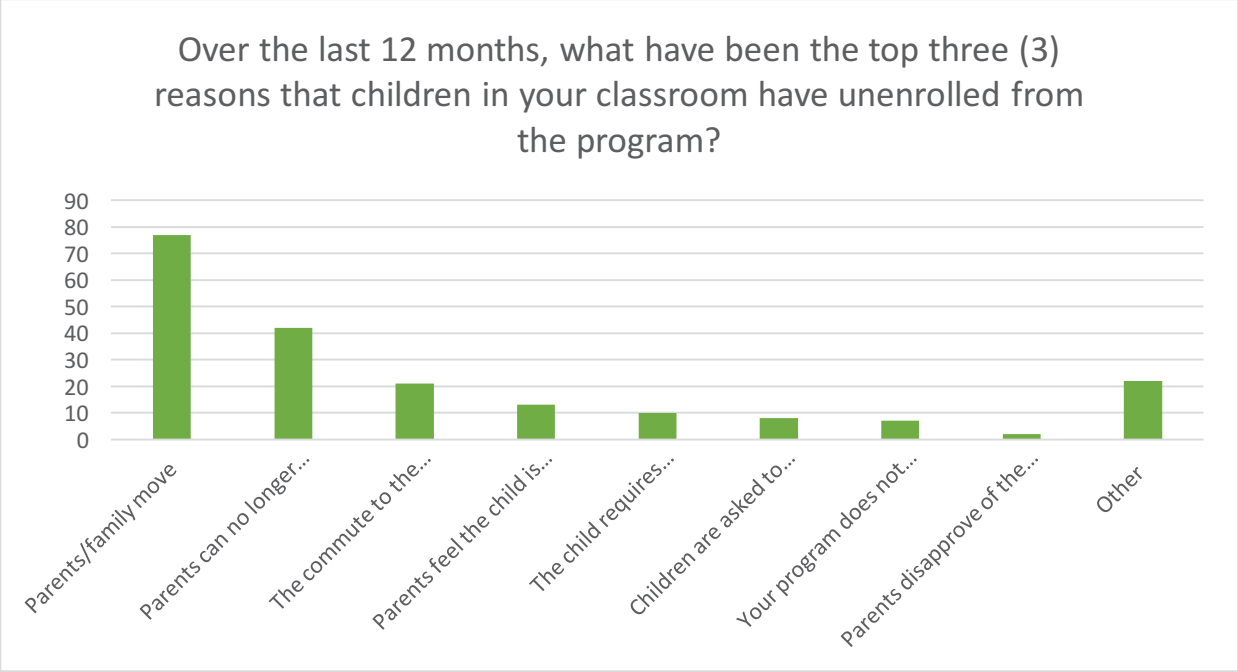
14. Over the past 12 months, have any children in your classroom been asked to leave the program because of behavior?



Over the past 12 months, have any children in your classroom been asked to leave the program because of behavior?	Percentage (N)
No	87.6% (92)
Yes	12.4% (13)

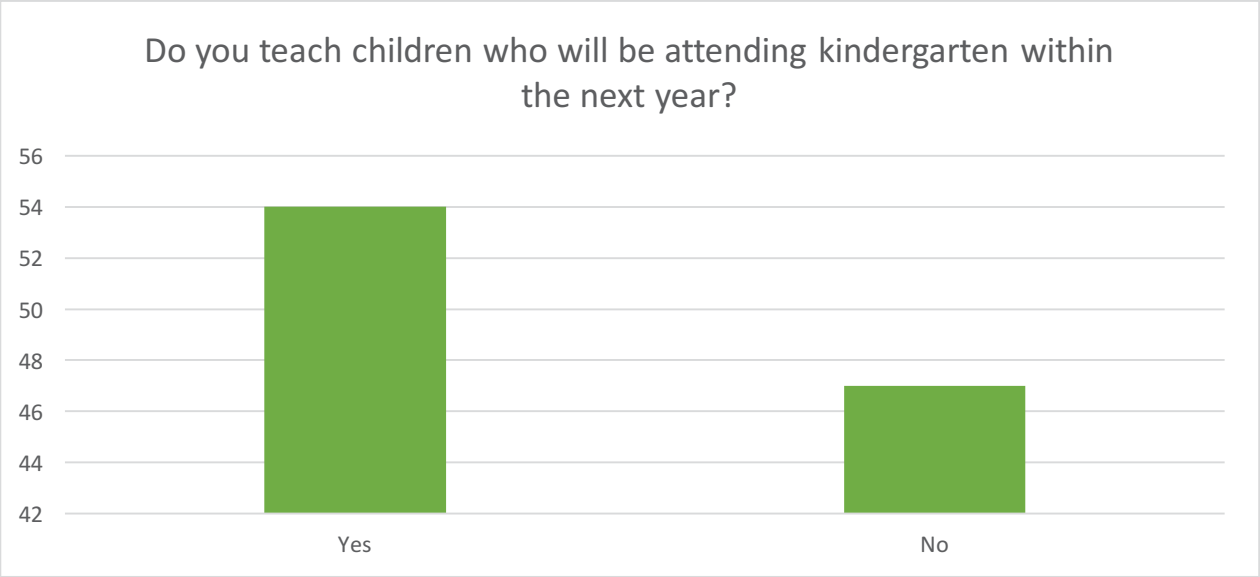
If so, how many children were asked to leave the program because of behavior?	Percentage (N)
1 child	91.7% (11)
2 children	8.3% (1)
3 or more children	0.0% (0)

15. Over the last 12 months, what have been the top three (3) reasons that children in your classroom have unenrolled from the program (other than children aging out of the program)? *Please select no more than three (3) options.*



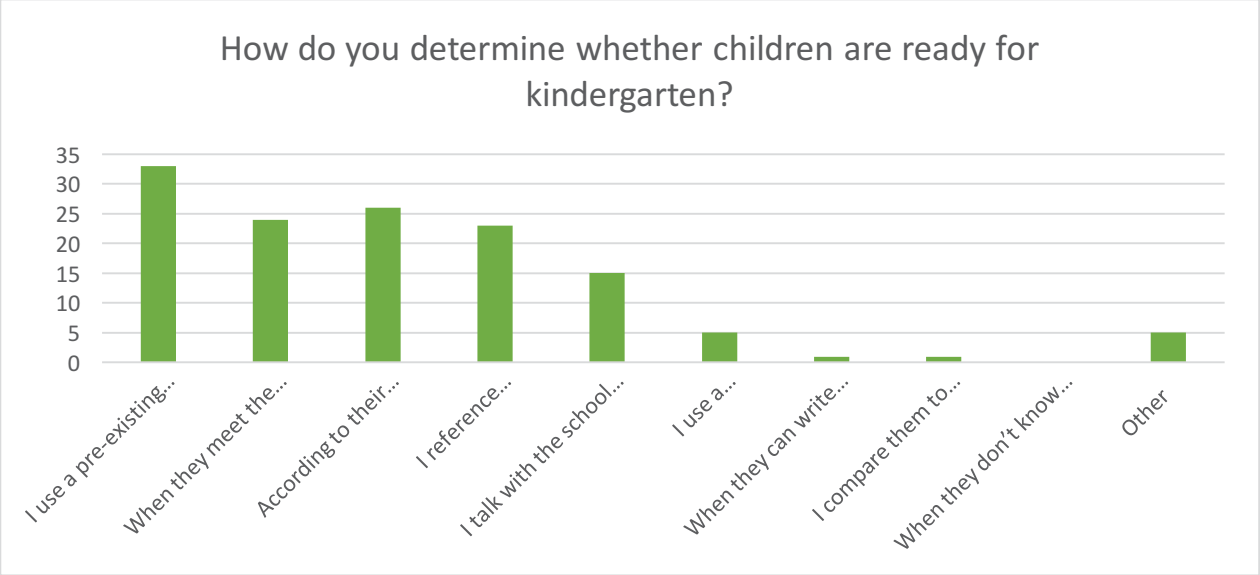
Over the last 12 months, what have been the top three (3) reasons that children in your classroom have unenrolled from the program?	Percentage (N)
Parents/family move	76.2% (77)
Parents can no longer afford payment/tuition	41.6% (42)
The commute to the program is too far	20.8% (21)
Parents feel the child is having difficulty adjusting to the program	12.9% (13)
The child requires different programming than you can provide	9.9% (10)
Children are asked to leave because of behavior	7.9% (8)
Your program does not offer the hours needed by parents	6.9% (7)
Parents disapprove of the program's Early Achievers rating	2.0% (2)
Other	21.8% (22)

16. Do you teach children who will be attending kindergarten within the next year?



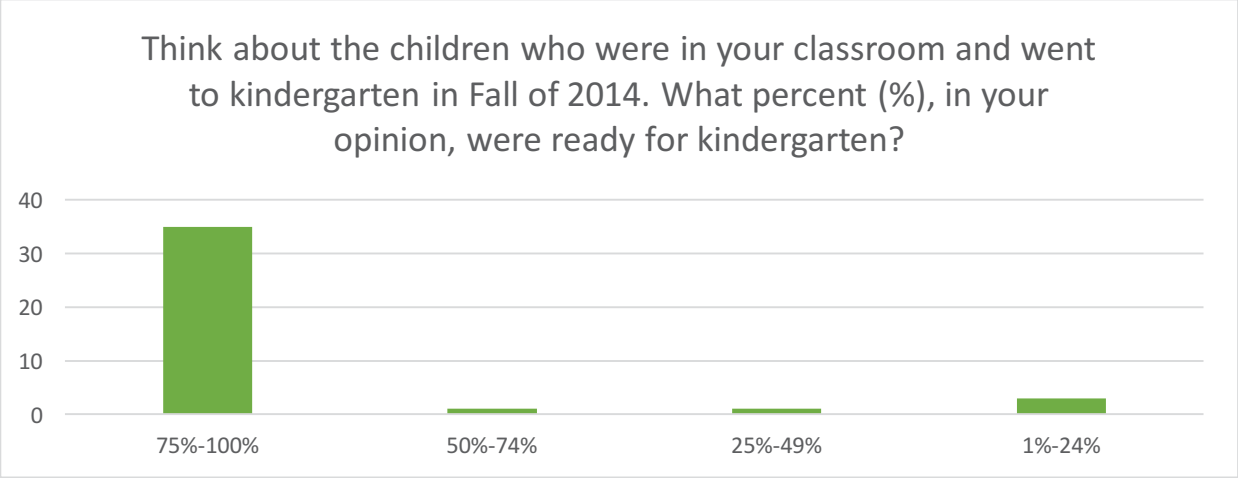
Do you teach children who will be attending kindergarten within the next year?	Percentage (N)
Yes	53.5% (54)
No	46.5% (47)

17. How do you determine whether children are ready for kindergarten? *(Please select no more than 3 options)*



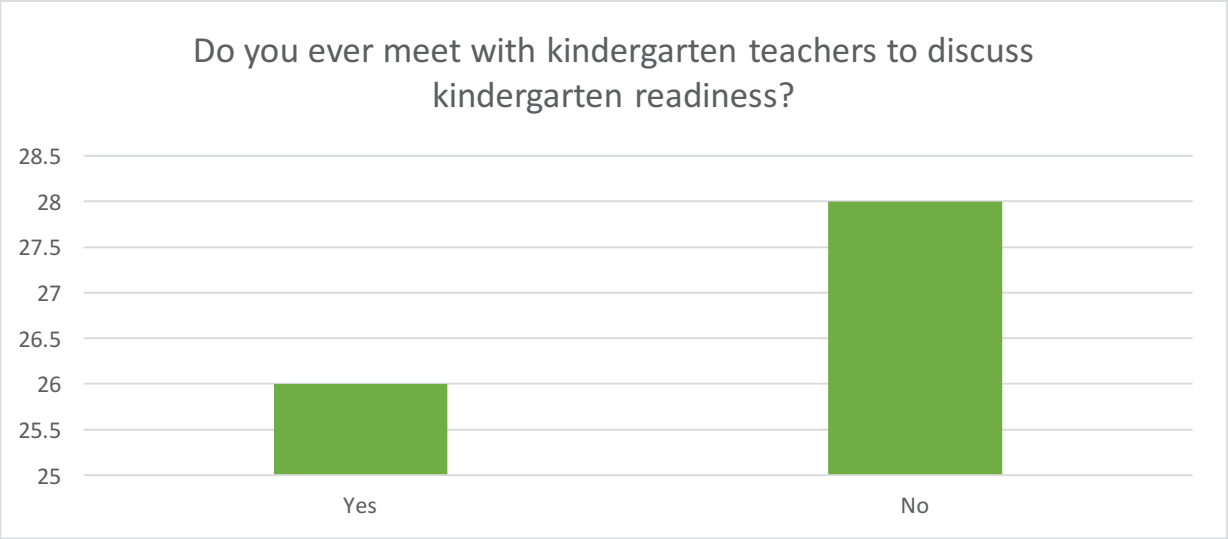
How do you determine whether children are ready for kindergarten?	Percentage (N)
I use a pre-existing developmental screening/assessment tool	61.1% (33)
When they meet the age requirements for enrolling in kindergarten	44.4% (24)
According to their social emotional skills	48.1% (26)
I reference Washington's Department of Early Learning (DEL) and Office of Superintendent of Public Instruction (OSPI) resources	42.6% (23)
I talk with the school district about what they expect in a kindergartner	27.8% (15)
I use a screening/assessment that I created	9.3% (5)
When they can write their names	1.9% (1)
I compare them to other kindergarten-age children I know	1.9% (1)
When they don't know the alphabet	0.0% (0)
Other	9.3% (5)

18. Think about the children who were in your classroom and went to kindergarten in fall of 2014. What percent (%), in your opinion, were ready for kindergarten?



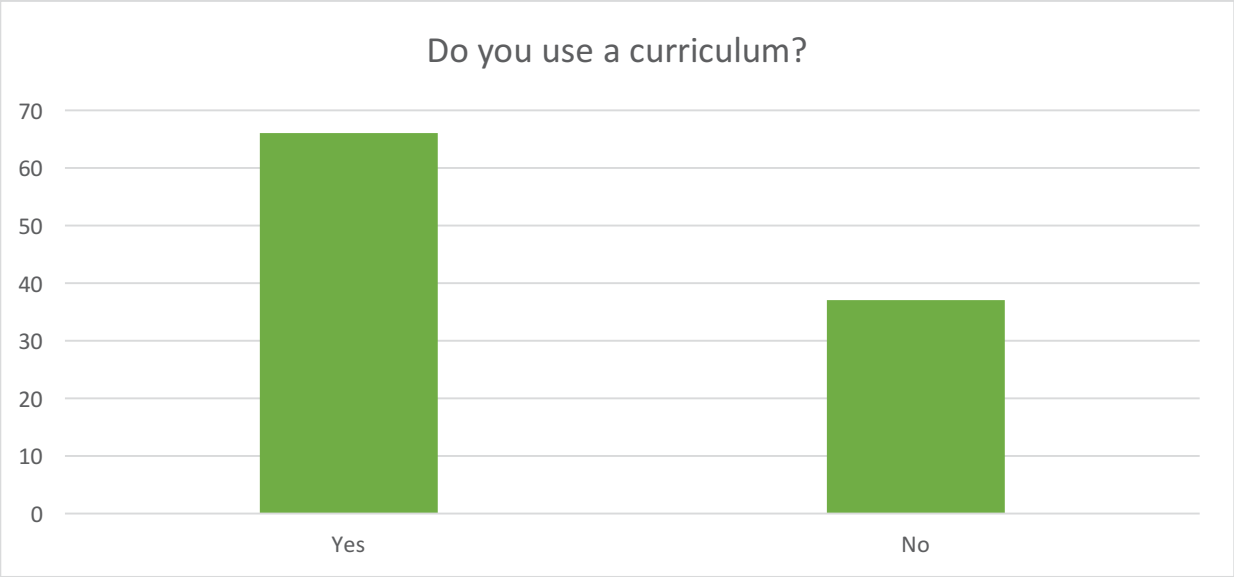
Think about the children who were in your classroom and went to kindergarten in Fall of 2014. What percent (%), in your opinion, were ready for kindergarten?	Percentage (N)
75%-100%	87.5% (35)
50%-74%	2.5% (1)
25%-49%	2.5% (1)
1%-24%	7.5% (3)

19. Do you ever meet with kindergarten teachers to discuss kindergarten readiness?



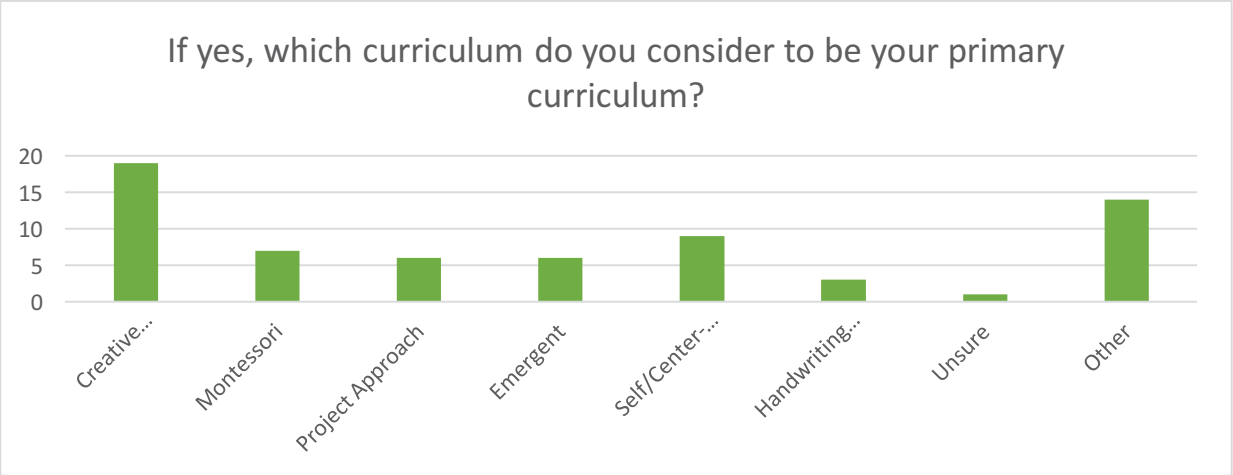
Do you ever meet with kindergarten teachers to discuss kindergarten readiness?	Percentage (N)
Yes	48.1% (26)
No	51.9% (28)

20. Do you use a curriculum?



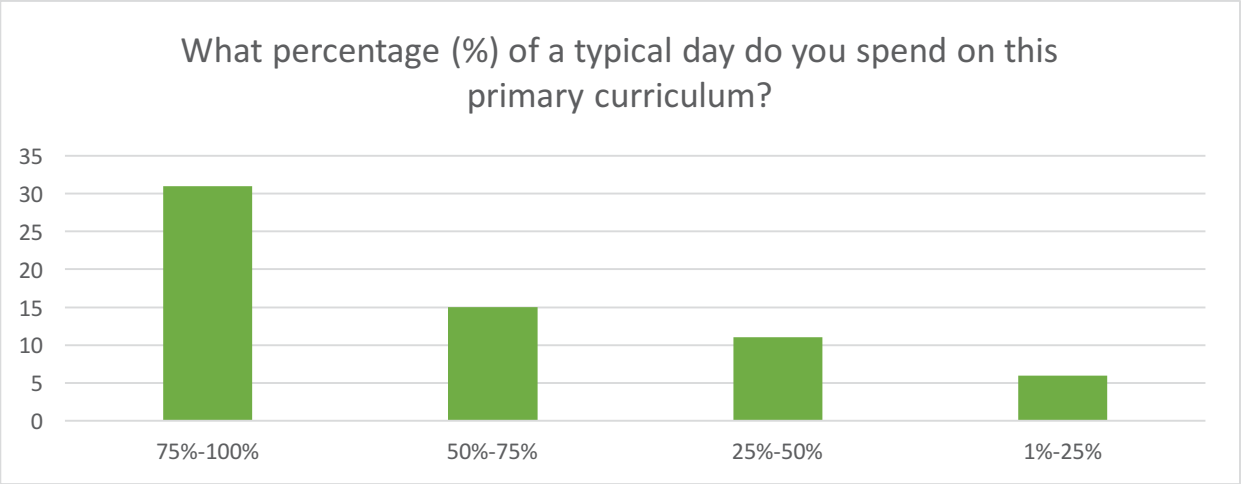
Do you use a curriculum?	Percentage (N)
Yes	64.1% (66)
No	35.9% (37)

21. If yes, which curriculum do you consider to be your primary curriculum?



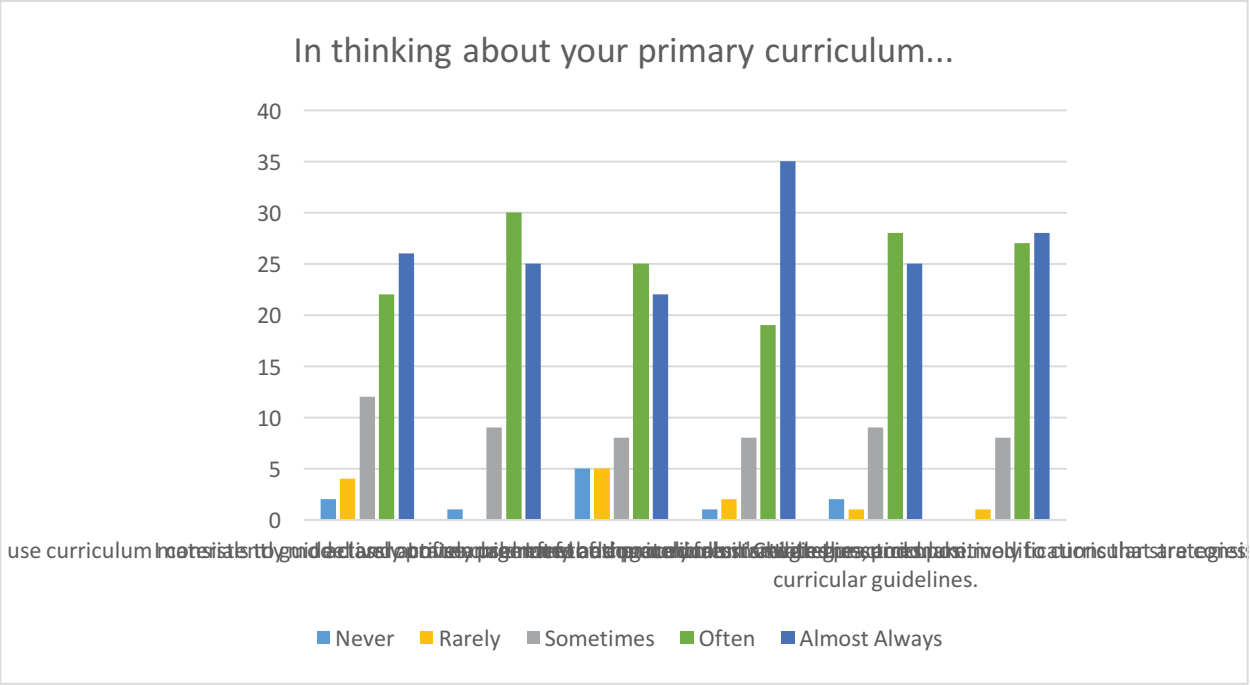
If yes, which curriculum do you consider to be your primary curriculum?	Percentage (N)
Creative Curriculum	29.2% (19)
Montessori	10.8% (7)
Project Approach	9.2% (6)
Emergent	9.2% (6)
Self/Center-Created	13.8% (9)
Handwriting Without Tears	4.6% (3)
Unsure	1.5% (1)
Other	21.5% (14)

22. What percentage (%) of a typical day do you spend on this primary curriculum?



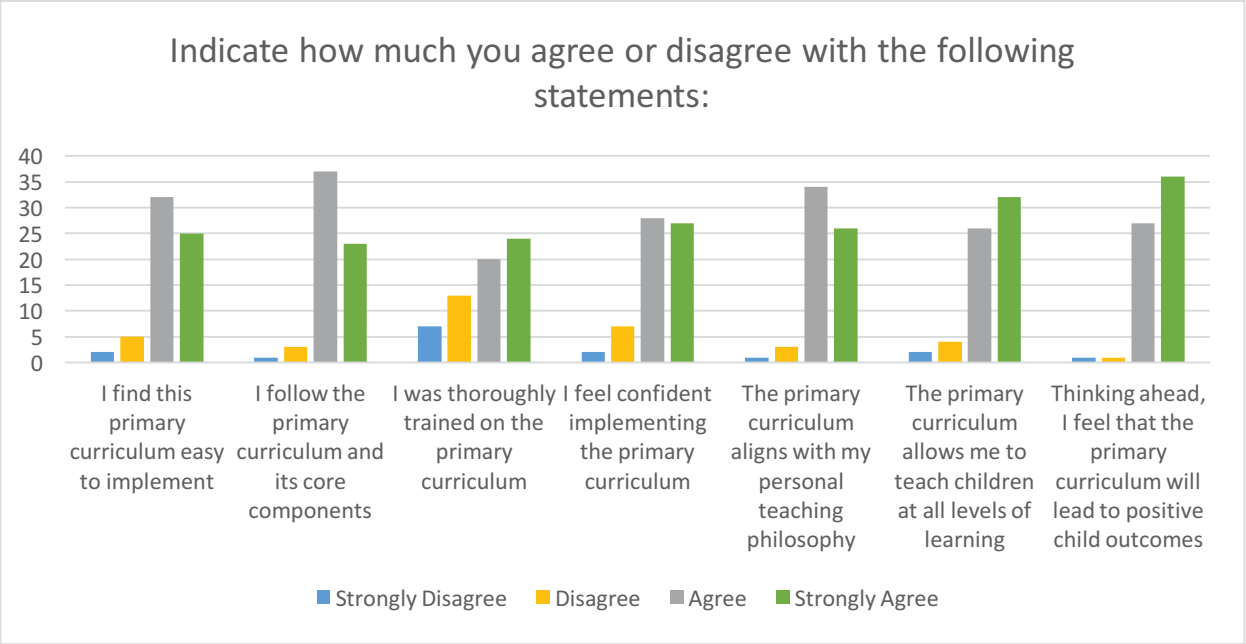
What percentage (%) of a typical day do you spend on this primary curriculum?	Percentage (N)
75%-100%	49.2% (31)
50%-74%	23.8% (15)
25%-49%	17.5% (11)
1%-24%	9.5% (6)

23. In thinking about your primary curriculum...



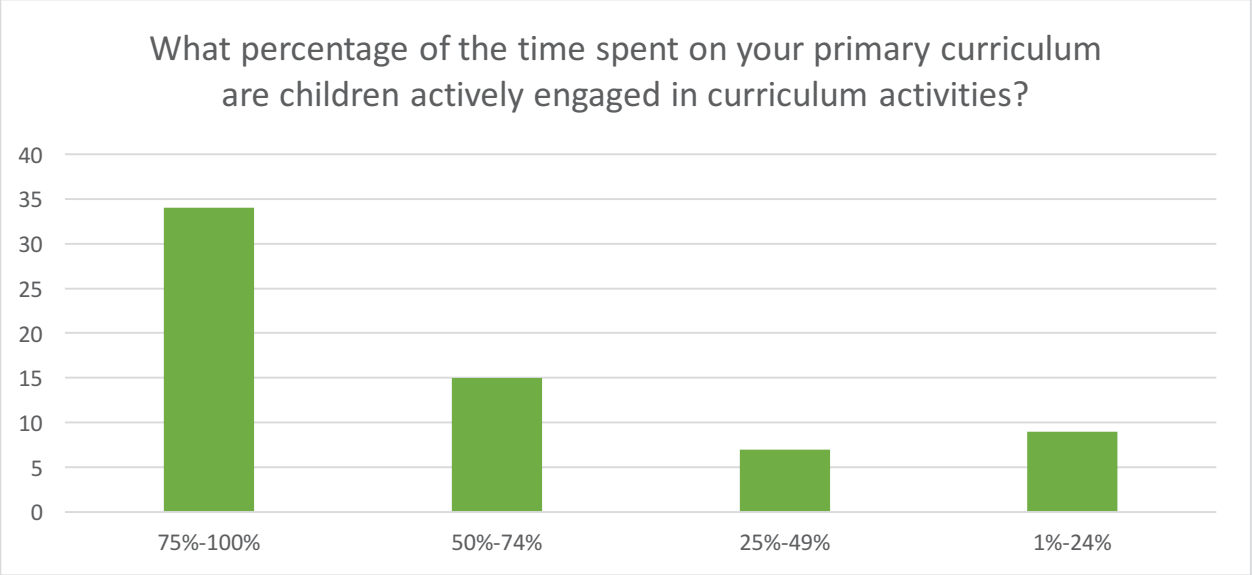
In thinking about your primary curriculum...	Never	Rarely	Sometimes	Often	Almost Always
I use curriculum materials to guide classroom management and procedures.	3.0% (2)	6.0% (4)	18.1% (12)	33.3% (22)	39.4% (26)
I consistently model and actively promote the curriculum's strategies.	1.5% (1)	0.0% (0)	13.8% (9)	46.2% (30)	38.5% (25)
I actively praise children for using curriculum-related practices.	7.7% (5)	7.7% (5)	12.3% (8)	38.5% (25)	33.8% (22)
I feel adequately familiar with the curriculum.	1.5% (1)	3.1% (2)	12.3% (8)	29.2% (19)	53.8% (35)
I often use many of the curriculum's strategies, and make modifications that are consistent with curricular guidelines.	3.1% (2)	1.5% (1)	13.8% (9)	43.1% (28)	38.5% (25)
Children respond positively to curricular strategies.	0.0% (0)	1.6% (1)	12.5% (8)	42.2% (27)	43.8% (28)

24. Please indicate how much you agree or disagree with the following statements:



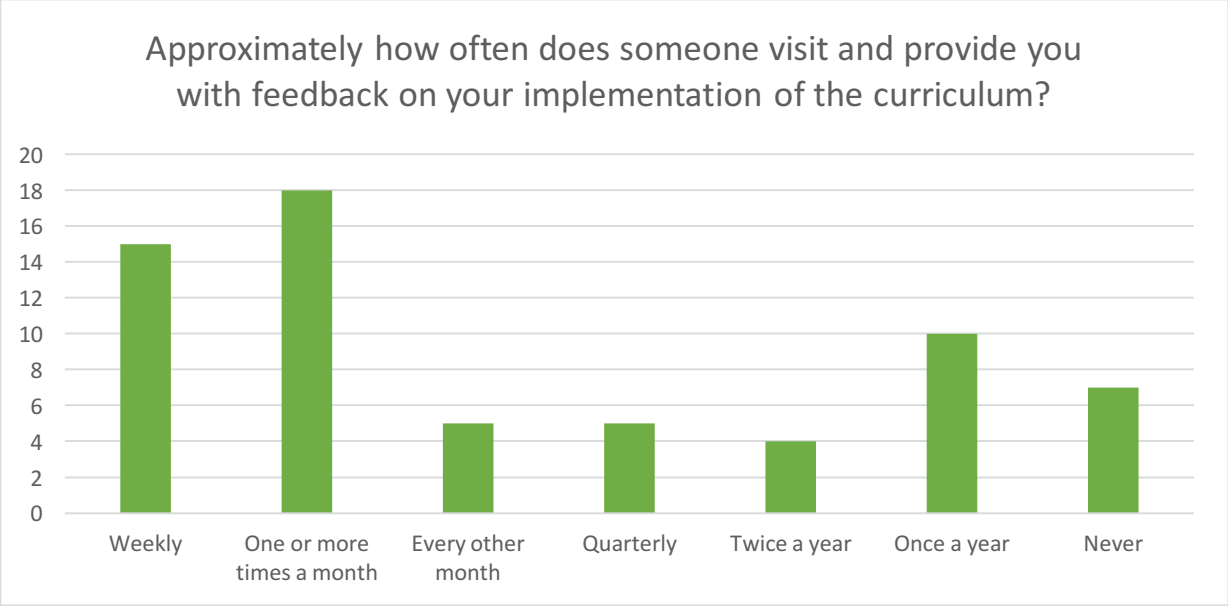
Indicate how much you agree or disagree with the following statements:	Strongly Disagree	Disagree	Agree	Strongly Agree
I find this primary curriculum easy to implement	3.1% (2)	7.8% (5)	50.0% (32)	39.1% (25)
I follow the primary curriculum and its core components	1.6% (1)	4.7% (3)	57.8% (37)	35.9% (23)
I was thoroughly trained on the primary curriculum	10.9% (7)	20.3% (13)	31.3% (20)	37.5% (24)
I feel confident implementing the primary curriculum	3.1% (2)	10.9%(7)	43.8% (28)	42.2% (27)
The primary curriculum aligns with my personal teaching philosophy	1.6% (1)	4.7% (3)	53.1% (34)	40.6% (26)
The primary curriculum allows me to teach children at all levels of learning	3.1% (2)	6.3% (4)	40.6% (26)	50.0% (32)
Thinking ahead, I feel that the primary curriculum will lead to positive child outcomes	1.5% (1)	1.5% (1)	41.5% (27)	55.4% (36)

25. What percentage (%) of the time spent on your primary curriculum are children actively engaged in curriculum activities?



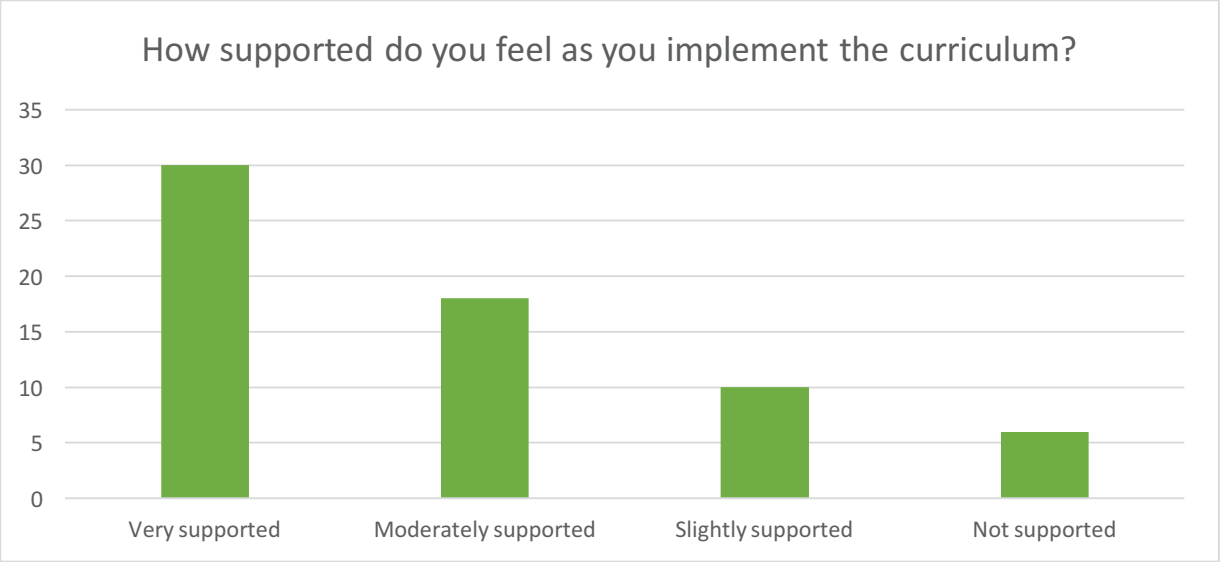
What percentage of the time spent on your primary curriculum are children actively engaged in curriculum activities?	Percentage (N)
75%-100%	52.3% (34)
50%-74%	23.1% (15)
25%-49%	10.8% (7)
1%-24%	13.8% (9)

26. Think about the past year. Approximately how often does someone (e.g., administrator, supervisor, coach) visit and provide you with feedback on your implementation of the curriculum?



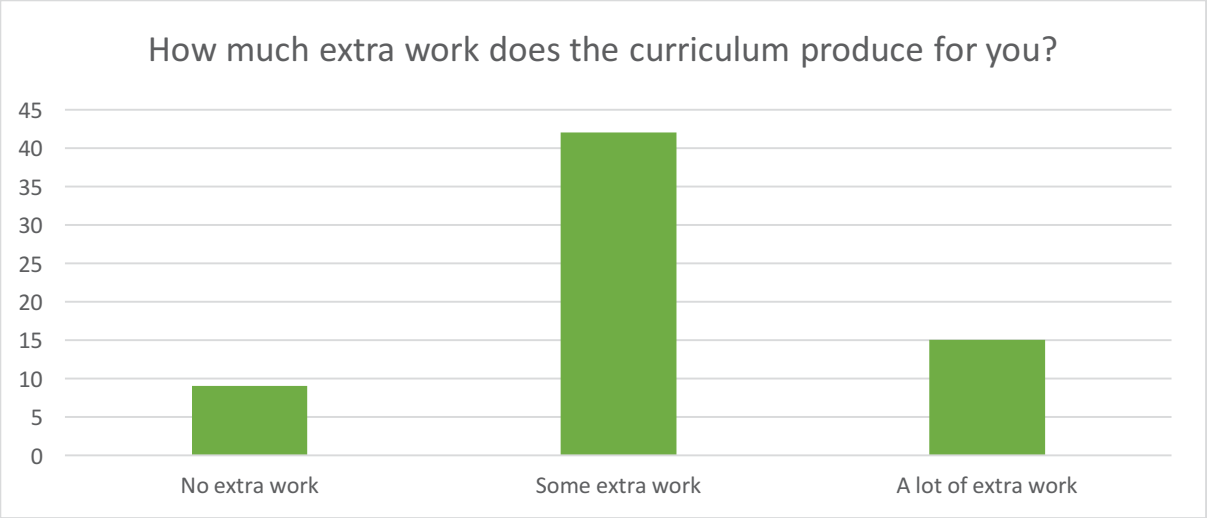
Approximately how often does someone visit and provide you with feedback on your implementation of the curriculum?	Percentage (N)
Weekly	23.4% (15)
One or more times a month	28.1% (18)
Every other month	7.8% (5)
Quarterly	7.8% (5)
Twice a year	6.3% (4)
Once a year	15.6% (10)
Never	10.9% (7)

27. How supported do you feel as you implement the curriculum?



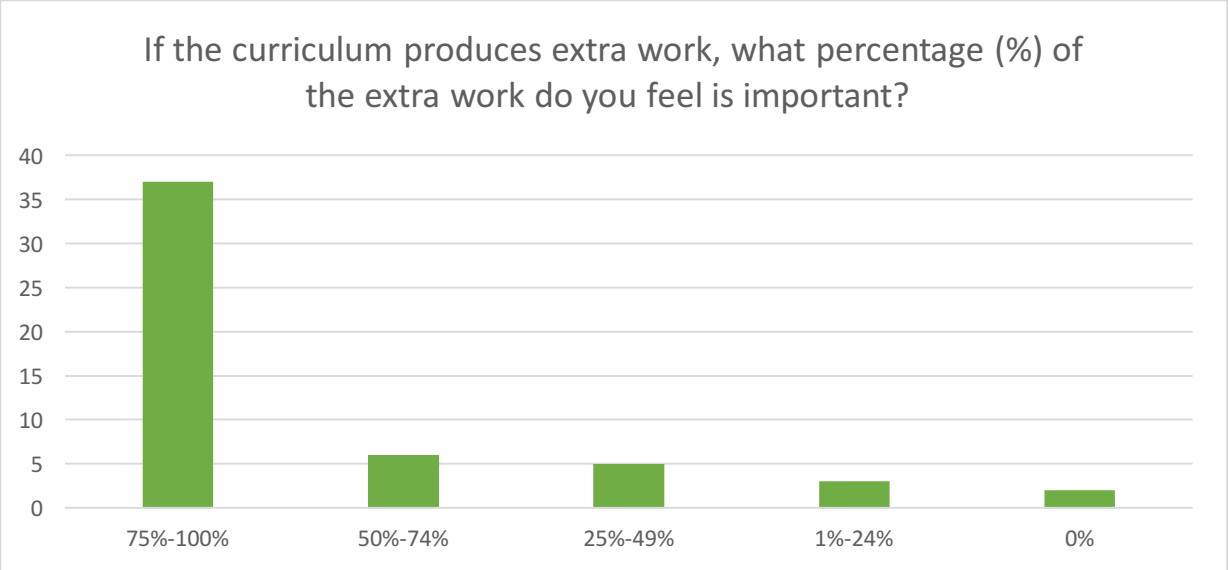
How supported do you feel as you implement the curriculum?	Percentage (N)
Very supported	46.9% (30)
Moderately supported	28.1% (18)
Slightly supported	15.6% (10)
Not supported	9.4% (6)

28. How much extra work does the curriculum produce for you?



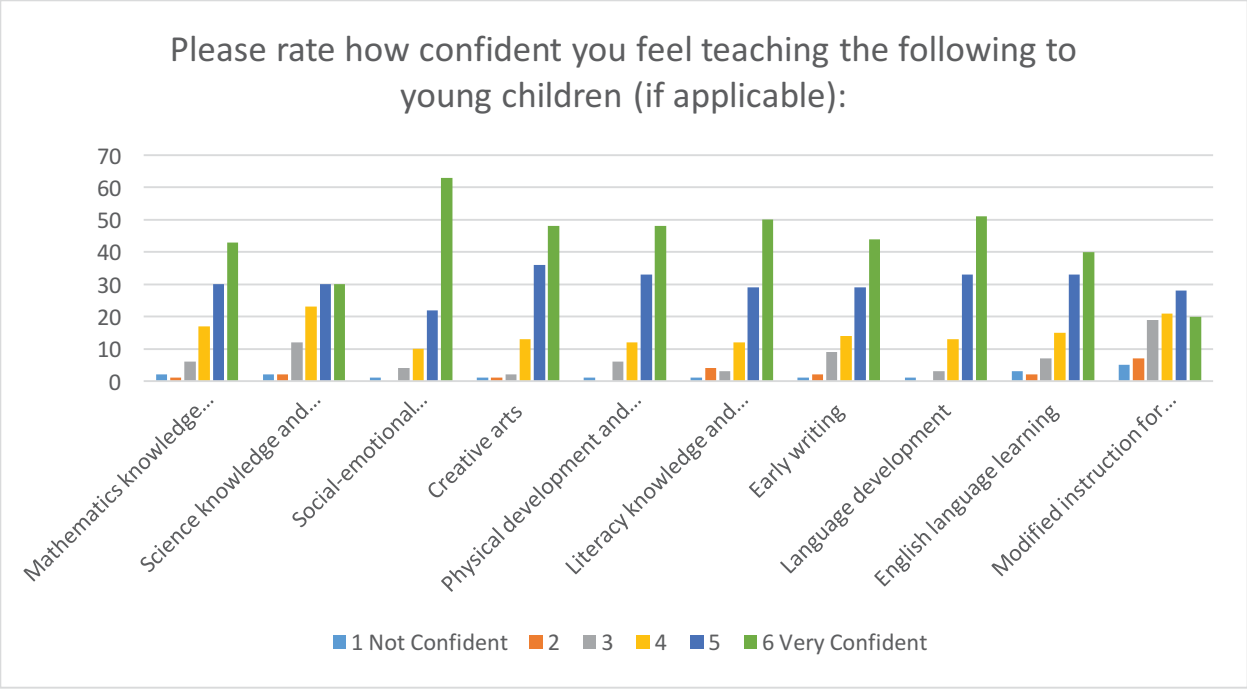
How much extra work does the curriculum produce for you?	Percentage (N)
No extra work	13.6% (9)
Some extra work	63.6% (42)
A lot of extra work	22.7% (15)

29. If the curriculum produces extra work, what percentage (%) of the extra work do you feel is important?



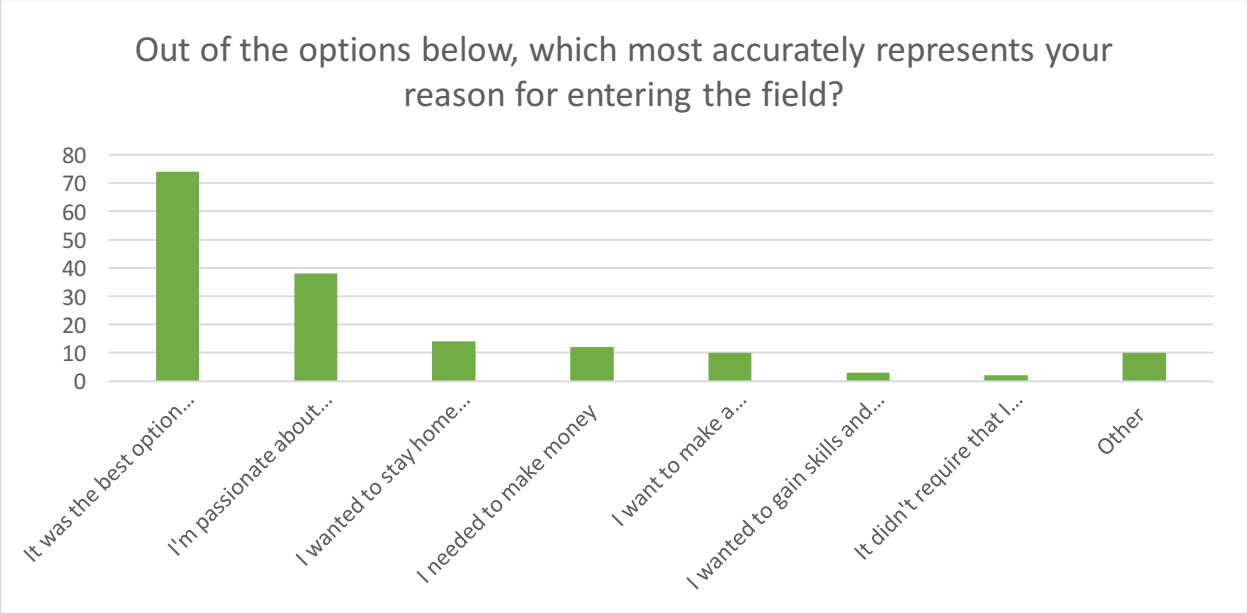
If the curriculum produces extra work, what percentage (%) of the extra work do you feel is important?	Percentage (N)
75%-100%	69.8% (37)
50%-74%	11.3% (6)
25%-49%	9.4% (5)
1%-24%	5.7% (3)
0%	3.8% (2)

30. Please rate how confident you feel teaching the following to young children (if applicable):



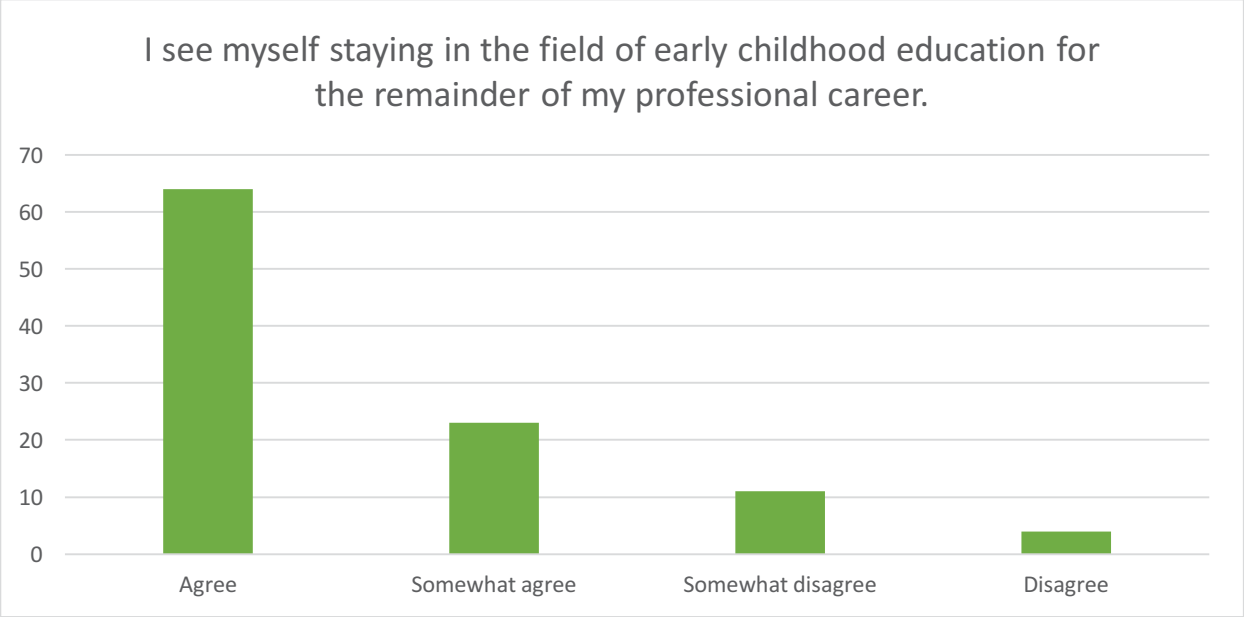
Rate how confident you feel teaching the following to young children:	1 Not Confident	2	3	4	5	6 Very Confident
Mathematics knowledge and skills	2.0% (2)	1.0% (1)	6.1% (6)	17.2% (17)	30.3% (30)	43.4% (43)
Science knowledge and skills	2.0% (2)	2.0% (2)	12.1% (12)	23.2% (23)	30.3% (30)	30.3% (30)
Social-emotional development	1.0% (1)	0.0% (0)	4.0% (4)	10.0% (10)	22.0% (22)	63.0% (63)
Creative arts	1.0% (1)	1.0% (1)	2.0% (2)	12.9% (13)	35.6% (36)	47.5% (48)
Physical development and health	1.0% (1)	0.0% (0)	6.0% (6)	12.0% (12)	33.0% (33)	48.0% (48)
Literacy knowledge and skills	1.0% (1)	4.0% (4)	3.0% (3)	12.1% (12)	29.3% (29)	50.5% (50)
Early writing	1.0% (1)	2.0% (2)	9.1% (9)	14.1% (14)	29.3% (29)	44.4% (44)
Language development	1.0% (1)	0.0% (0)	3.0% (3)	12.9% (13)	32.7% (33)	50.5% (51)
English language learning	3.0% (3)	2.0% (2)	7.0% (7)	15.0% (15)	33.0% (33)	40.0% (40)
Modified instruction for special needs	5.0% (5)	7.0% (7)	19.0% (19)	21.0% (21)	28.0% (28)	20.0% (20)

31. Professionals choose to work in the field of early childhood education for many different reasons. Out of the options below, which most accurately represents your reason for entering the field? *(Mark one)*



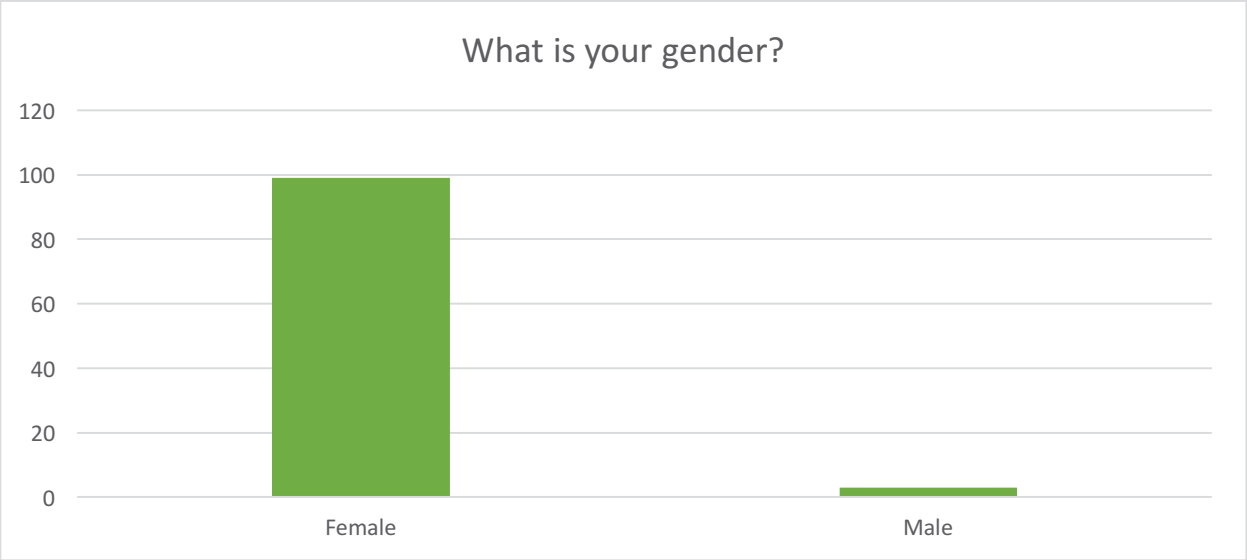
Out of the options below, which most accurately represents your reason for entering the field?	Percentage (N)
It was the best option available when choosing a career path	72.5% (74)
I wanted to stay home with my children	13.7% (14)
I needed to make money	11.8% (12)
It didn't require that I complete schooling/training	2.0% (2)

32. I see myself staying in the field of early childhood education for the remainder of my professional career.

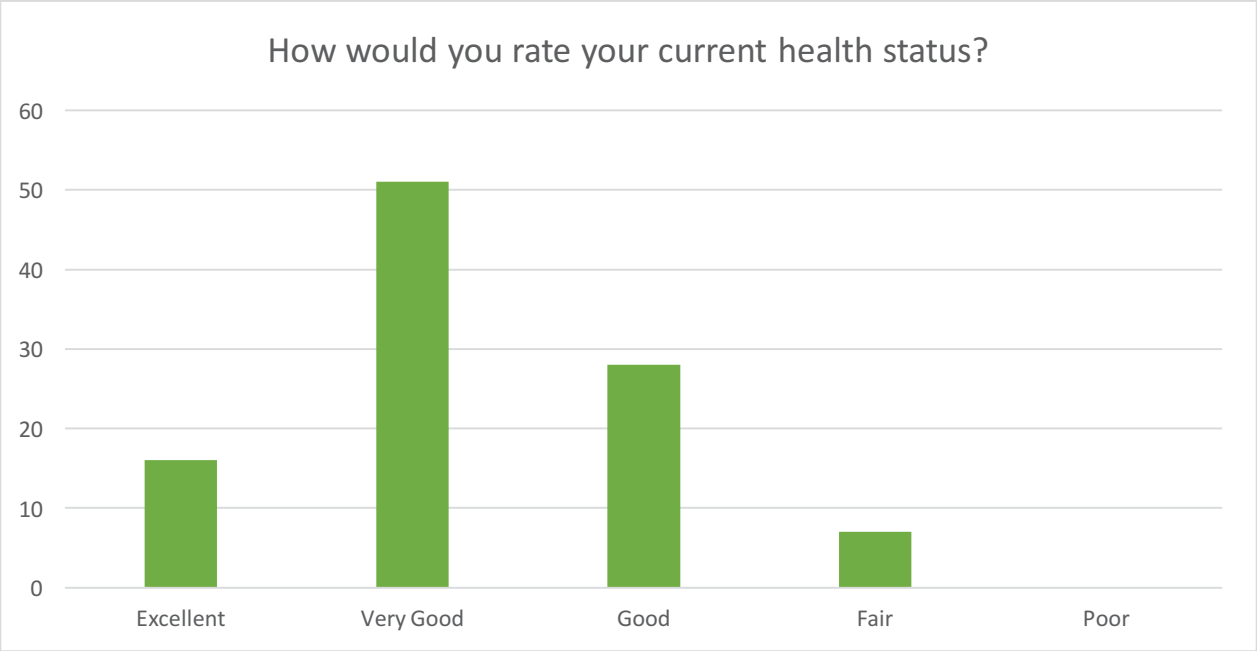


I see myself staying in the field of early childhood education for the remainder of my professional career.	Percentage (N)
Agree	62.7% (64)
Somewhat agree	22.5% (23)
Somewhat disagree	10.8% (11)
Disagree	3.9% (4)

33. What is your gender?



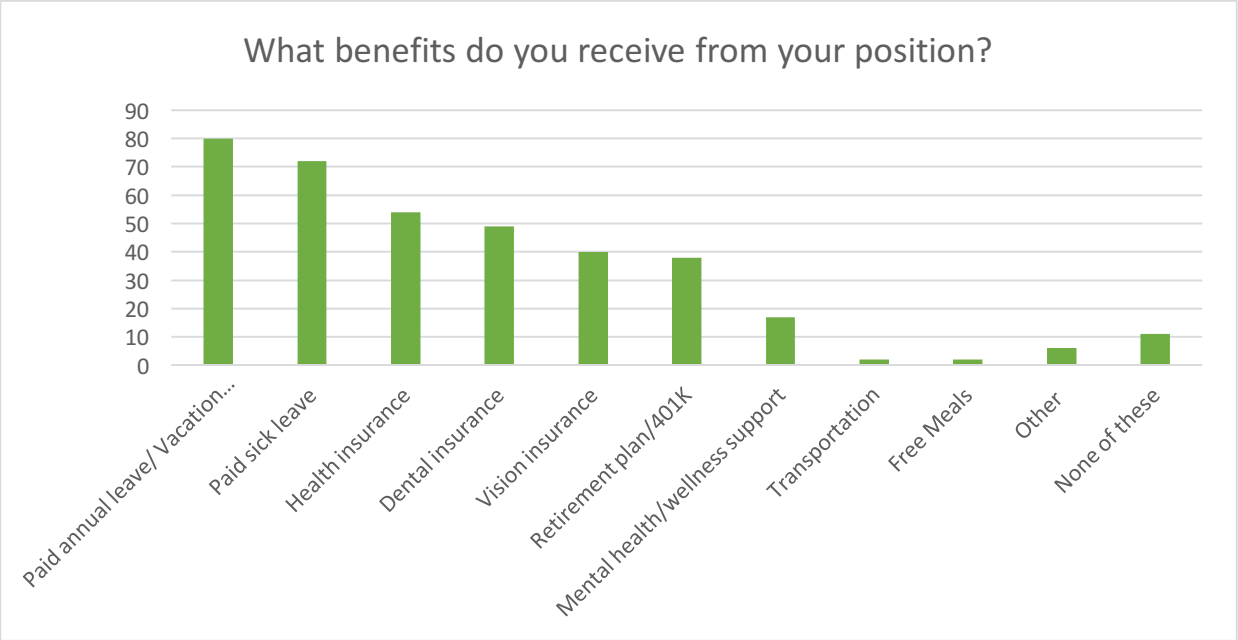
What is your gender?	Percentage (N)
Female	97.1% (99)
Male	2.9% (3)



34. How would you rate your current health status?

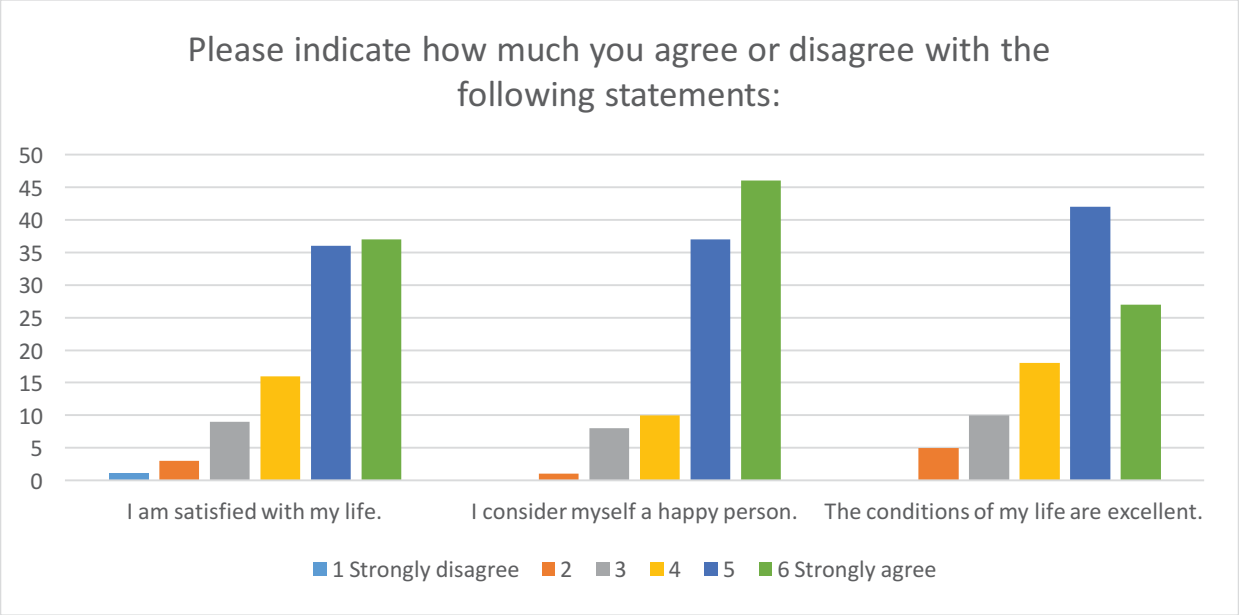
How would you rate your current health status?	Percentage (N)
Excellent	15.7% (16)
Very Good	50.0% (51)
Good	27.5%(28)
Fair	6.9% (7)
Poor	0.0% (0)

35. What benefits do you receive from your position? *(Check all that apply)*



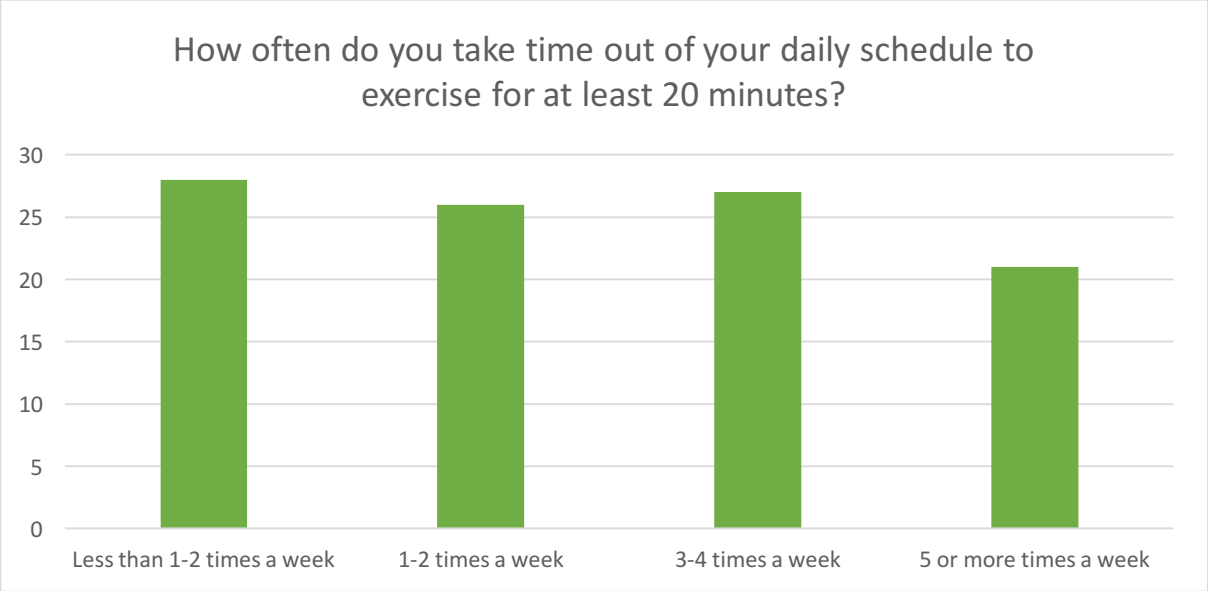
What benefits do you receive from your position?	Percentage (N)
Paid annual leave/Vacation time	77.7% (80)
Paid sick leave	69.9% (72)
Health insurance	52.4% (54)
Dental insurance	47.6% (49)
Vision insurance	38.8% (40)
Retirement plan/401K	36.9% (38)
Mental health/wellness support	16.5% (17)
Transportation	1.9% (2)
Free Meals	1.9% (2)
Other	5.8% (6)
None of these	10.7% (11)

36. Please indicate how much you agree or disagree with the following statements:



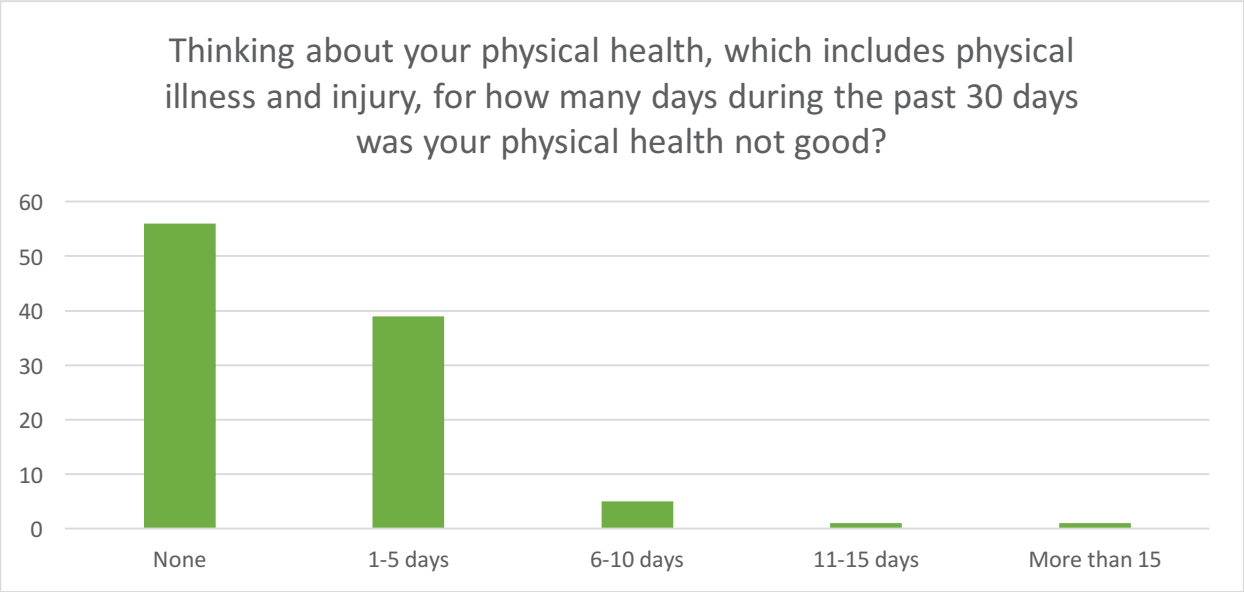
Indicate how much you agree or disagree with the following statements:	1 Strongly disagree	2	3	4	5	6 Strongly agree
I am satisfied with my life.	1.0% (1)	2.9% (3)	8.8% (9)	15.7% (16)	35.3% (36)	36.3% (37)
I consider myself a happy person.	0.0% (0)	1.0% (1)	7.8% (8)	9.8% (10)	36.3% (37)	45.1% (46)
The conditions of my life are excellent.	0.0% (0)	4.9% (5)	9.8% (10)	17.6% (18)	41.2% (42)	26.5% (27)

37. How often do you take time out of your daily schedule to exercise for at least 20 minutes?



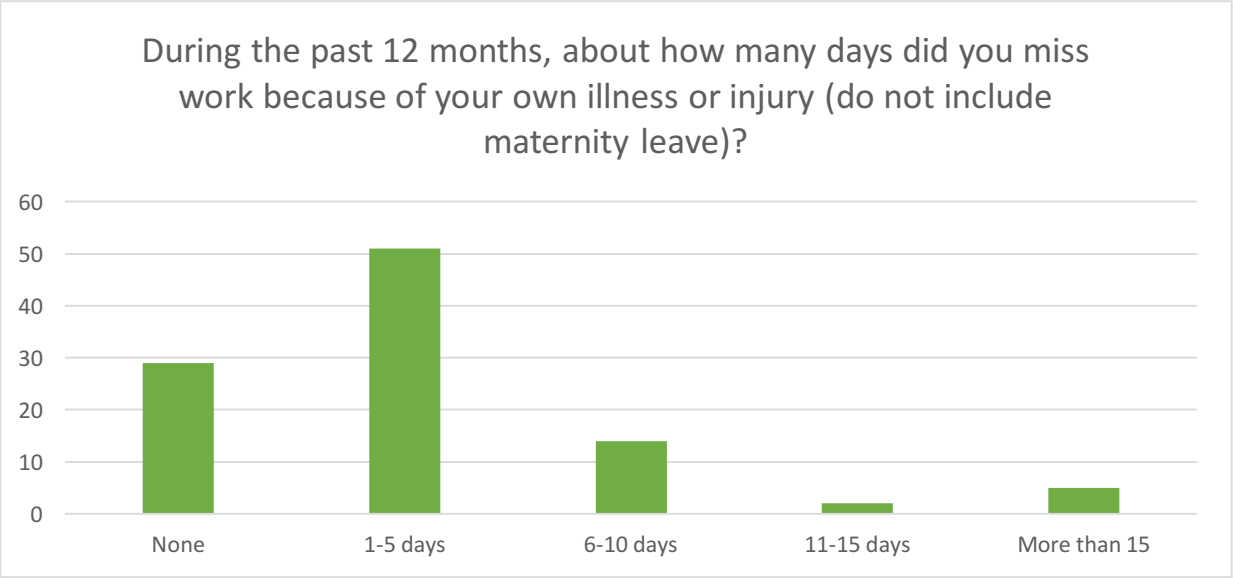
How often do you take time out of your daily schedule to exercise for at least 20 minutes?	Percentage (N)
Less than 1-2 times a week	27.5% (28)
1-2 times a week	25.5% (26)
3-4 times a week	26.5% (27)
5 or more times a week	20.6% (21)

38. Thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?



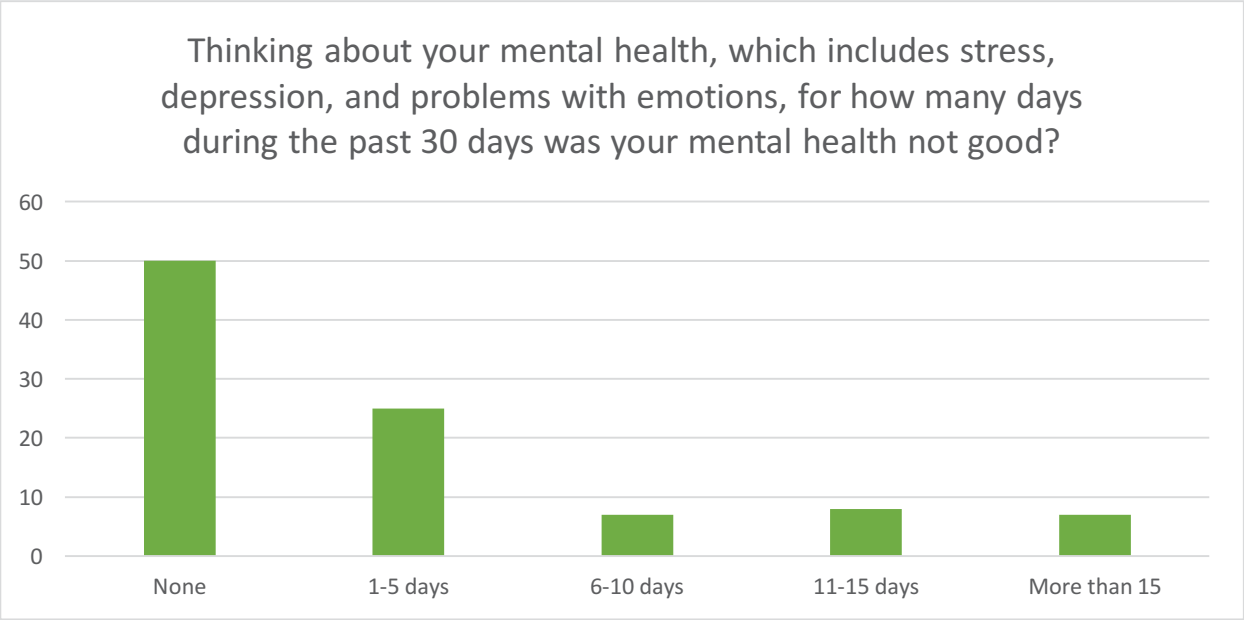
Thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?	Percentage (N)
None	54.9% (56)
1-5 days	38.2% (39)
6-10 days	4.9% (5)
11-15 days	1.0% (1)
More than 15	1.0% (1)

39. During the past 12 months, about how many days did you miss work because of your own illness or injury (do not include maternity leave)?



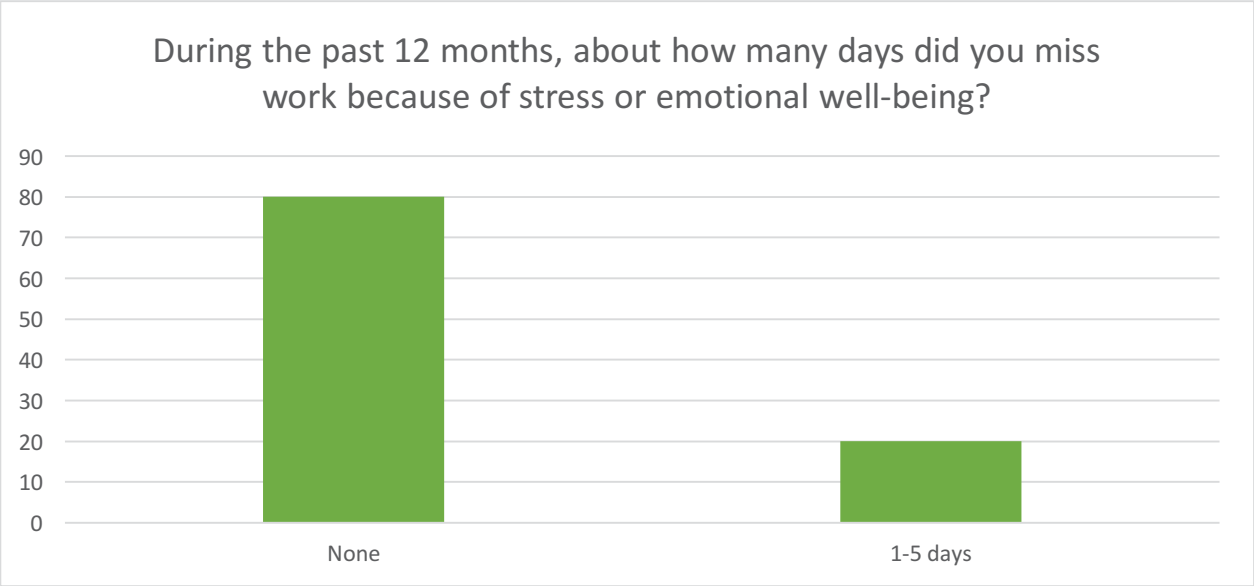
During the past 12 months, about how many days did you miss work because of your own illness or injury (do not include maternity leave)?	Percentage (N)
None	28.7% (29)
1-5 days	50.5% (51)
6-10 days	13.9% (14)
11-15 days	2.0% (2)
More than 15	5.0% (5)

40. Thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?



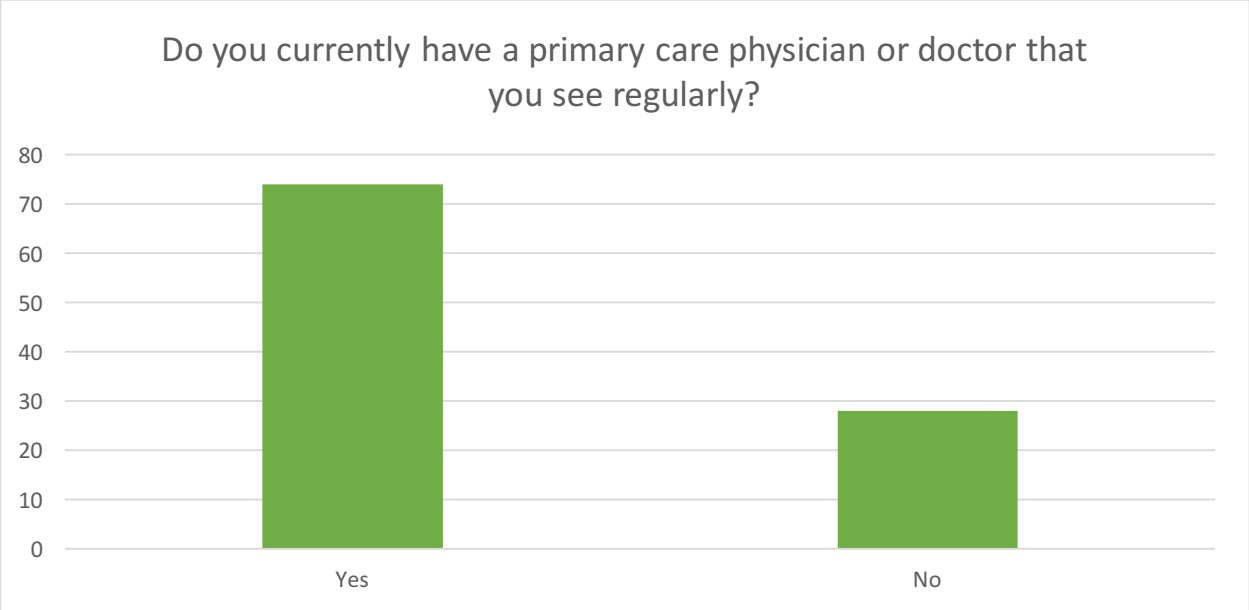
Thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?	Percentage (N)
None	51.5% (50)
1-5 days	25.8% (25)
6-10 days	7.2% (7)
11-15 days	8.2% (8)
More than 15	7.2% (7)

41. During the past 12 months, about how many days did you miss work because of stress or emotional well-being?



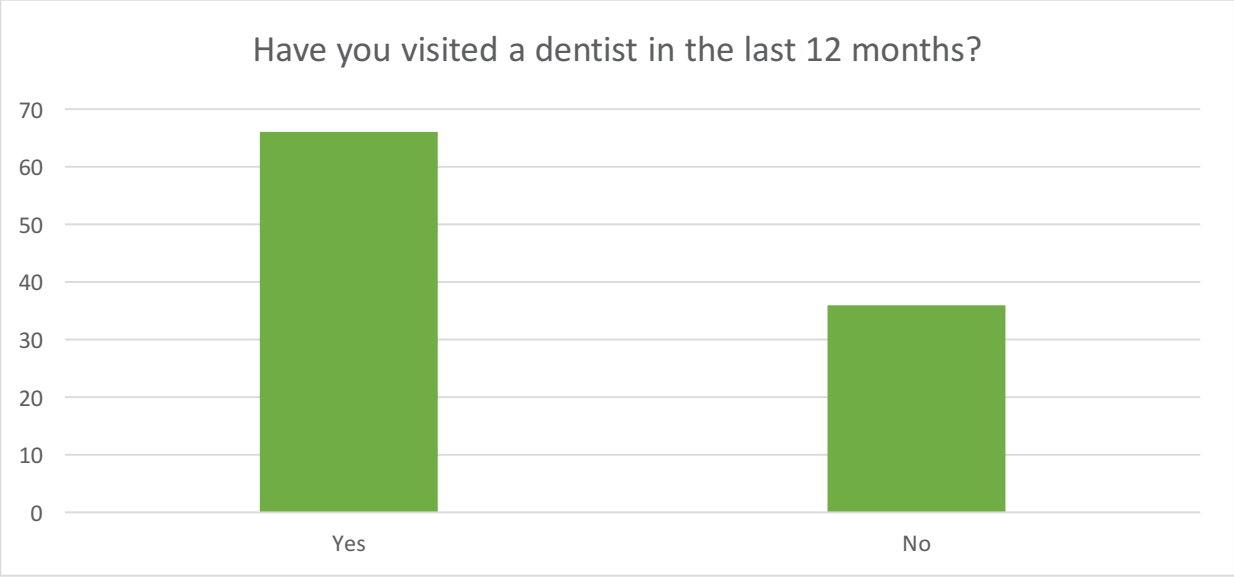
During the past 12 months, about how many days did you miss work because of stress or emotional well-being?	Percentage (N)
None	80.0% (80)
1-5 days	20.0% (20)

42. Do you currently have a primary care physician or doctor that you see regularly?



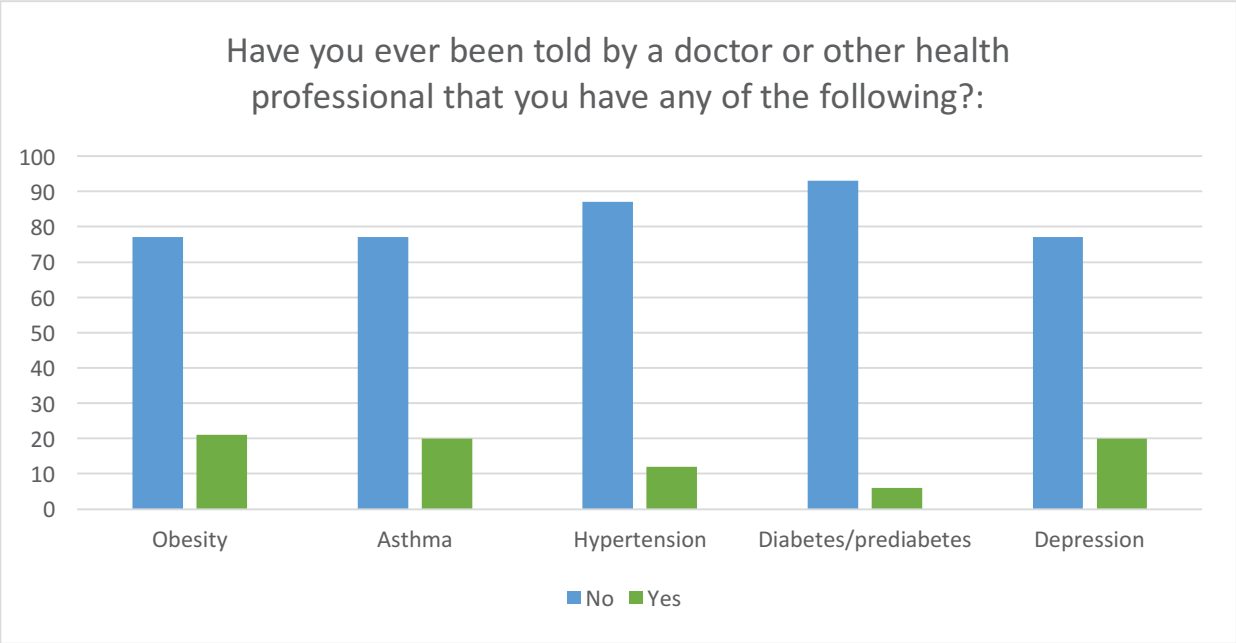
Do you currently have a primary care physician or doctor that you see regularly?	Percentage (N)
Yes	72.5% (74)
No	27.5% (28)

43. Have you visited a dentist in the last 12 months?



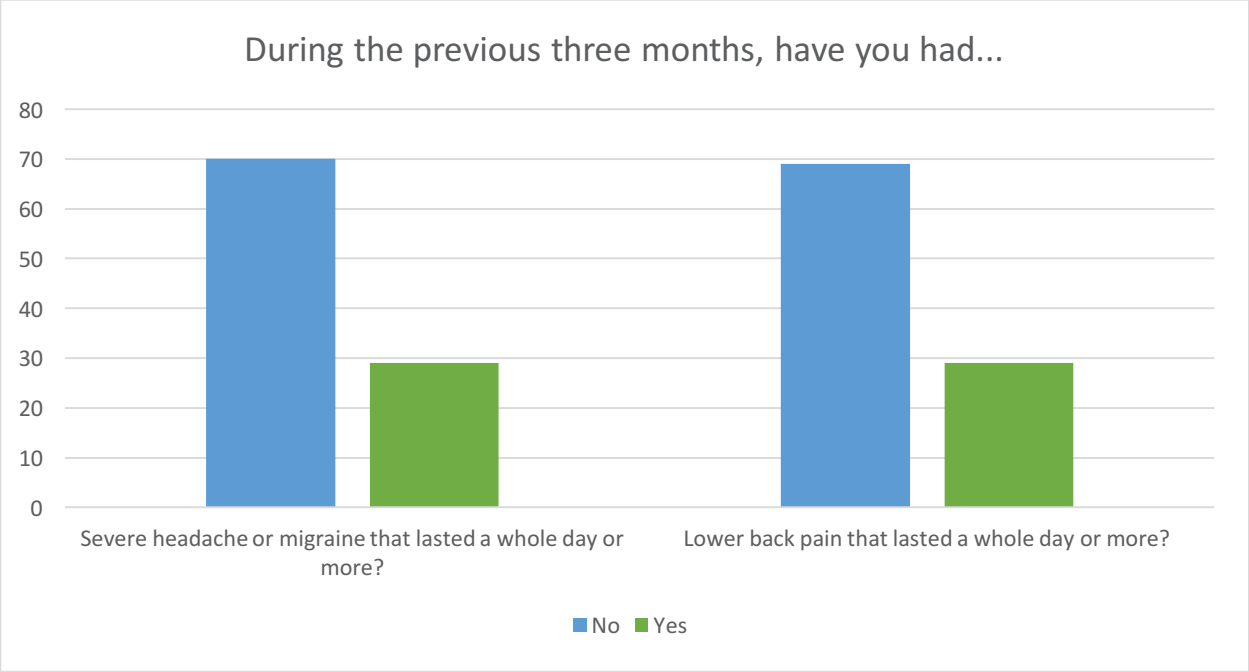
Have you visited a dentist in the last 12 months?	Percentage (N)
Yes	64.7% (66)
No	35.3% (36)

44. Have you ever been told by a doctor or other health professional that you have any of the following?



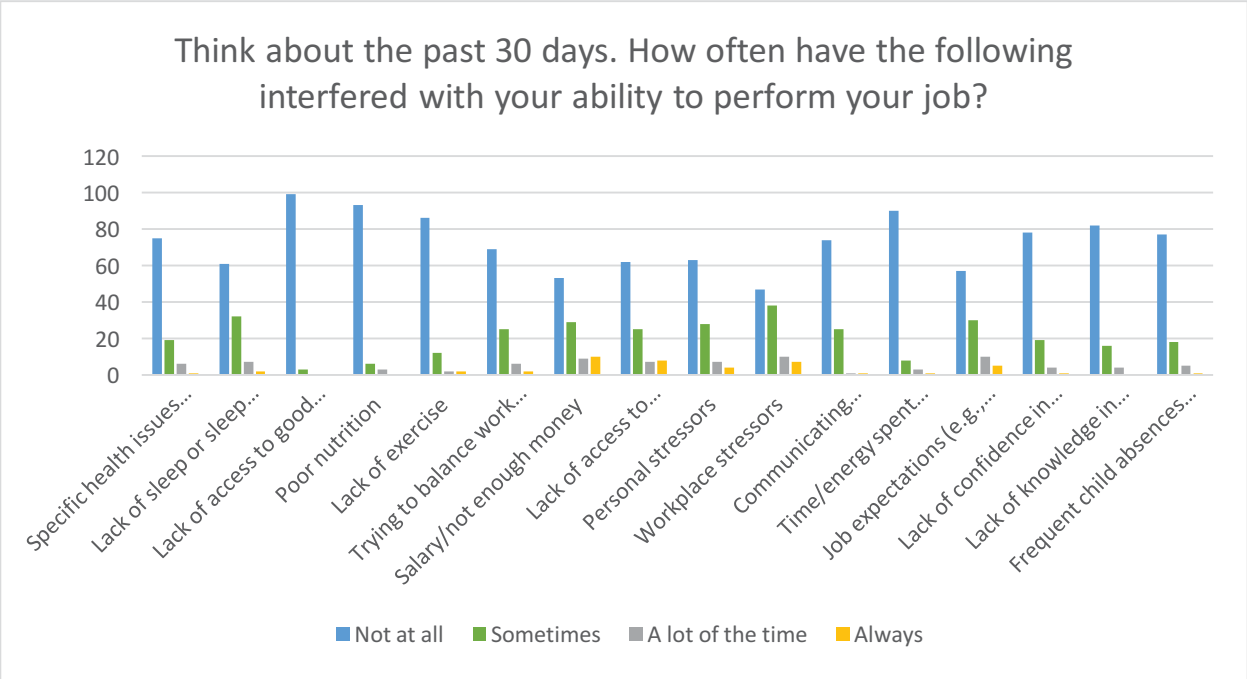
Have you ever been told by a doctor or other health professional that you have any of the following	No	Yes
Obesity	78.6% (77)	21.4% (21)
Asthma	79.4% (77)	20.6% (20)
Hypertension	87.9% (87)	12.1% (12)
Diabetes/prediabetes	93.9% (93)	6.1% (6)
Depression	79.4% (77)	20.6% (20)

45. During the previous three (3) months, have you had...



During the previous three (3) months, have you had...	No	Yes
Severe headache or migraine that lasted a whole day or more?	70.7% (70)	29.3% (29)
Lower back pain that lasted a whole day or more?	70.4% (69)	29.6% (29)

46. Think about the past 30 days. How often have the following interfered with your ability to perform your job?

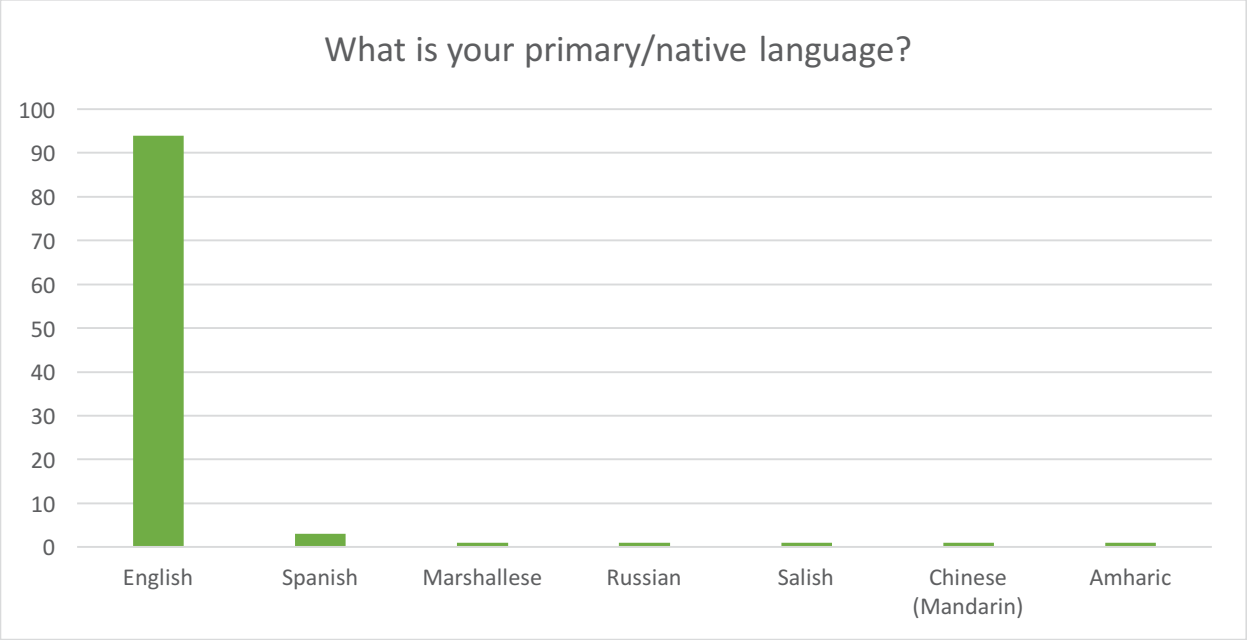


Think about the past 30 days. How often have the following interfered with your ability to perform your job?	Not at all	Sometimes	A lot of the time	Always
Specific health issues (e.g., migraines, injury, depression)	74.3% (75)	18.8% (19)	5.9% (6)	1.0% (1)
Lack of sleep or sleep difficulties	59.8% (61)	31.4% (32)	6.9% (7)	2.0% (2)
Lack of access to good health care	97.1% (99)	2.9% (3)	0.0% (0)	0.0% (0)
Poor nutrition	91.2% (93)	5.9% (6)	2.9% (3)	0.0% (0)
Lack of exercise	84.3% (86)	11.8% (12)	2.0% (2)	2.0% (2)
Trying to balance work and family time	67.6% (69)	24.5% (25)	5.9% (6)	2.0% (2)
Salary/not enough money	52.5% (53)	28.7% (29)	8.9% (9)	9.9% (10)
Lack of access to materials/resources	60.8% (62)	24.5% (25)	6.9% (7)	7.8% (8)
Personal stressors	61.8% (63)	27.5% (28)	6.9% (7)	3.9% (4)
Workplace stressors	46.1% (47)	37.3% (38)	9.8% (10)	6.9% (7)
Communicating with/reaching out to parents	73.3% (74)	24.8% (25)	1.0% (1)	1.0% (1)
Time/energy spent working a second job	88.2% (90)	7.8% (8)	2.9% (3)	1.0% (1)
Job expectations (e.g., trainings, assessments, raising EA rating)	55.9% (57)	29.4% (30)	9.8% (10)	4.9% (5)
Lack of confidence in abilities as a teacher	76.5% (78)	18.6% (19)	3.9% (4)	1.0% (1)
Lack of knowledge in specific areas of early childhood education	80.4% (82)	15.7% (16)	3.9% (4)	0.0% (0)
Frequent child absences and/or mobility (transitioning in or out)	76.2% (77)	17.8% (18)	5.0% (5)	1.0% (1)

47. Do you feel like your thoughts and opinions about day-to-day operations within your program are valued by those in supervisory roles?

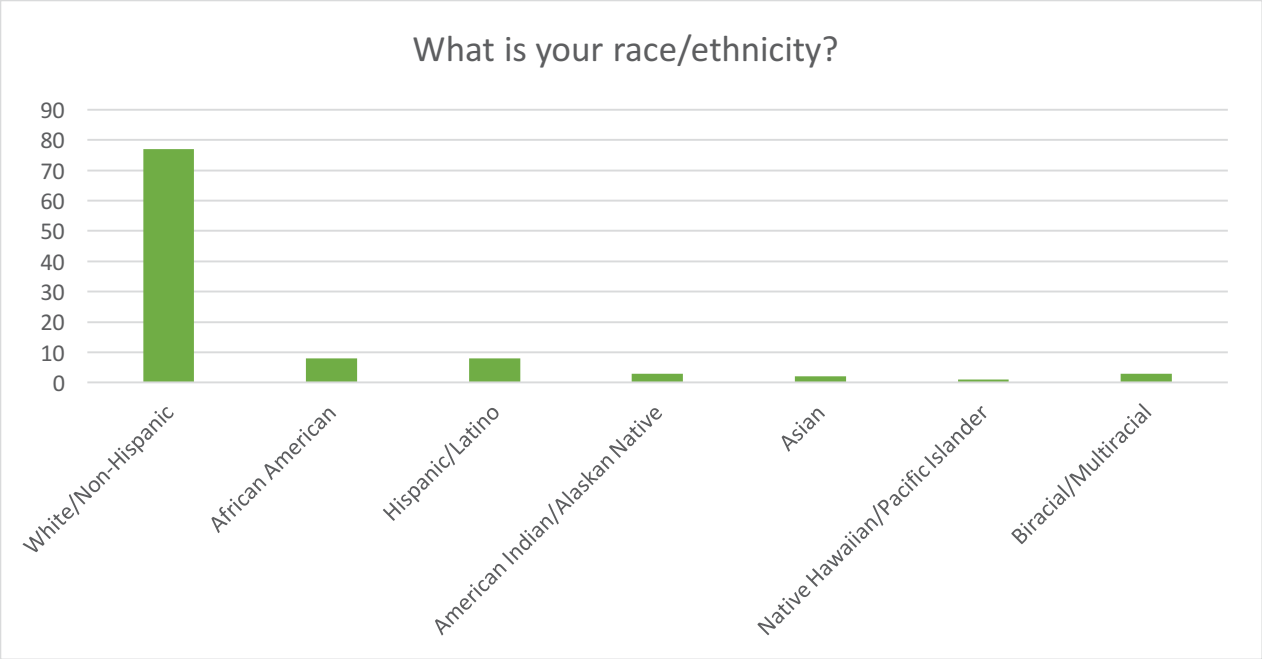
Do you feel like your thoughts and opinions about day-to-day operations within your program are valued by those in supervisory roles?	Percentage (N)
Not at all	9.0% (9)
Sometimes	33.0% (33)
A lot of the time	33.0% (33)
Always	25.0% (25)

48. What is your primary/native language?



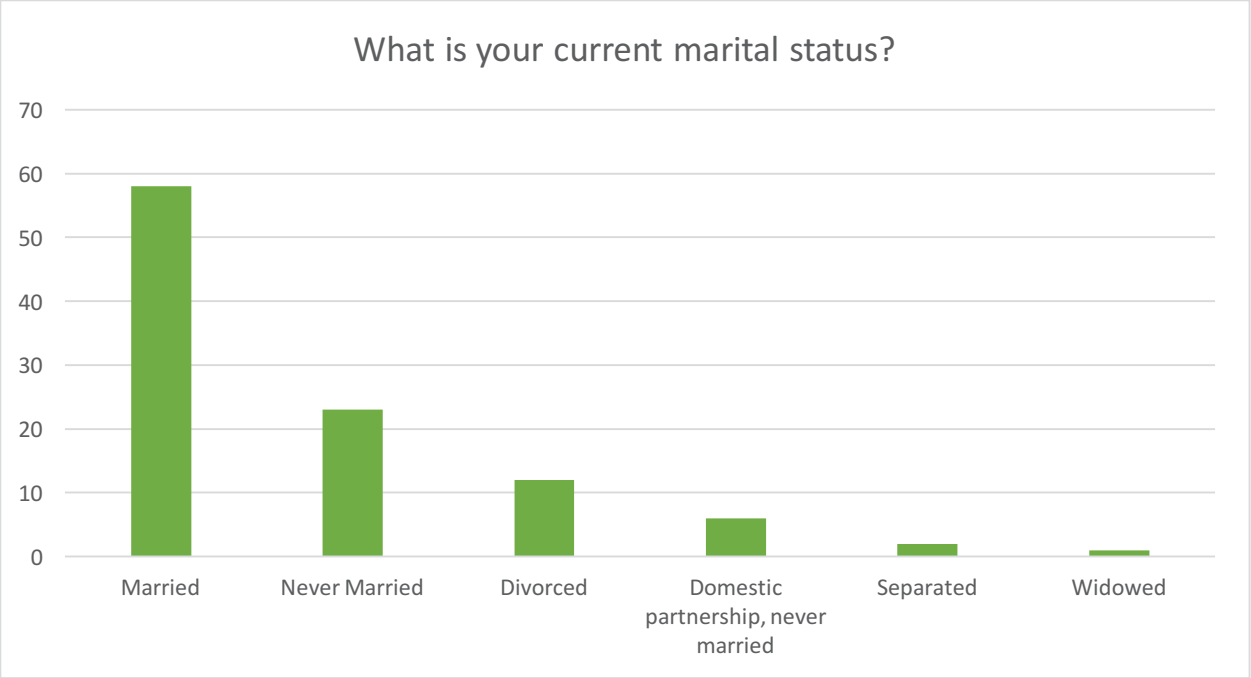
What is your primary/native language?	Percentage (N)
English	92.2% (94)
Spanish	2.9% (3)
Marshallese	1.0% (1)
Russian	1.0% (1)
Salish	1.0% (1)
Chinese (Mandarin)	1.0% (1)
Amharic	1.0% (1)

49. What is your race/ethnicity?



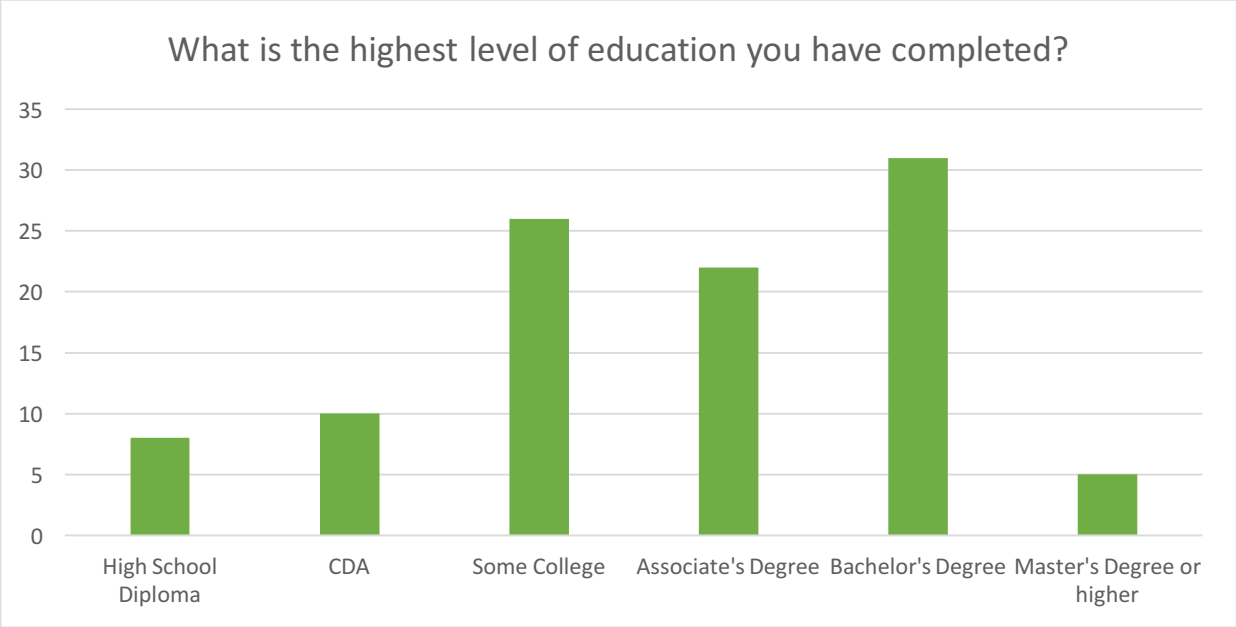
What is your race/ethnicity?	Percentage (N)
White/Non-Hispanic	75.5% (77)
African American	7.8% (8)
Hispanic/Latino	7.8% (8)
American Indian/Alaskan Native	2.9% (3)
Asian	2.0% (2)
Native Hawaiian/Pacific Islander	1.0% (1)
Biracial/Multiracial	2.9% (3)

50. What is your current marital status?



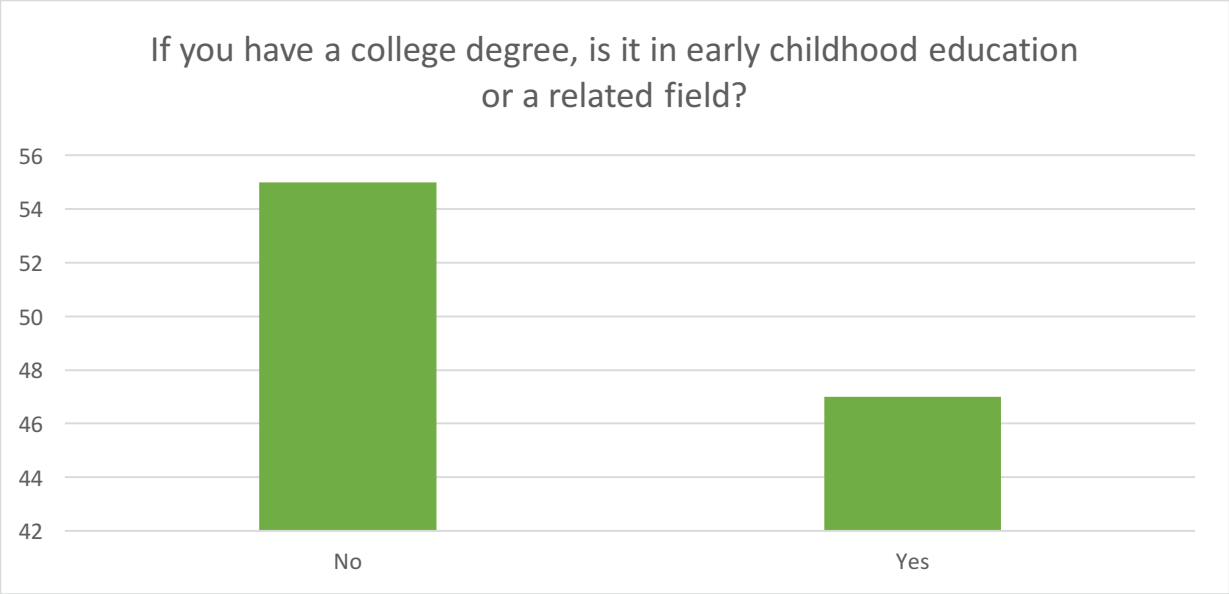
What is your current marital status?	Percentage (N)
Married	56.9% (58)
Never Married	22.5% (23)
Divorced	11.8% (12)
Domestic partnership, never married	5.9% (6)
Separated	2.0% (2)
Widowed	1.0% (1)

51. What is the highest level of education you have completed?



What is the highest level of education you have completed?	Percentage (N)
High School Diploma	7.8% (8)
CDA	9.8% (10)
Some College	25.5% (26)
Associate's Degree	21.6% (22)
Bachelor's Degree	30.4% (31)
Master's Degree or higher	4.9% (5)

52. If you have a college degree, is it in early childhood education or a related field?



If you have a college degree, is it in early childhood education or a related field?	Percentage (N)
No	53.9% (55)
Yes	46.1% (47)

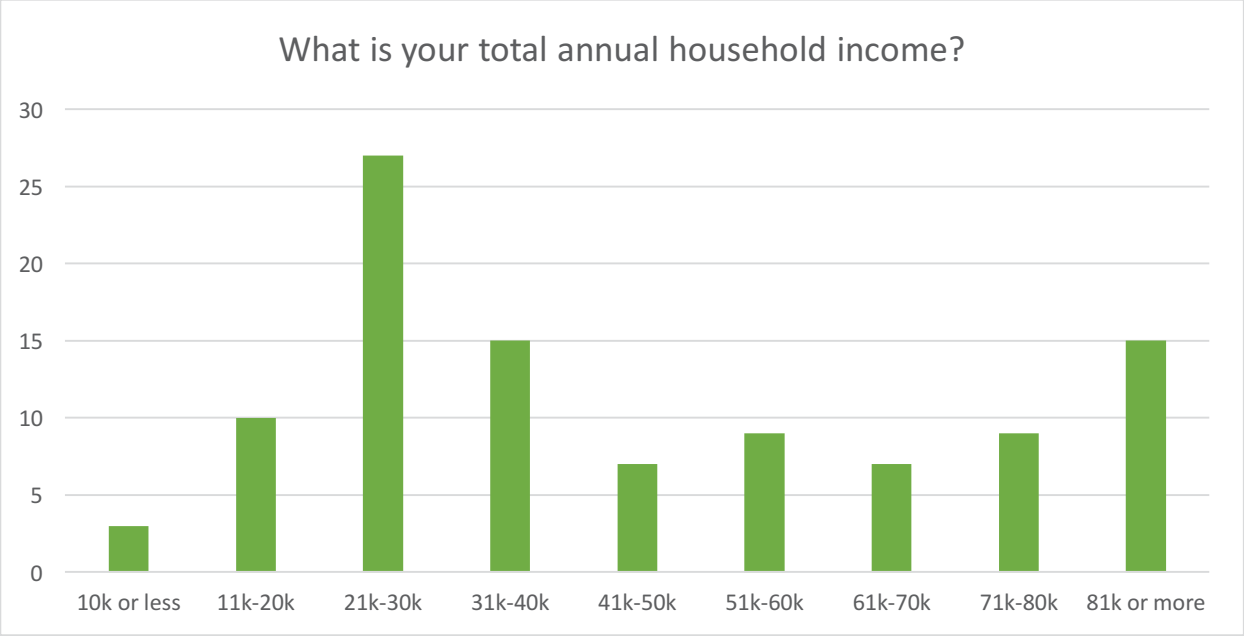
53. What is your current annual salary as an early learning professional?

What is your current annual salary as an early learning professional?	Percentage (N)
10k or less	4.9% (5)
11k-20k	26.5% (27)
21k-30k	42.2% (43)
31k-40k	20.6% (21)
41k-50k	5.9% (6)
51k or more	0.0% (0)

54. Do you work a second job to supplement your salary?

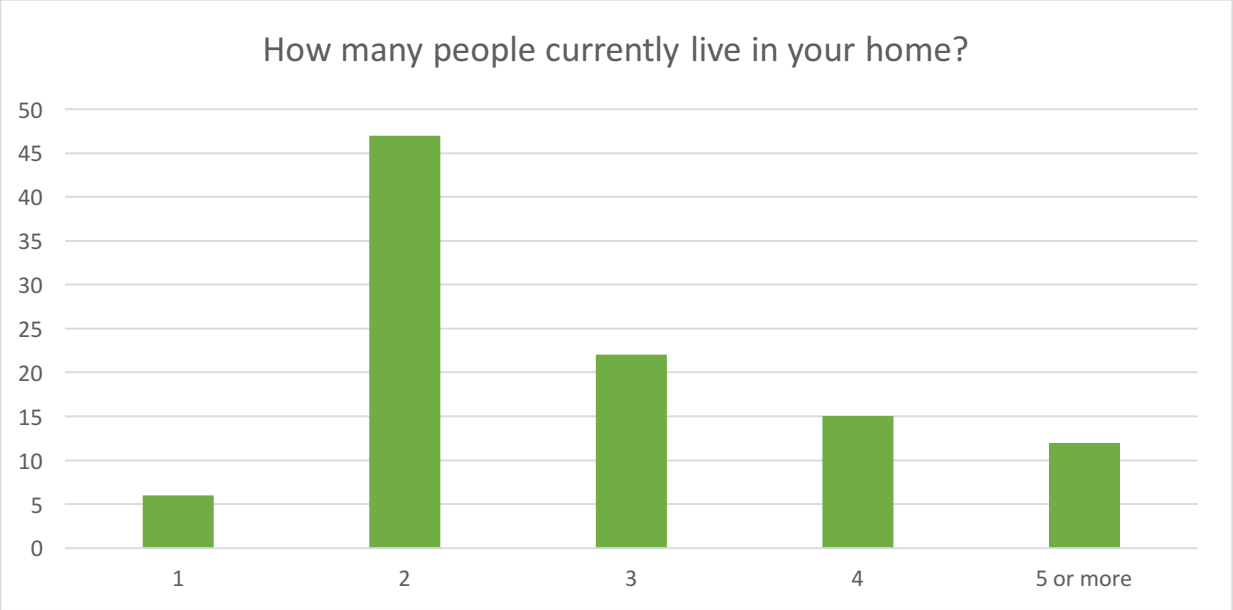
Do you work a second job to supplement your salary?	Percentage (N)
No	85.3% (87)
Yes	14.7% (15)

55. What is your total annual household income?



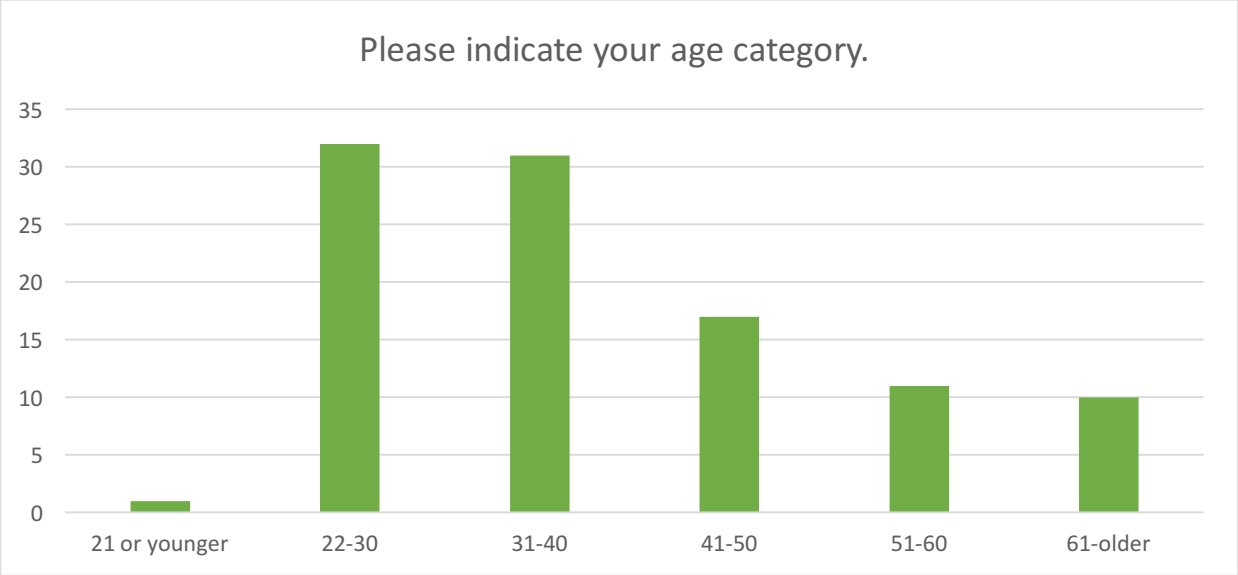
What is your total annual household income?	Percentage (N)
10k or less	2.9% (3)
11k-20k	9.8% (10)
21k-30k	26.5% (27)
31k-40k	14.7% (15)
41k-50k	6.9% (7)
51k-60k	8.8% (9)
61k-70k	6.9% (7)
71k-80k	8.8% (9)
81k or more	14.7% (15)

56. How many people currently live in your home?



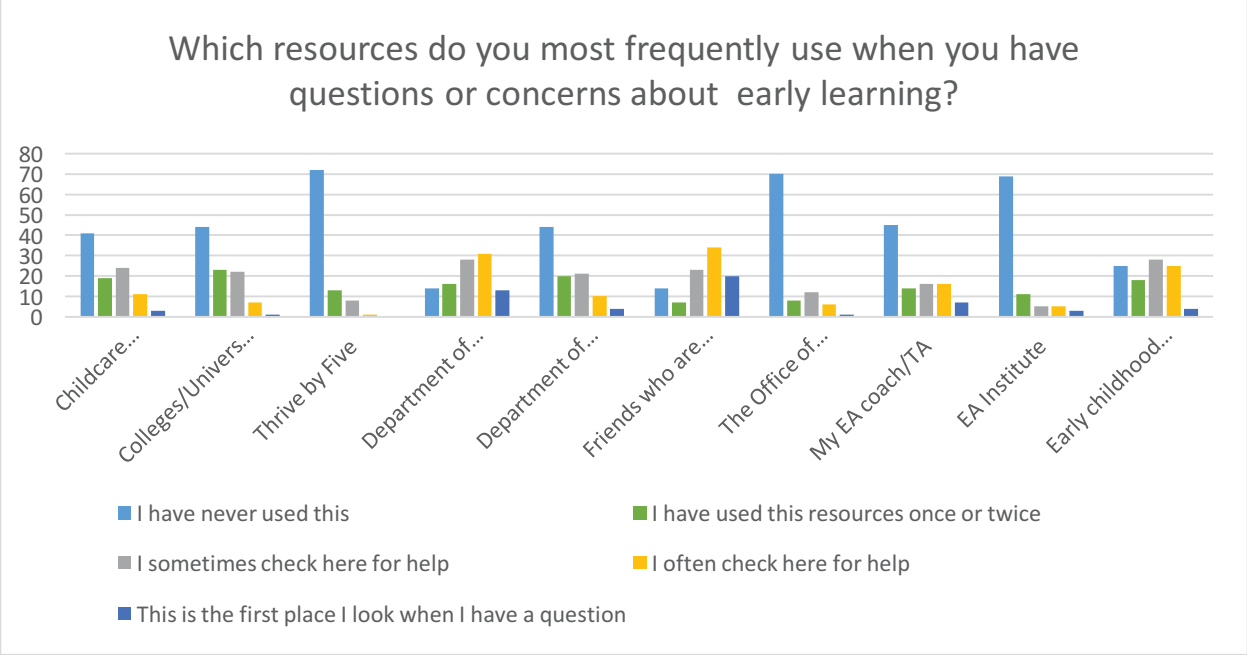
How many people currently live in your home?	Percentage (N)
1	5.9% (6)
2	46.1% (47)
3	21.6% (22)
4	14.7% (15)
5 or more	11.8% (12)

57. Please indicate your age category.



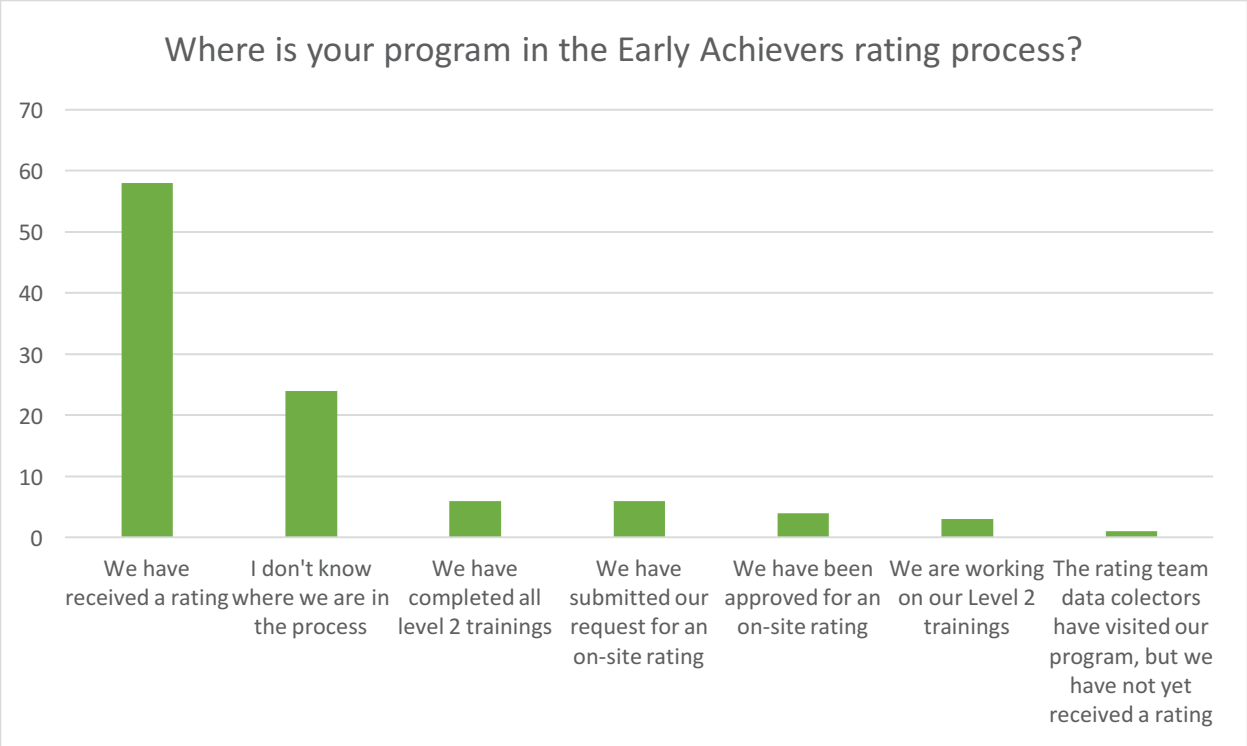
Please indicate your age category.	Percentage (N)
21 or younger	1.0% (1)
22-30	31.4% (32)
31-40	30.4% (31)
41-50	16.7% (17)
51-60	10.8% (11)
61-older	9.8% (10)

58. There are many different resources to support early learning providers. Which ones do you most frequently use when you have questions or concerns about early learning?



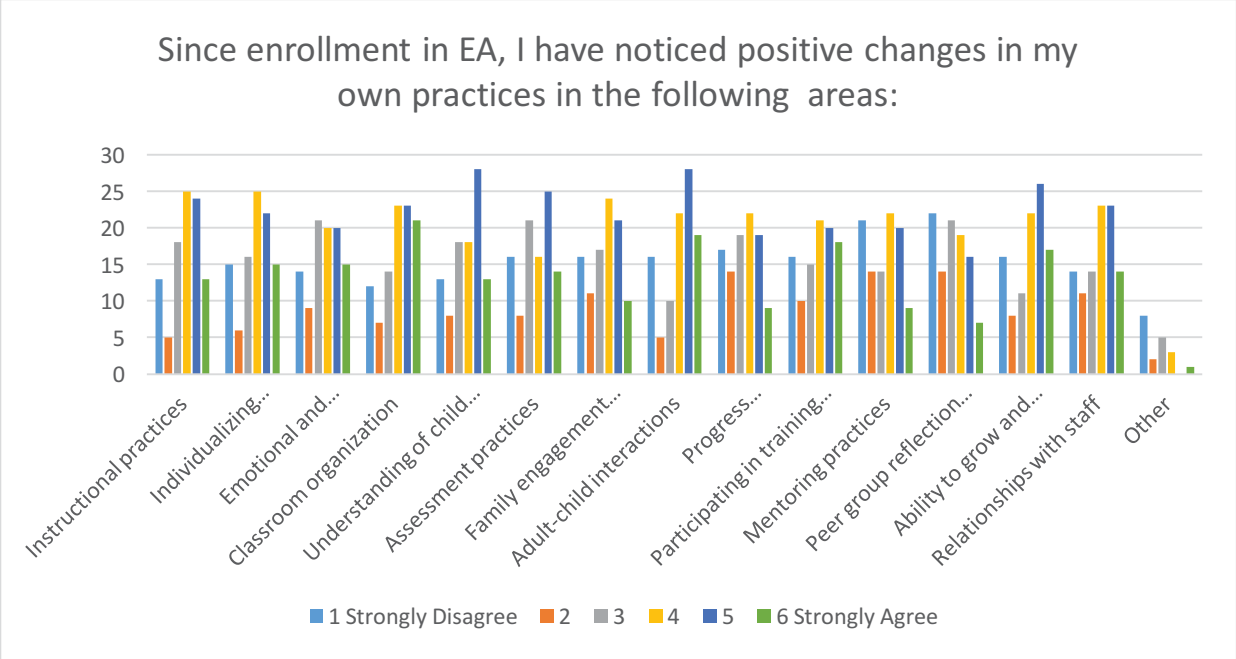
Which ones do you most frequently use when you have questions or concerns about early learning?	I have never used this	I have used this resources once or twice	I sometimes check here for help	I often check here for help	This is the first place I look when I have a question
Childcare Resource and Referral	41.8% (41)	19.4% (19)	24.5% (24)	11.2% (11)	3.1% (3)
Colleges/Universities	45.4% (44)	23.7% (23)	22.7% (22)	7.2% (7)	1.0% (1)
Thrive by Five	76.6% (72)	13.8% (13)	8.5% (8)	1.1% (1)	0.0% (0)
Department of Early Learning (DEL)	13.7% (14)	15.7% (16)	27.5% (28)	30.4% (21)	12.7% (13)
Department of Social and Health Services (DSHS)	44.4% (44)	20.2% (20)	21.2% (21)	10.1% (10)	4.0% (4)
Friends who are also early learning providers	14.3% (14)	7.1% (7)	23.5% (23)	34.7% (34)	20.4% (20)
The Office of Superintendent of Public Instruction (OSPI)	72.2% (70)	8.2% (8)	12.4% (12)	6.2% (6)	1.0% (1)
My EA coach/TA	45.9% (45)	14.3% (14)	16.3% (16)	16.3% (16)	7.1% (7)
EA Institute	74.2% (69)	11.8% (11)	5.4% (5)	5.4% (5)	3.2% (3)
Early childhood education conferences	25.0% (25)	18.0% (18)	28.0% (28)	25.0% (25)	4.0% (4)

59. Where is your program in the Early Achievers rating process?



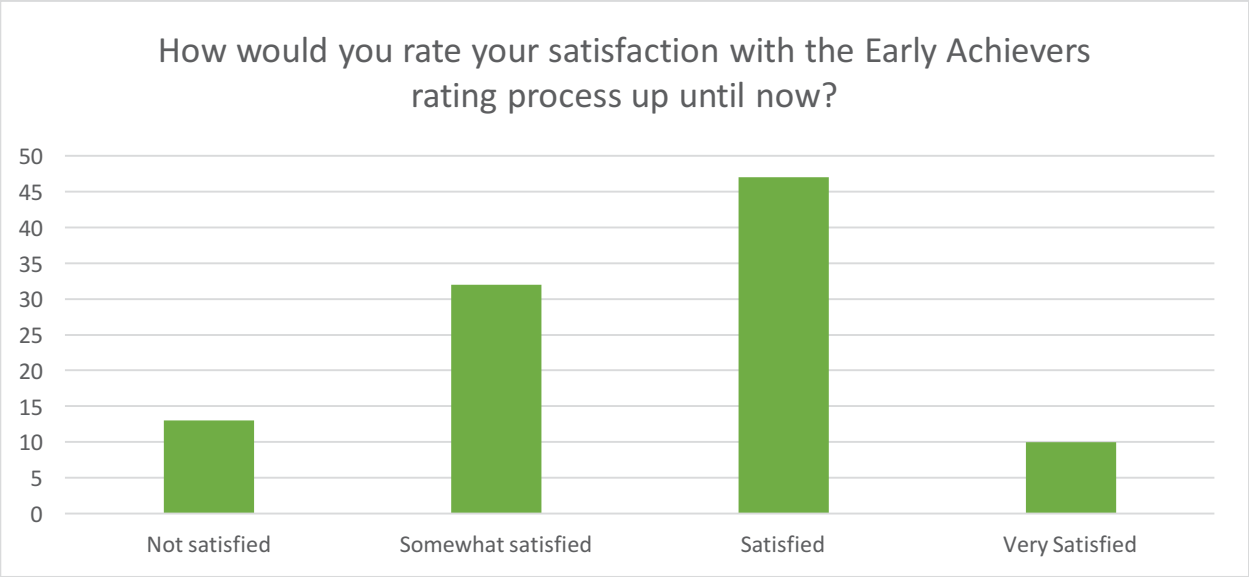
Where is your program in the Early Achievers rating process?	Percentage (N)
We have received a rating	56.9% (58)
I don't know where we are in the process	23.5% (24)
We have completed all level 2 trainings	5.9% (6)
We have submitted our request for an on-site rating	5.9% (6)
We have been approved for an on-site rating	3.9% (4)
We are working on our Level 2 trainings	2.9% (3)
The rating team data collectors have visited our program, but we have not yet received a rating	1.0% (1)

60. Since the time of enrollment in Early Achievers, I have noticed positive changes in my own practices in the following areas (Please rate on a scale of 1 to 6, with 1 being strongly disagree and 6 being strongly agree):



Since enrollment in EA, I have noticed positive changes in my own practices in the following areas:	1 Strongly Disagree	2	3	4	5	6 Strongly Agree
Instructional practices	13.3% (13)	5.1% (5)	18.4% (18)	25.5% (25)	24.5% (24)	13.3% (13)
Individualizing instruction for children	15.2% (15)	6.1% (6)	16.2% (16)	25.3 % (25)	22.2% (22)	15.2% (15)
Emotional and behavioral support	14.1% (14)	9.1% (9)	21.2% (21)	20.2% (20)	20.2% (20)	15.2% (15)
Classroom organization	12.0% (12)	7.0% (7)	14.0% (14)	23.0% (23)	23.0% (23)	21.0% (21)
Understanding of child development	13.3% (13)	8.2% (8)	18.4% (18)	18.4% (18)	28.6% (28)	13.3% (13)
Assessment practices	16.0% (16)	8.0% (8)	21.0% (21)	16.0% (16)	25.0% (25)	14.0% (14)
Family engagement practices	16.2% (16)	11.1% (11)	17.2% (17)	24.2% (24)	21.2% (21)	10.1% (10)
Adult-child interactions	16.0% (16)	5.0% (5)	10.0% (10)	22.0% (22)	28.0% (28)	19.0% (19)
Progress monitoring/developmental screening	17.0% (17)	14.0% (14)	19.0% (19)	22.0% (22)	19.0% (19)	9.0% (9)
Participating in training activities	16.0% (16)	10.0% (10)	15.0% (15)	21.0% (21)	20.0% (20)	18.0% (18)
Mentoring practices	21.0% (21)	14.0% (14)	14.0% (14)	22.0% (22)	20.0% (20)	9.0% (9)
Peer group reflection time	22.2% (22)	14.1% (14)	21.2% (21)	19.2% (19)	16.2% (16)	7.1% (7)
Ability to grow and develop in this field	16.0% (16)	8.0% (8)	11.0% (11)	22.0% (22)	26.0% (26)	17.0% (17)
Relationships with staff	14.1% (14)	11.1% (11)	14.1% (14)	23.2% (23)	23.2% (23)	14.1% (14)
Other	42.1% (8)	10.5% (2)	26.3% (5)	15.8% (3)	0.0% (0)	5.3% (1)

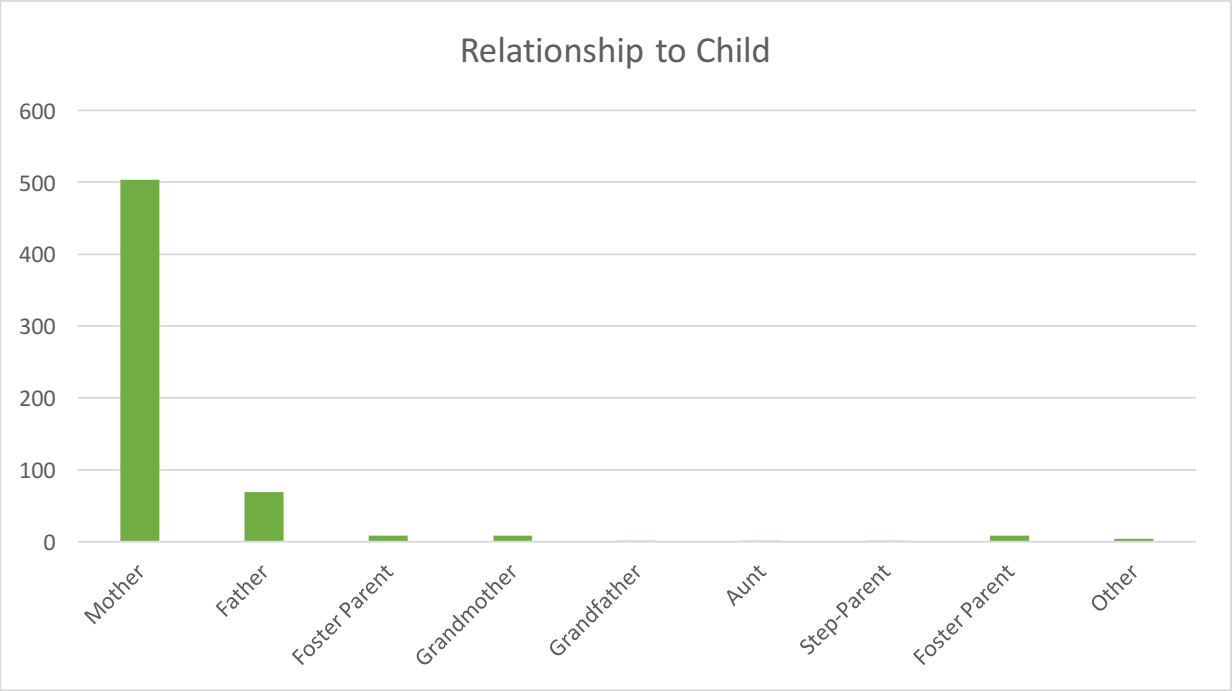
61. How would you rate your satisfaction with the Early Achievers rating process up until now?



How would you rate your satisfaction with the Early Achievers rating process up until now?	Percentage (N)
Not satisfied	12.7% (13)
Somewhat satisfied	31.4% (32)
Satisfied	46.1% (47)
Very Satisfied	9.8% (10)

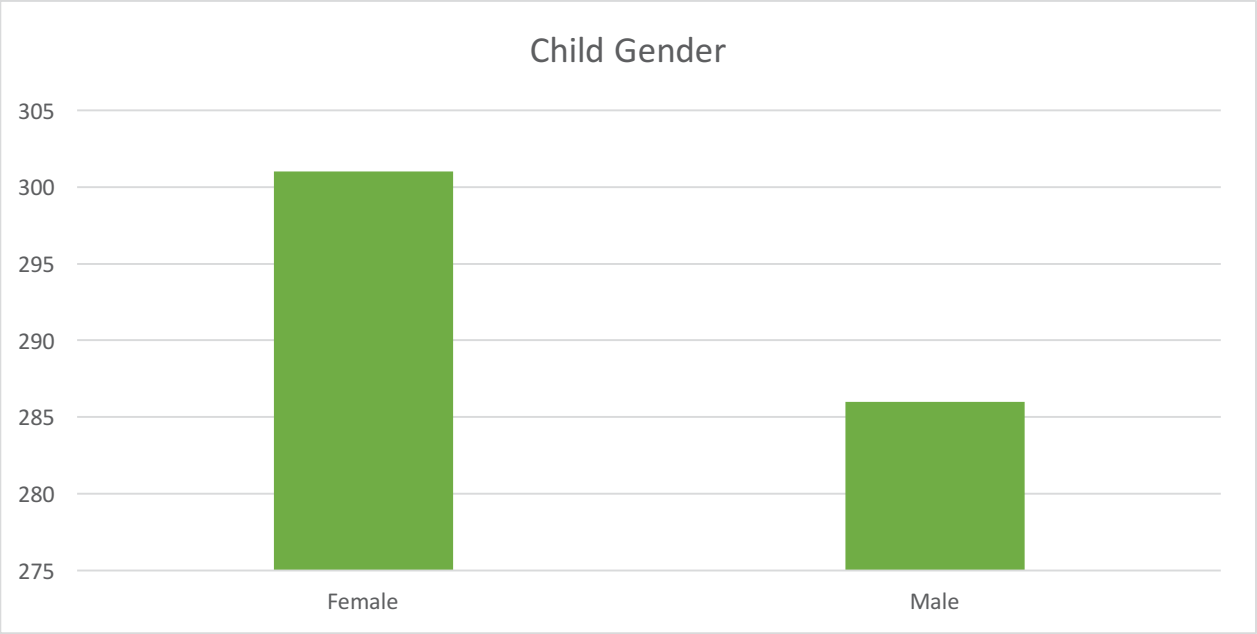
Appendix K

1. What is your relationship to your child?



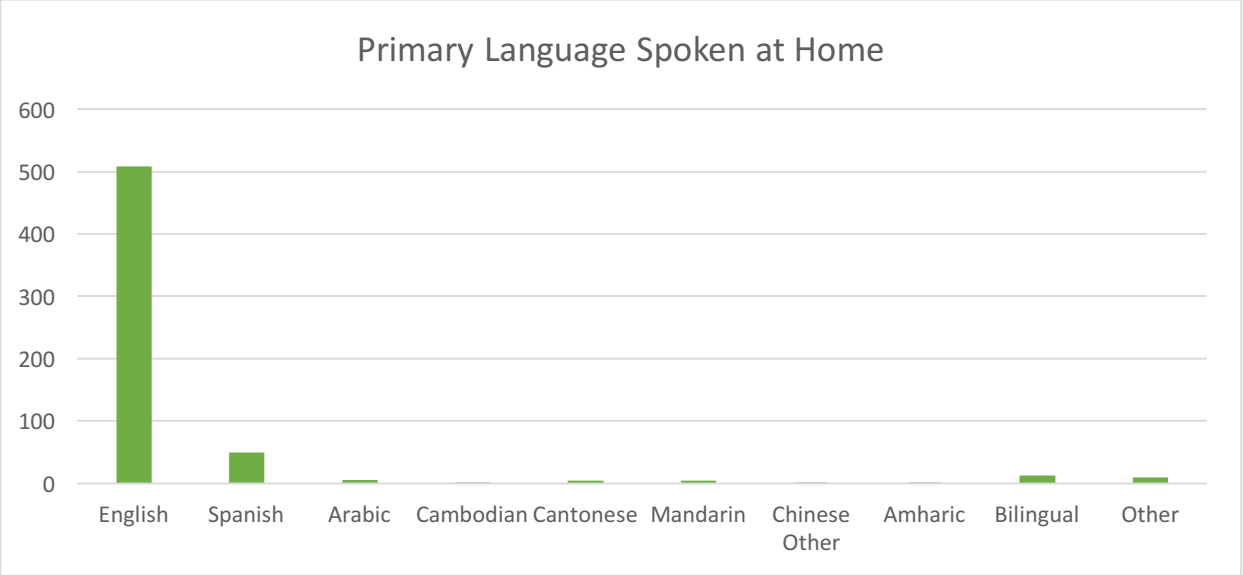
Relationship to Child	Percentage (N)
Mother	84.5% (503)
Father	11.6% (69)
Foster Parent	1.3% (8)
Grandmother	1.3% (8)
Grandfather	0.2% (1)
Aunt	0.2% (1)
Step-Parent	0.2% (1)
Foster Parent	1.3% (8)
Other	0.7% (4)

2. What is the gender of your child?



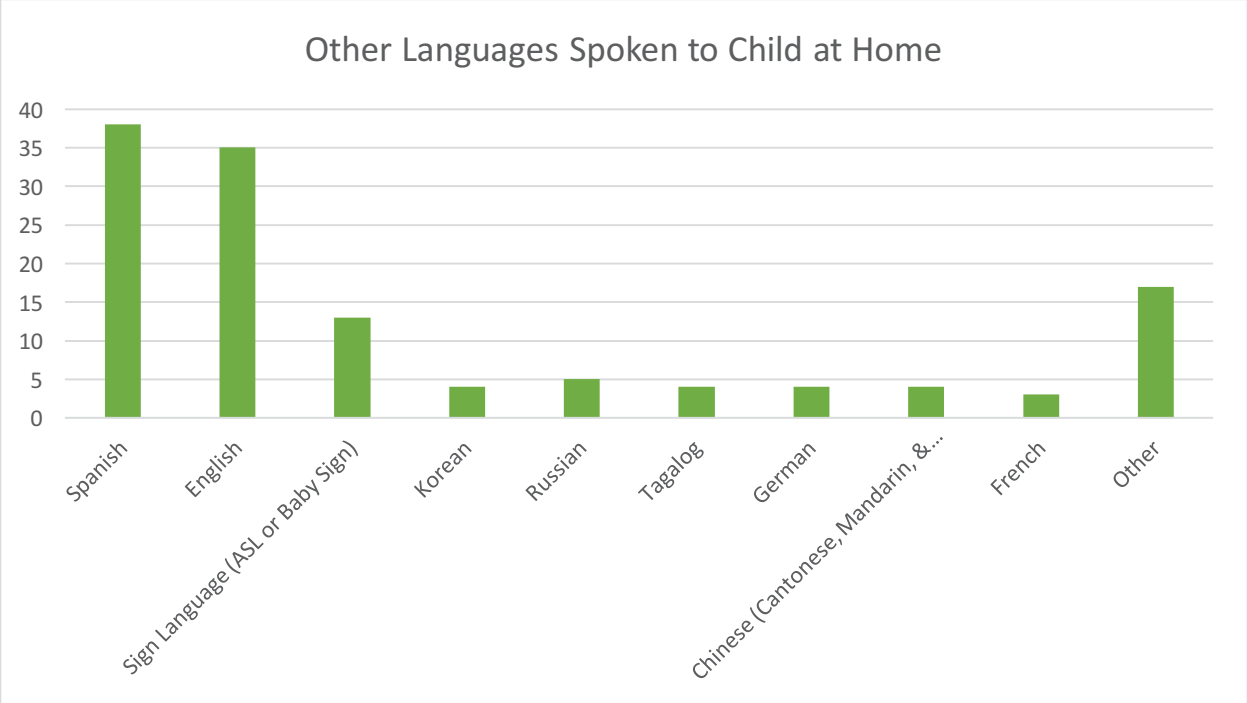
Child Gender	Percentage (N)
Female	51.3% (301)
Male	48.7% (286)

3. What is the primary language spoken to your child in your home? -- Parents were asked to indicate the primary language spoken to their child in their homes. 85.5% of parents indicated that they speak English, 8.2% speak Spanish, and 1% were bilingual in English/Spanish. Other languages represented in the sample were Arabic, Cambodian, Chinese-Cantonese, Chinese-Mandarin, Amharic, English/Russian, English/Arabic, English/Cambodian, English/Marshallese, English/Mandarin, and English/Japanese.



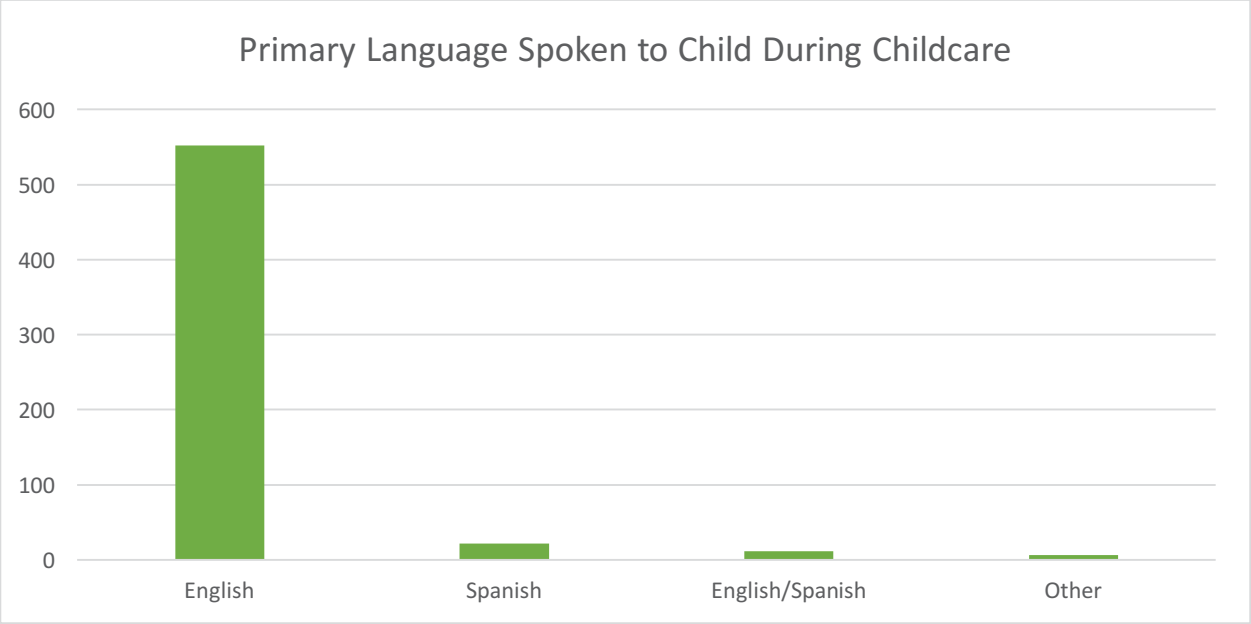
Primary Language Spoken at Home	Percentages (N)
English	84.8% (508)
Spanish	8.2% (49)
Arabic	0.8% (5)
Cambodian	0.2% (1)
Cantonese	0.7% (4)
Mandarin	0.7% (4)
Chinese Other	0.2% (1)
Amharic	0.2% (1)
Bilingual	2.0% (12)
Other	1.5% (9)

4. Other languages spoken to your child in your home. – Twenty-one percent of parents (127) indicated that one or more other languages are spoken to their child at home in addition to the language reported in the previous question.



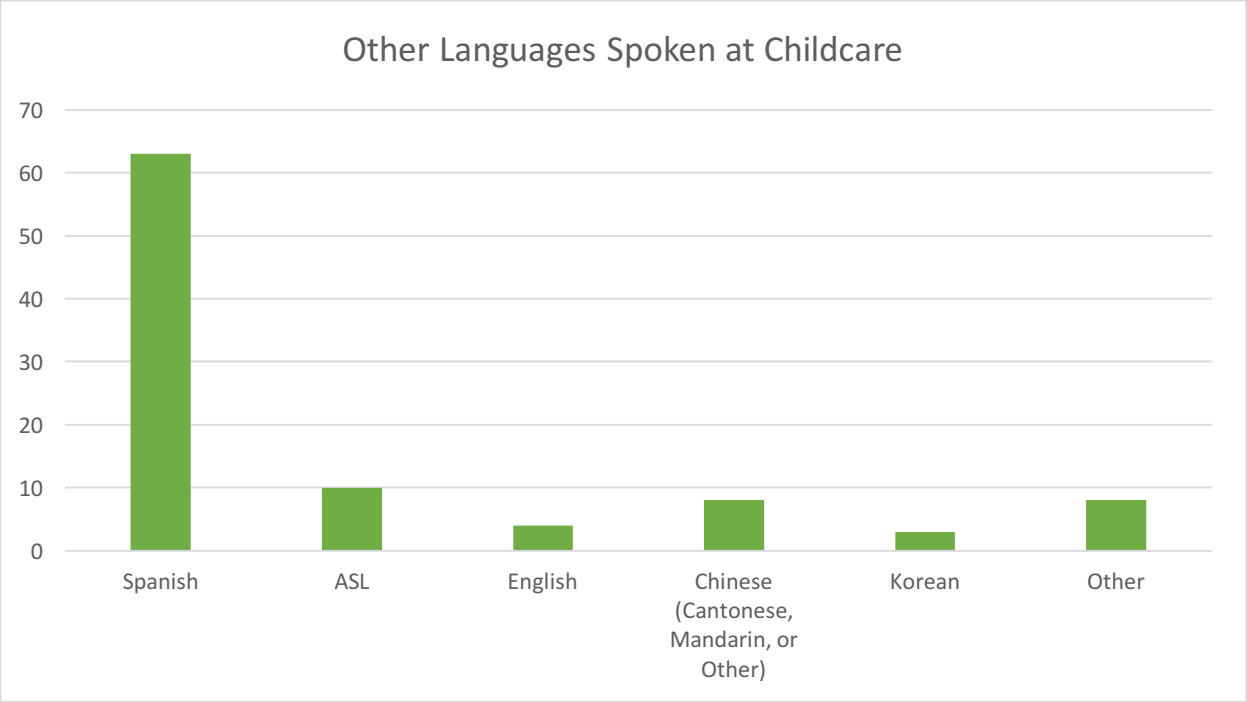
Other Languages Spoken to Child at Home	Percentage (N)
Spanish	29.9% (38)
English	27.6% (35)
Sign Language (ASL or Baby Sign)	10.2% (13)
Korean	3.1% (4)
Russian	3.9% (5)
Tagalog	3.1% (4)
German	3.1% (4)
Chinese (Cantonese, Mandarin, & Other)	3.1% (4)
French	2.4% (3)
Other	13.4% (17)

5. What is the primary language spoken to your child during childcare? -- Parents were asked to indicate the primary language spoken to their child during childcare. 93.4% of parents indicated English as the primary language spoken to their child in their childcare centers, 3.7% Spanish, and 1.9% both English and Spanish. Other languages represented in the sample were Russian, Chinese/Mandarin, and other dual language combinations (English/Arabic, English/Marshallese, English/Vietnamese).



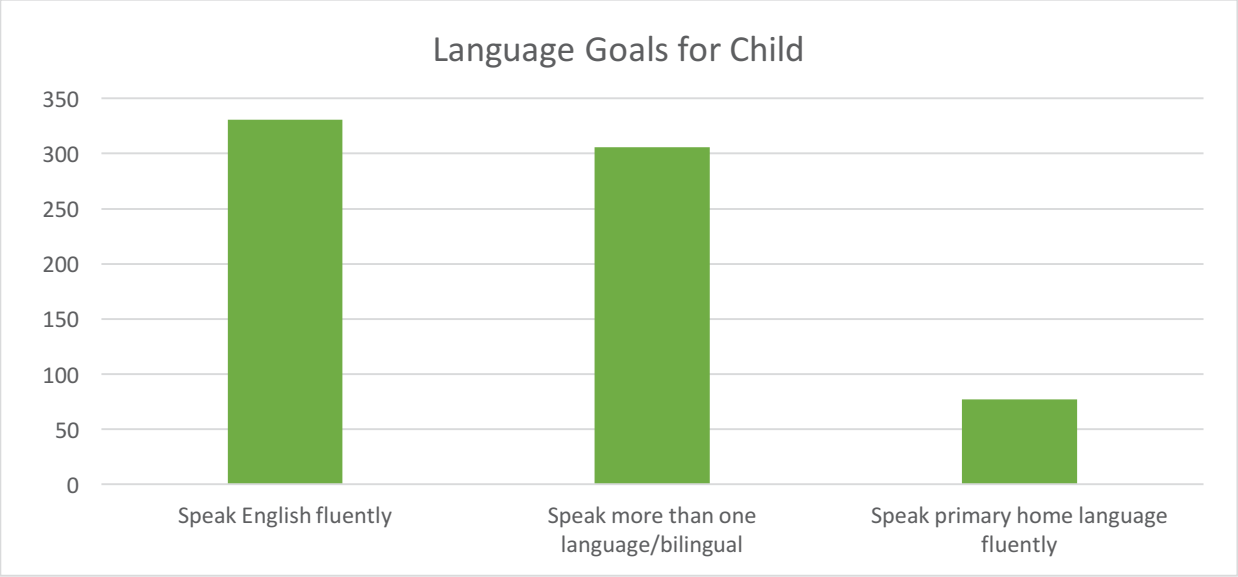
Primary Language Spoken at Childcare	Percentage (N)
English	93.4% (552)
Spanish	3.7% (22)
English/Spanish (dual language)	1.9% (11)
Other	1.0% (6)

6. Other languages spoken to your child at childcare. – Sixteen percent of parents (96) indicated that another language(s) is spoken to their child at childcare, in addition to the language reported in the previous question.



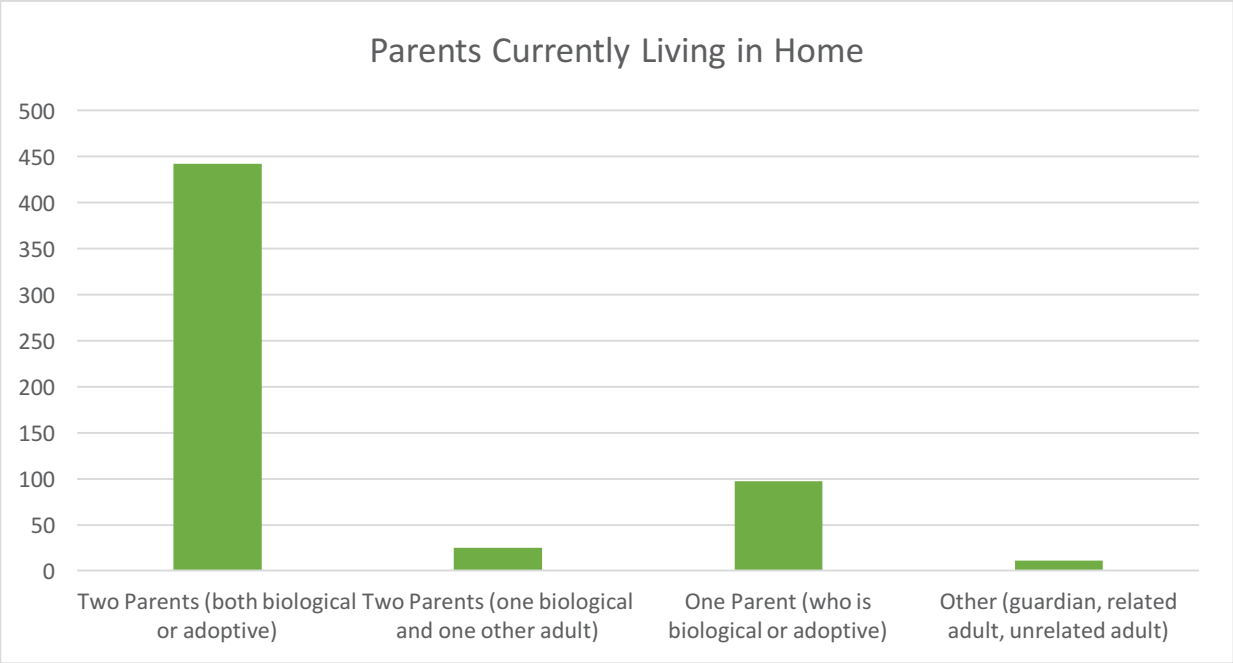
Other Languages Spoken at Childcare	Percentage (N)
Spanish	65.6% (63)
ASL	10.4% (10)
English	4.2% (4)
Chinese (Cantonese, Mandarin, or Other)	8.3% (8)
Korean	3.1% (3)
Other	8.3% (8)

7. In terms of language, what are you goals for your child?



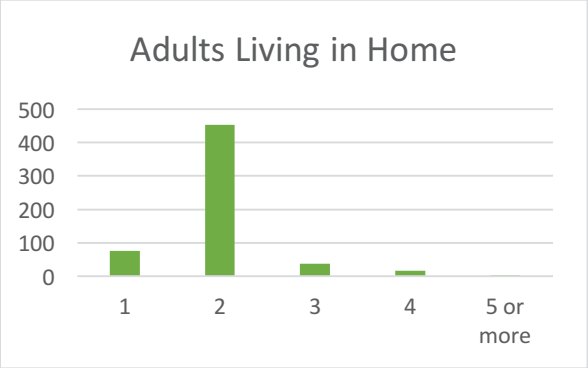
Language Goals for Child	Percentage (N)
Speak English fluently	57.7% (331)
Speak more than one language/bilingual	53.3% (306)
Speak primary home language fluently	13.4% (77)

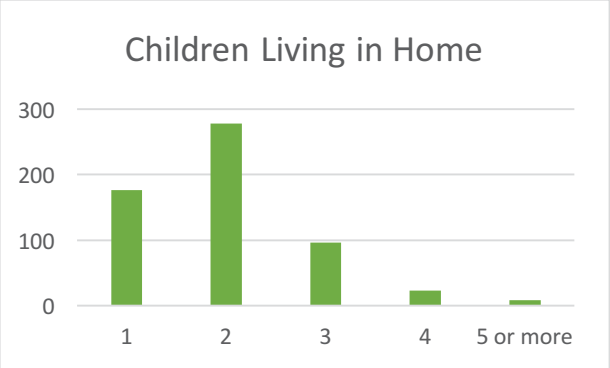
8. Who are the parents currently living in your home that care for your child?



Parents Currently Living in Home	Percentage (N)
Two Parents (both biological or adoptive)	76.9% (442)
Two Parents (one biological and one other adult)	4.3% (25)
One Parent (who is biological or adoptive)	16.9% (97)
Other (guardian, related adult, unrelated adult)	1.9% (11)

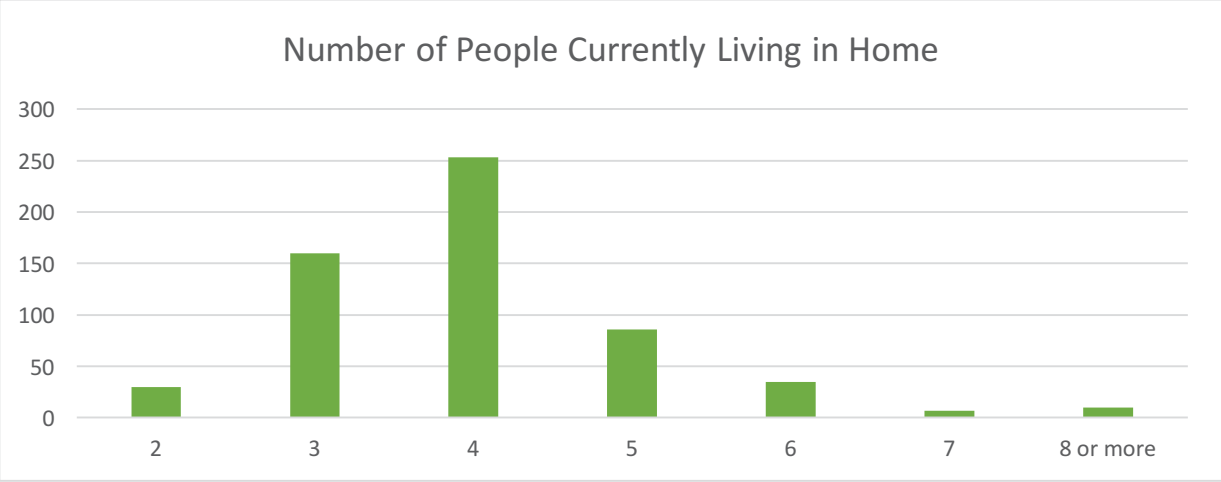
9. How many people currently live in your home?





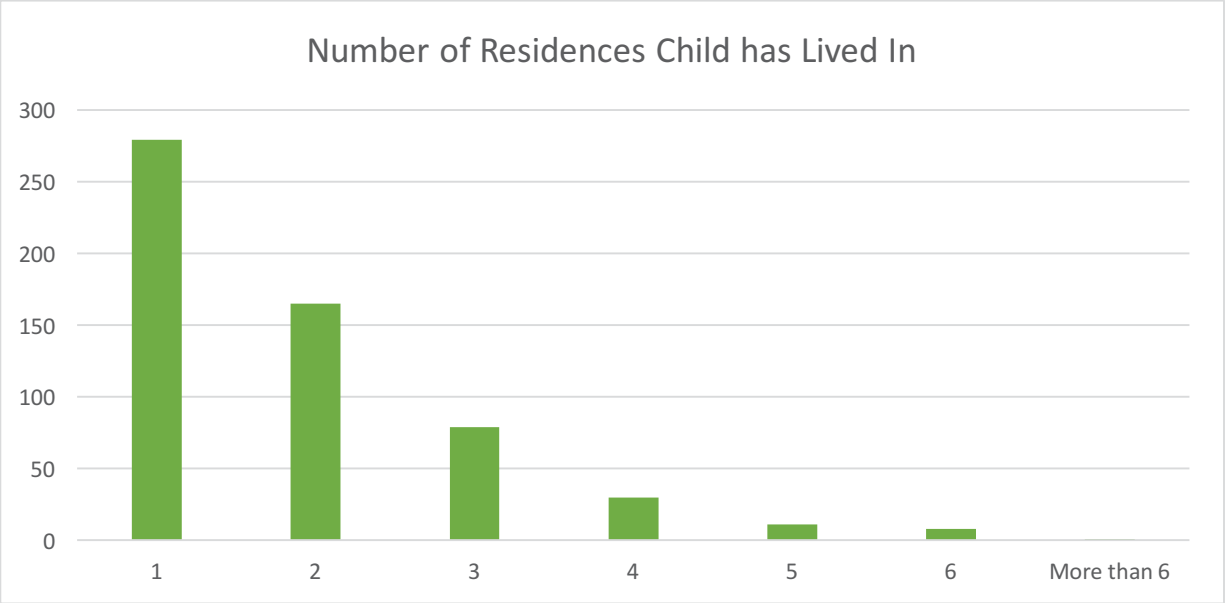
Adults Living in Home	Percentage (N)
1	12.9% (76)
2	77.3% (454)
3	6.5% (38)
4	2.7% (16)
5 or more	0.5% (3)

Children Living in Home	Percentage (N)
1	30.3% (176)
2	47.8% (278)
3	16.5% (96)
4	4.0% (23)
5 or more	1.4% (8)



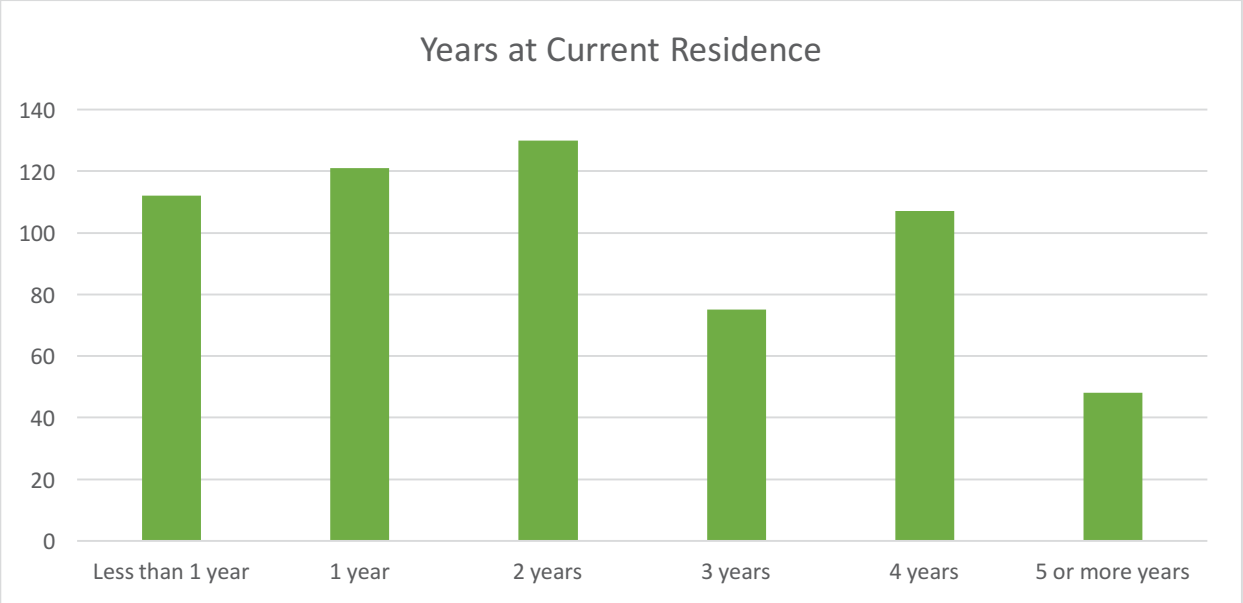
Number of People Currently Living in Home	Percentage (N)
2	5.2% (30)
3	27.5% (160)
4	43.5% (253)
5	14.8% (86)
6	6.0% (35)
7	1.2% (7)
8 or more	1.7% (10)

10. Since your child was born, how many different residences/homes has she/he lived in (including your current residence)?



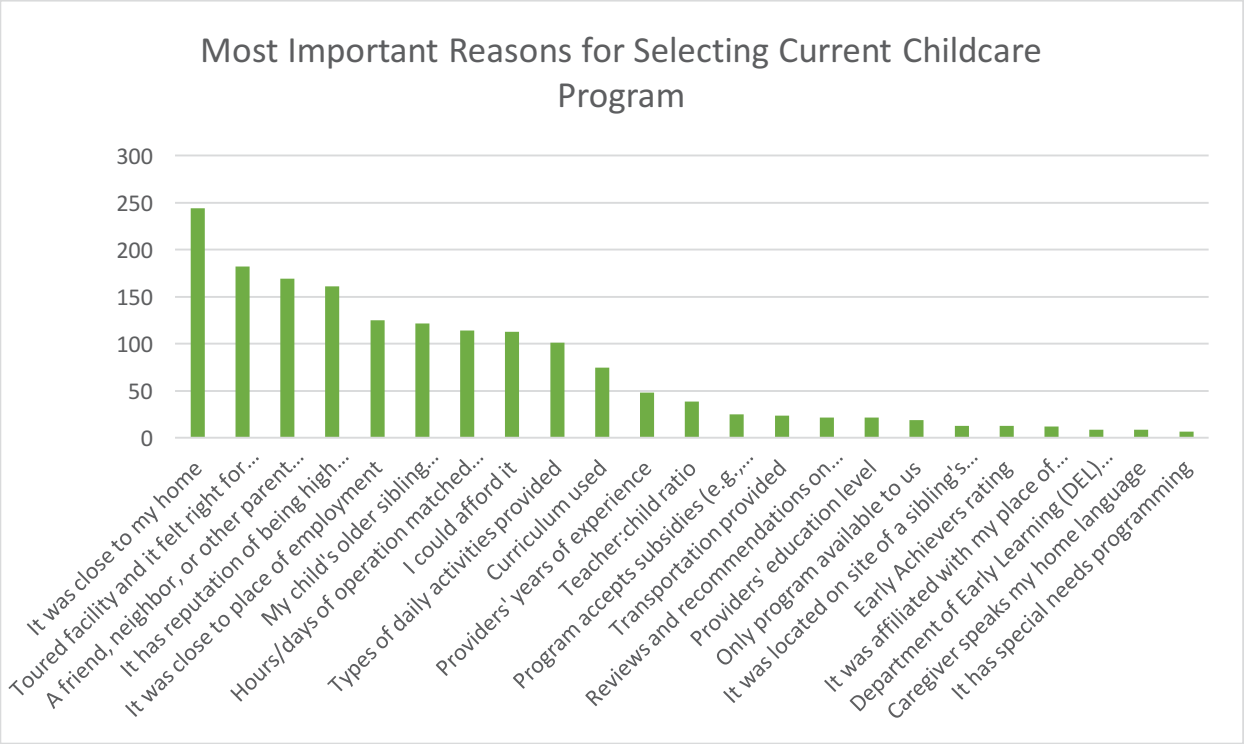
Number of Residences Child has Lived In	Percentage (N)
1	48.4% (276)
2	28.9% (165)
3	13.9% (79)
4	5.3% (30)
5	1.9% (11)
6	1.4% (8)
More than 6	0.2% (1)

11. How long has your child lived at the current residence?



Years at Current Residence	Percentage (N)
Less than 1 year	18.9% (112)
1 year	20.4% (121)
2 years	21.9% (130)
3 years	12.6% (75)
4 years	18.0% (107)
5 or more years	8.1% (48)

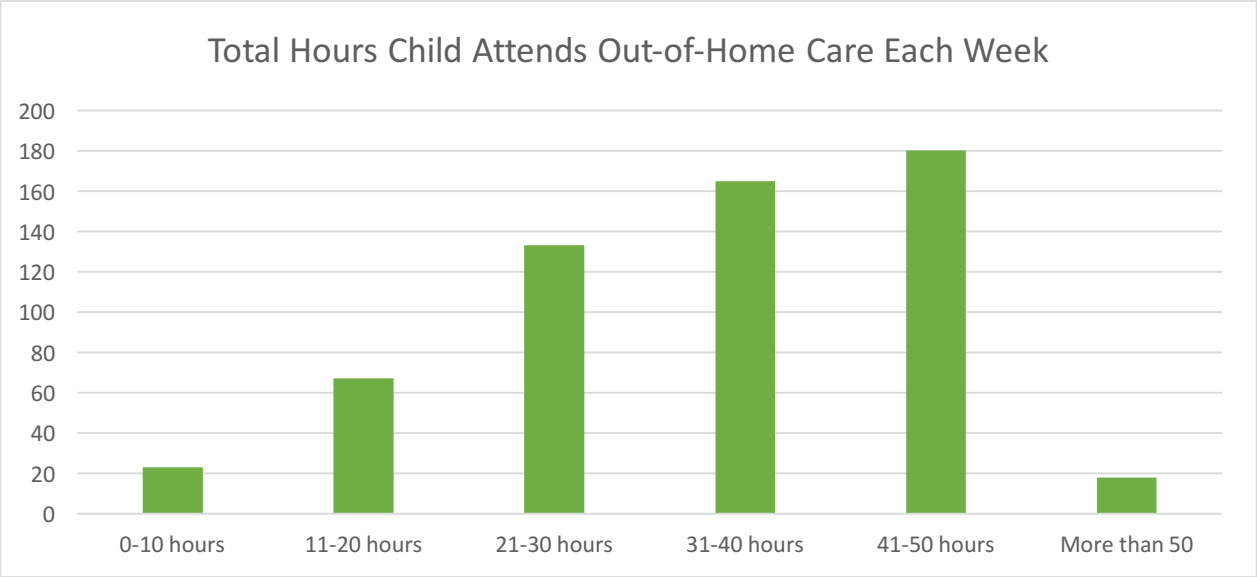
12. What are the three most important reasons you selected your current program for your child?



Most Important Reasons for Selecting Current Childcare Program	Percentage (N)
It was close to my home	40.9% (244)
Toured facility and it felt right for my child	30.5% (182)
A friend, neighbor, or other parent recommended it	28.4% (169)
It has reputation of being high quality	27.0% (161)
It was close to place of employment	21.0% (125)
My child's older sibling attended/attends	20.5% (122)
Hours/days of operation matched my work schedule	19.1% (114)
I could afford it	19.0% (113)
Types of daily activities provided	16.9% (101)
Curriculum used	12.6% (75)
Providers' years of experience	8.1% (48)
Teacher:child ratio	6.5%(39)
Program accepts subsidies (e.g., Working Connections)	4.2% (25)
Transportation provided	4.0% (24)
Reviews and recommendations on the internet	3.7% (22)
Providers' education level	3.7% (22)
Only program available to us	3.2% (19)
It was located on site of a sibling's elementary school	2.2% (13)
Early Achievers rating	2.2% (13)
It was affiliated with my place of worship	2.0% (12)
Department of Early Learning (DEL) website	1.5% (9)
Caregiver speaks my home language	1.5% (9)

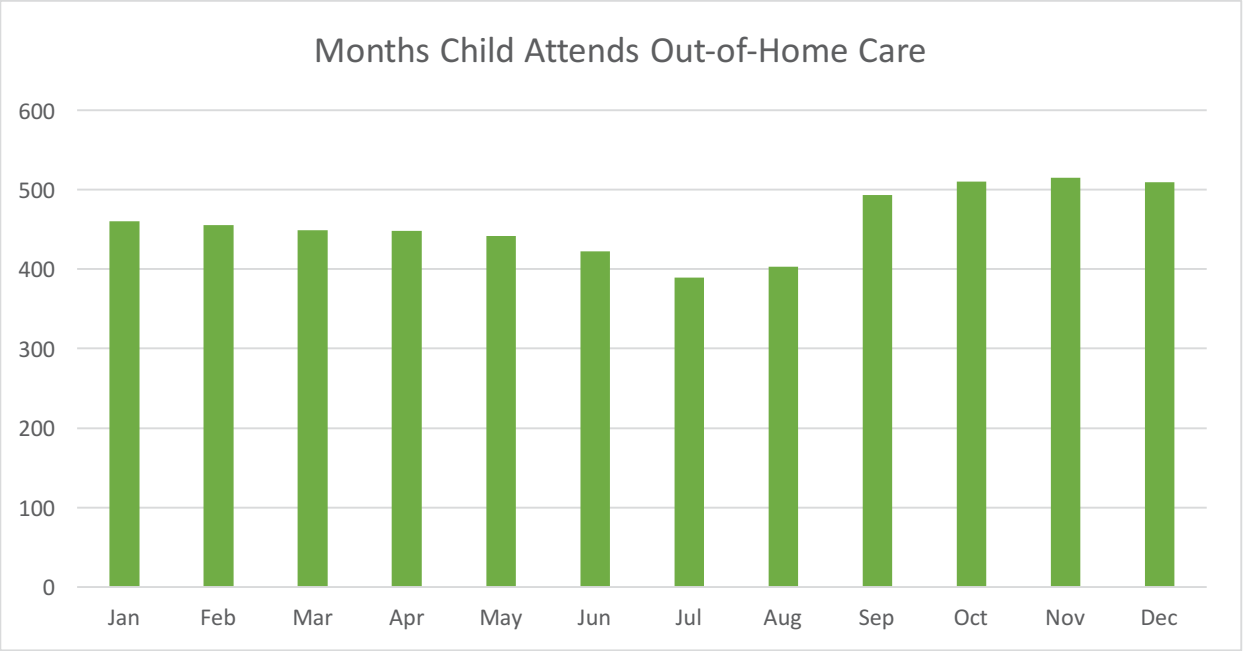
It has special needs programming	1.2% (7)

13. Think about a typical week. Approximately how many hours does your child attend out-of-home care each week?



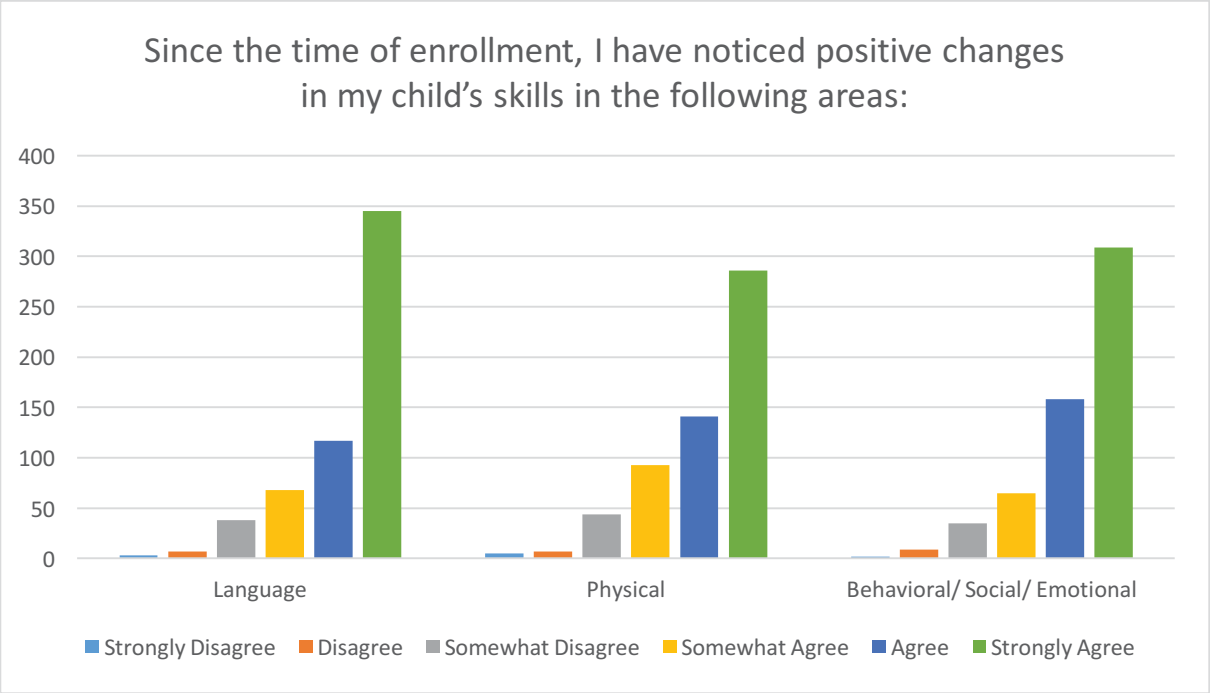
Total Hours Child Attends Out-of-Home Care Each Week	Percentage (N)
0-10 hours	3.9% (23)
11-20 hours	11.4% (67)
21-30 hours	22.7% (133)
31-40 hours	28.2% (165)
41-50 hours	30.7% (180)
More than 50	3.1% (18)

14. Think about the past year. Which months of the year did your child attend out-of-home care for one day or more?



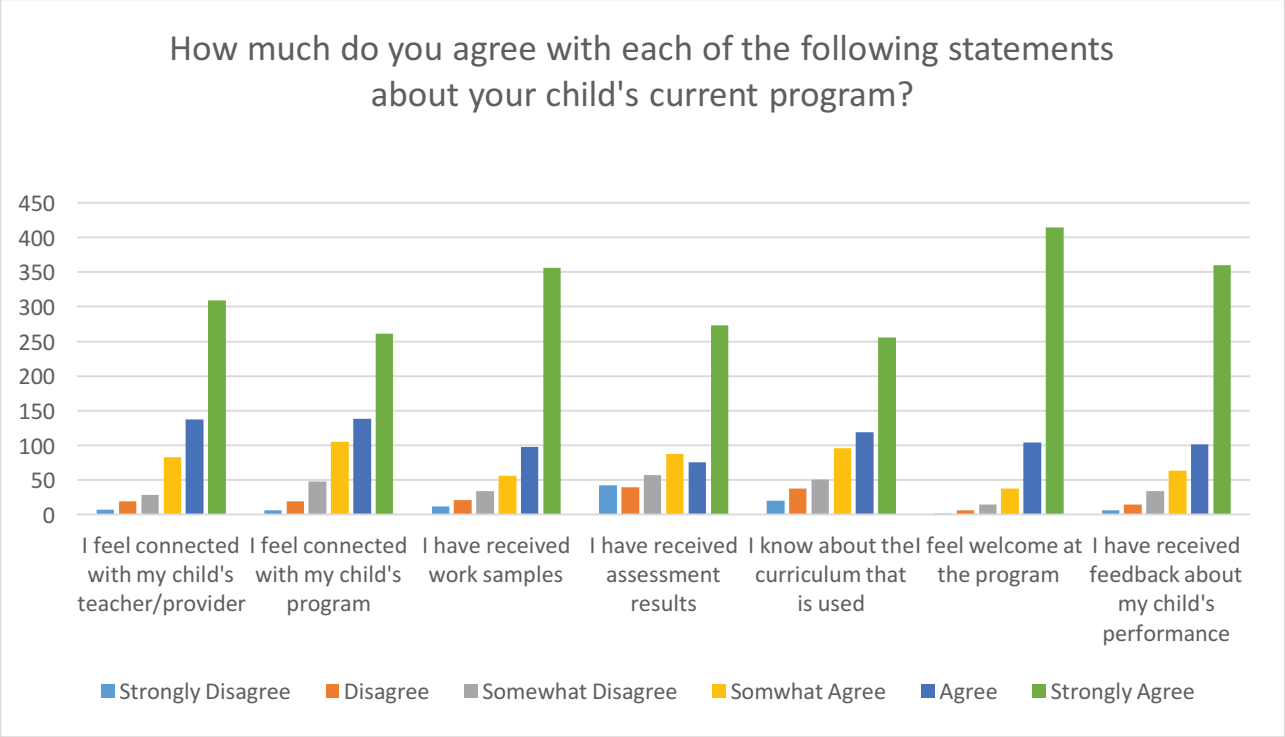
Months Child Attends Out-of-Home Care	Percentage (N)
January	460 (84.4%)
February	455 (83.5%)
March	449 (82.4%)
April	448 (82.2%)
May	442 (81.1%)
June	422 (77.4%)
July	389 (71.4%)
August	403 (73.9%)
September	493 (90.5%)
October	510 (93.6%)
November	515 (94.5%)
December	509 (93.4%)

15. Since the time of enrollment in the current program, I have noticed positive changes in my child's skills in the following areas:



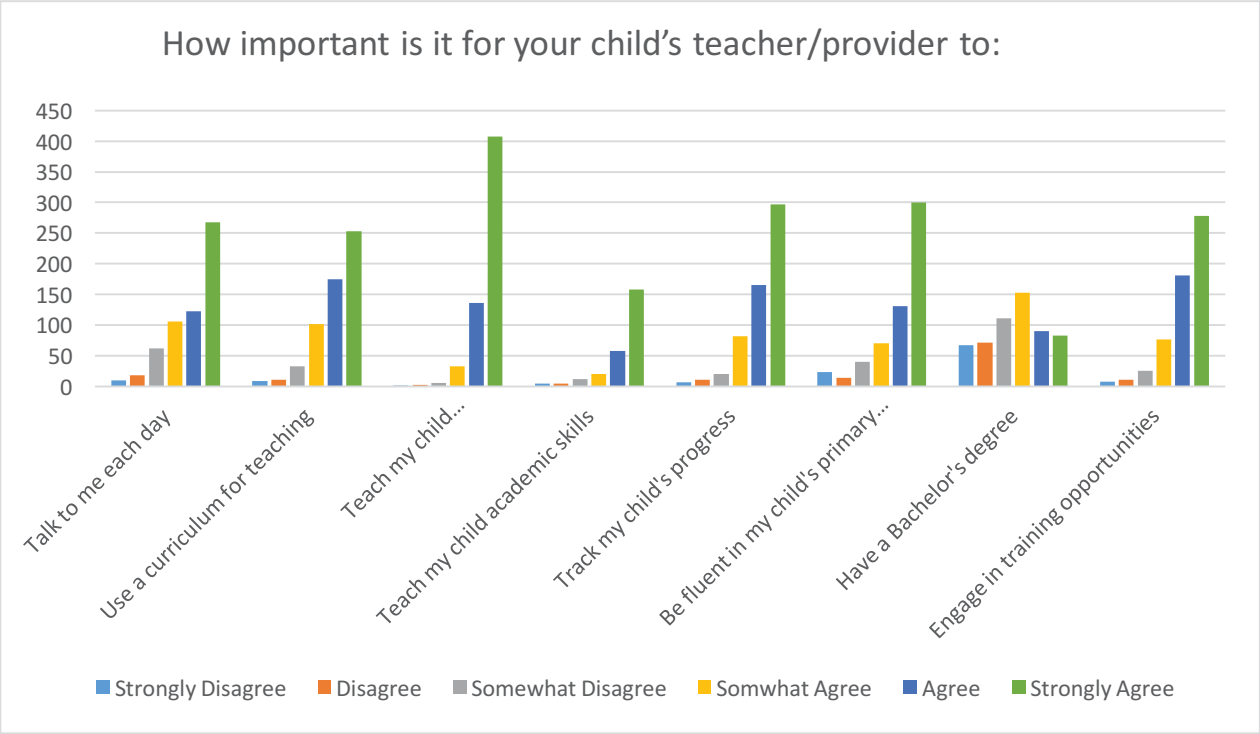
Since the time of enrollment, I have noticed positive changes in my child's skills in the following areas:	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Language	0.5% (3)	1.2% (7)	6.6% (38)	11.8% (68)	20.2% (117)	59.7% (345)
Physical	0.9% (5)	1.2% (7)	7.6% (44)	16.1% (93)	24.5% (141)	49.7% (286)
Behavioral/Social/ Emotional	0.3% (2)	1.6% (9)	6.1% (35)	11.2% (65)	27.3% (158)	53.5% (309)

16. How much do you agree with each of the following statements about your child's current care program?



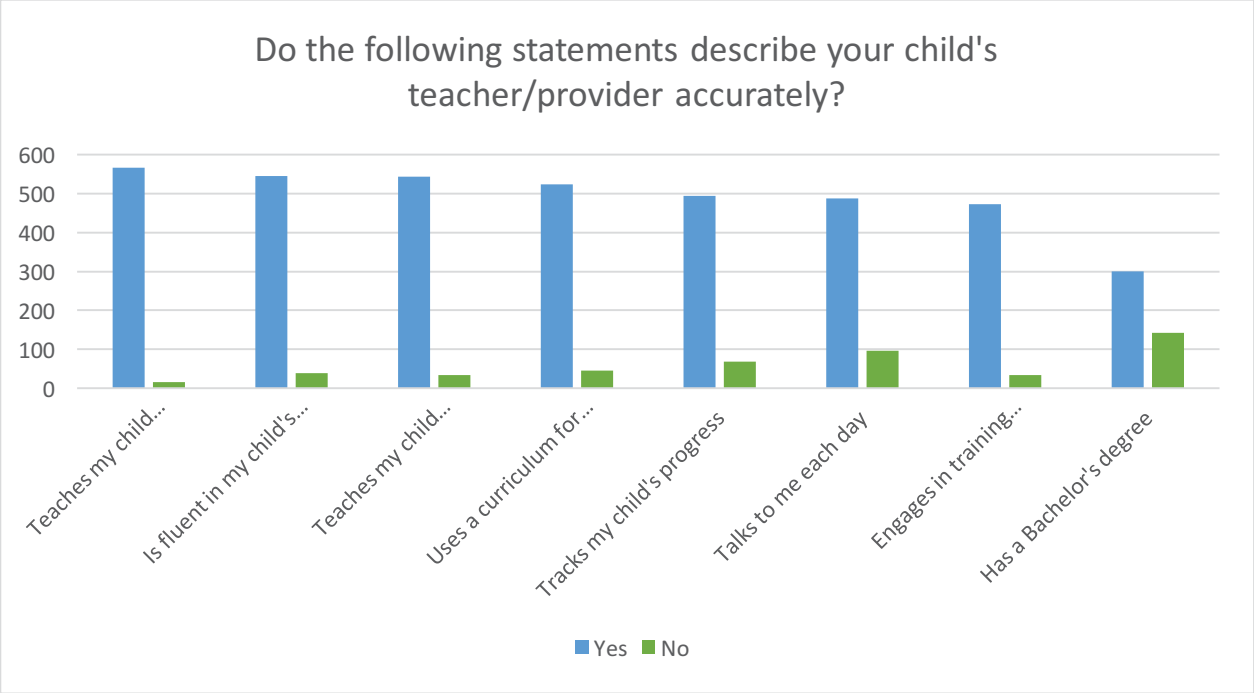
How much do you agree with each of the following statements about your child's current program?	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
I feel connected with my child's teacher/provider	1.2% (7)	3.3% (19)	5.0% (29)	14.2% (83)	23.5% (137)	52.9% (309)
I feel connected with my child's program	1.0% (6)	3.3% (19)	8.3% (48)	18.2% (105)	23.9% (138)	45.2% (261)
I have received work samples	2.1% (12)	3.6% (21)	5.9% (34)	9.7% (56)	17.0% (98)	61.7% (356)
I have received assessment results	7.3% (42)	6.9% (40)	9.9% (57)	15.3% (88)	13.2% (76)	47.4% (273)
I know about the curriculum that is used	3.4% (20)	6.6% (38)	8.8% (51)	16.6% (96)	20.5% (119)	44.1% (256)
I feel welcome at the program	0.3% (2)	1.0% (6)	2.6% (15)	6.6% (38)	18.0% (104)	71.5% (414)
I have received feedback about my child's performance	1.0% (6)	2.6% (15)	5.9% (34)	11.0% (64)	17.4% (101)	62.1% (360)

17. Please indicate the degree to which you think it is important for your child's teacher/provider to:



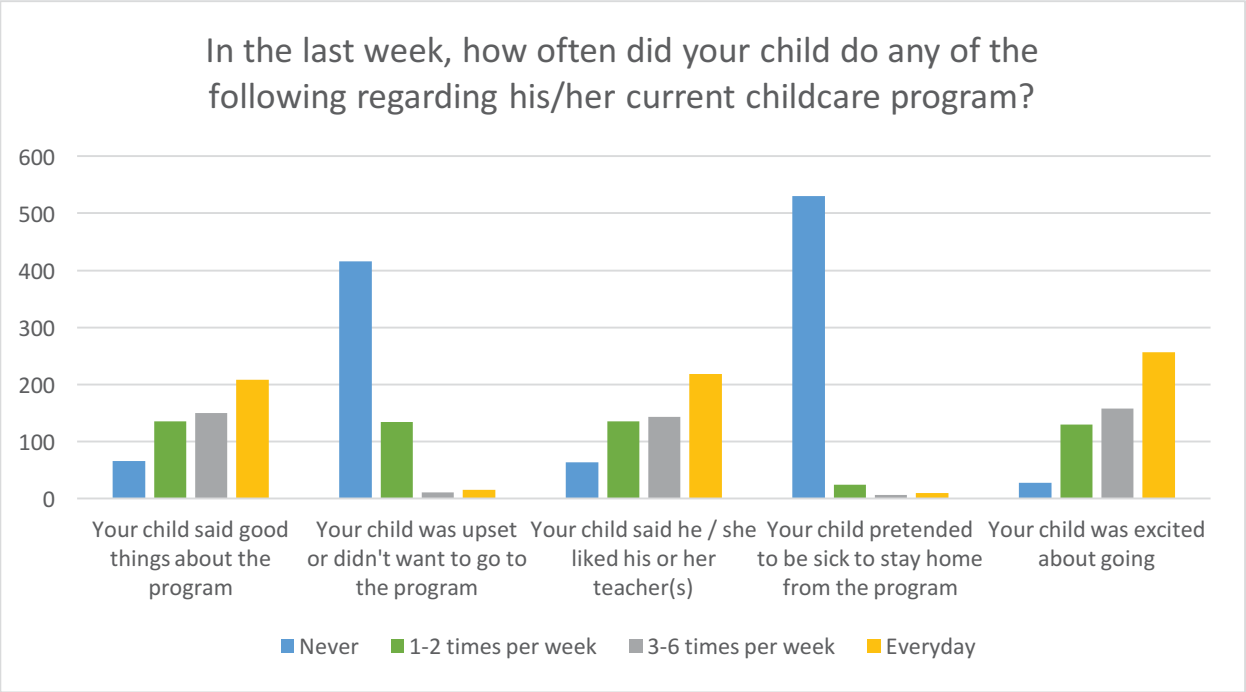
How important is it for your child's teacher/provider to:	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Talk to me each day	1.5% (9)	3.1% (18)	10.6% (62)	18.1% (106)	20.9% (122)	45.8% (268)
Use a curriculum for teaching	1.4% (8)	1.9% (11)	5.7% (33)	17.4% (101)	30.1% (175)	43.5% (253)
Teach my child behavioral/social/emotional skills	0.2% (1)	0.3% (2)	0.9% (5)	5.5% (32)	23.3% (136)	69.9% (408)
Teach my child academic skills	0.7% (4)	2.1% (12)	3.4% (20)	10.0% (58)	27.1% (158)	56.7% (330)
Track my child's progress	1.0% (6)	1.9% (11)	3.4% (20)	14.1% (82)	28.4% (165)	51.1% (297)
Be fluent in my child's primary home language	4.0% (23)	2.4% (14)	6.9% (40)	12.1% (70)	22.7% (131)	51.9% (300)
Have a Bachelor's degree	11.7% (67)	12.3% (71)	19.3% (111)	26.6% (153)	15.7% (90)	14.4% (83)
Engage in training opportunities	1.2% (7)	1.9% (11)	4.3% (25)	13.1% (76)	31.3% (181)	48.1% (278)

18. How accurately do the following statements describe your child's teacher/provider?



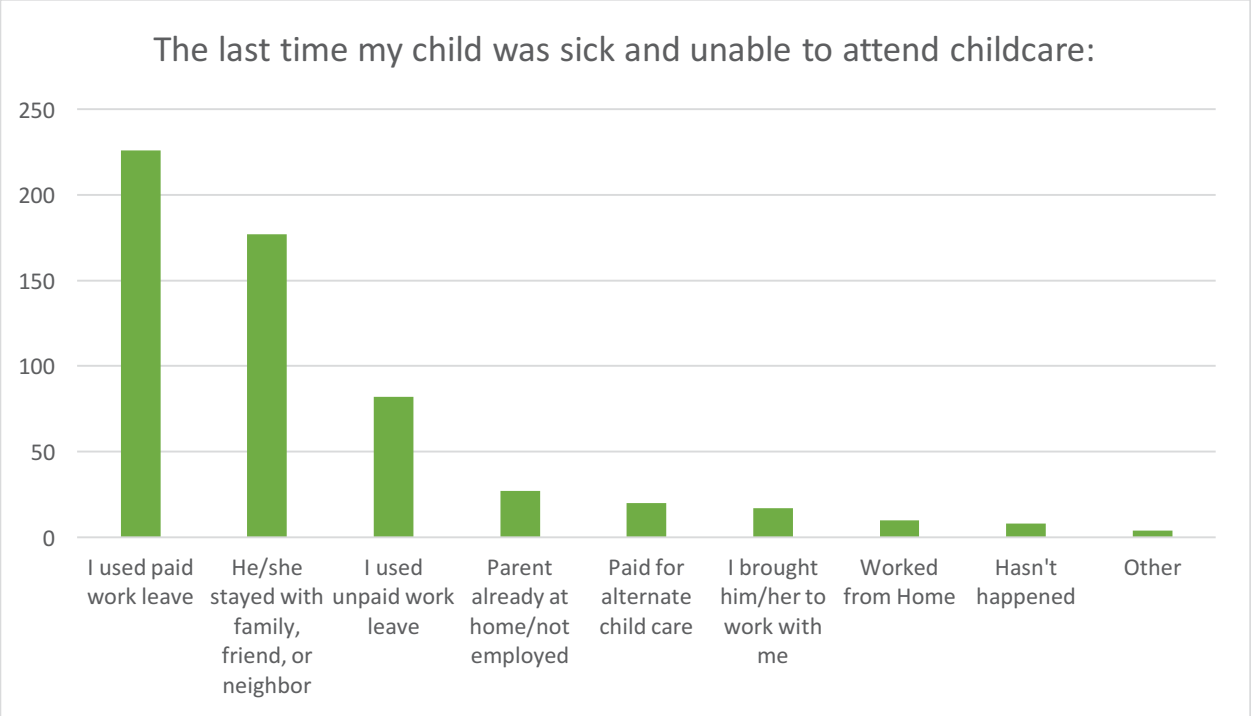
Do the following statements describe your child's teacher/provider accurately?	Yes	No
Teaches my child behavioral/social/emotional skills	97.4% (567)	2.6% (15)
Is fluent in my child's primary home language	93.3% (545)	6.7% (39)
Teaches my child academic skills	94.1% (543)	5.9% (34)
Uses a curriculum for teaching	92.1% (524)	7.9% (45)
Tracks my child's progress	87.8% (495)	12.2% (69)
Talks to me each day	83.5% (487)	16.5% (96)
Engages in training opportunities	93.3% (473)	6.7% (34)
Has a Bachelor's degree	67.7% (300)	32.3% (143)

19. Think about the last week. How often did your child do any of the following regarding his/her current childcare program?



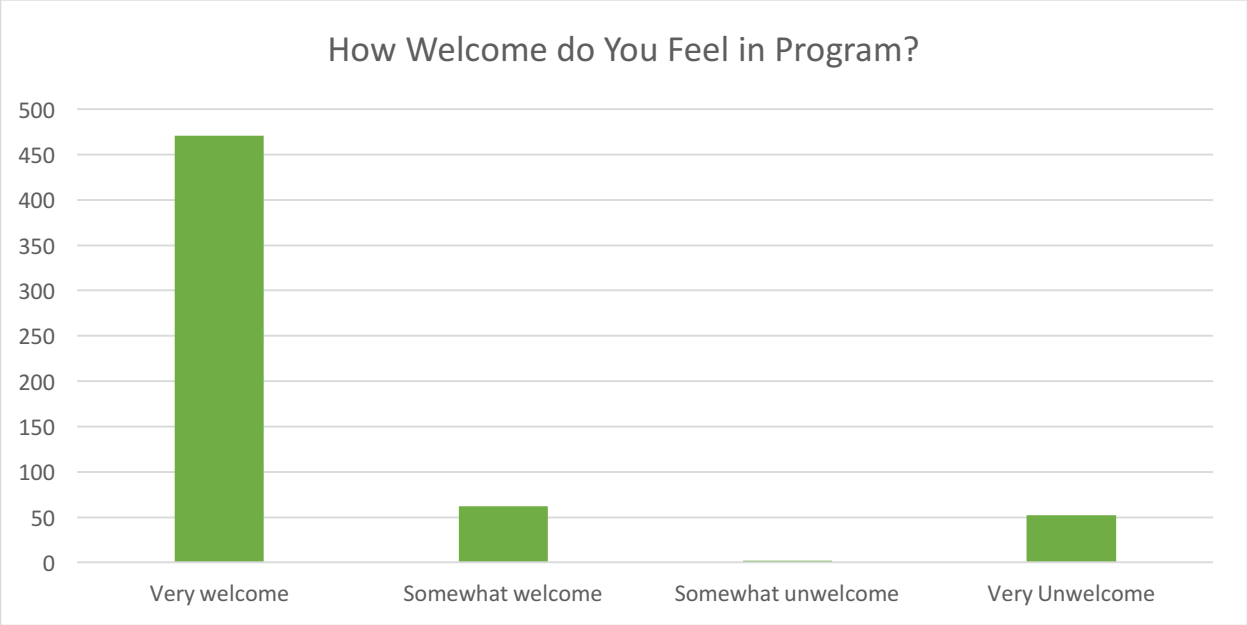
In the last week, how often did your child do any of the following regarding his/her current childcare program?	Never	1-2 times per week	3-6 times per week	Everyday
Your child said good things about the program	11.8% (66)	24.3% (136)	26.8% (150)	37.1% (208)
Your child was upset or didn't want to go to the program	72.1% (416)	23.2% (134)	1.9% (11)	2.8% (16)
Your child said he / she liked his or her teacher(s)	11.4% (64)	24.1% (135)	25.5% (143)	38.9% (218)
Your child pretended to be sick to stay home from the program	92.7% (530)	4.4% (25)	1.2% (7)	1.7% (10)
Your child was excited about going	4.9% (28)	22.7% (130)	27.6% (158)	44.8% (256)

20. The last time my child was sick and unable to attend childcare:



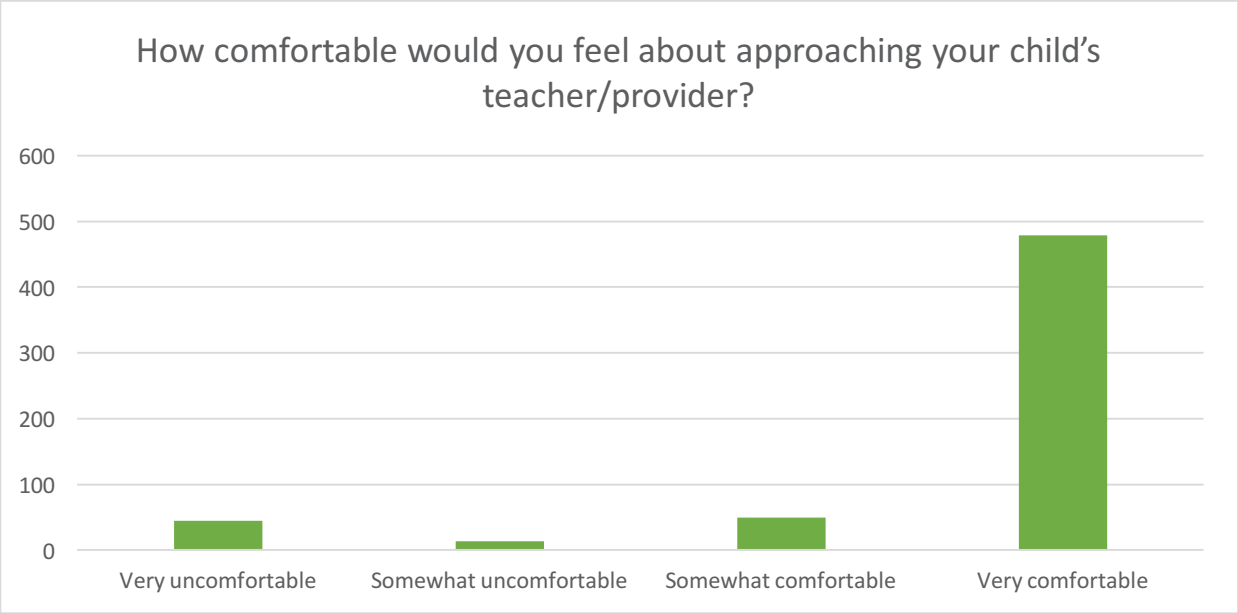
The last time my child was sick and unable to attend childcare:	Percentage (N)
I used paid work leave	39.6% (226)
He/she stayed with family, friend, or neighbor	31.0% (177)
I used unpaid work leave	14.4% (82)
Parent already at home/not employed	4.7% (27)
Paid for alternate childcare	3.5% (20)
I brought him/her to work with me	3.0% (17)
Worked from Home	1.8% (10)
Hasn't happened	1.4% (8)
Other	0.7% (4)

21. How welcome do you feel in this childcare program?



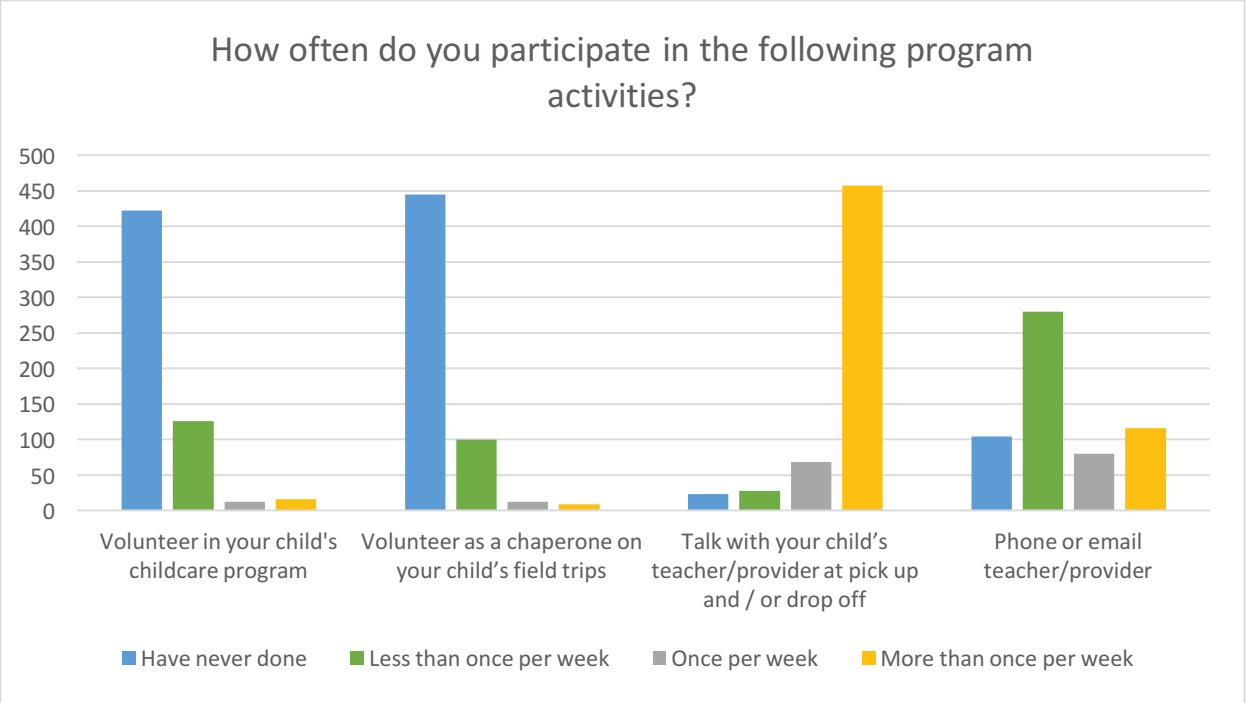
How Welcome do You Feel in Program?	Percentage (N)
Very welcome	80.2% (471)
Somewhat welcome	10.6% (62)
Somewhat unwelcome	0.3% (2)
Very Unwelcome	8.9% (52)

22. If you had questions or concerns about your child, how comfortable would you feel about approaching your child's teacher/provider?



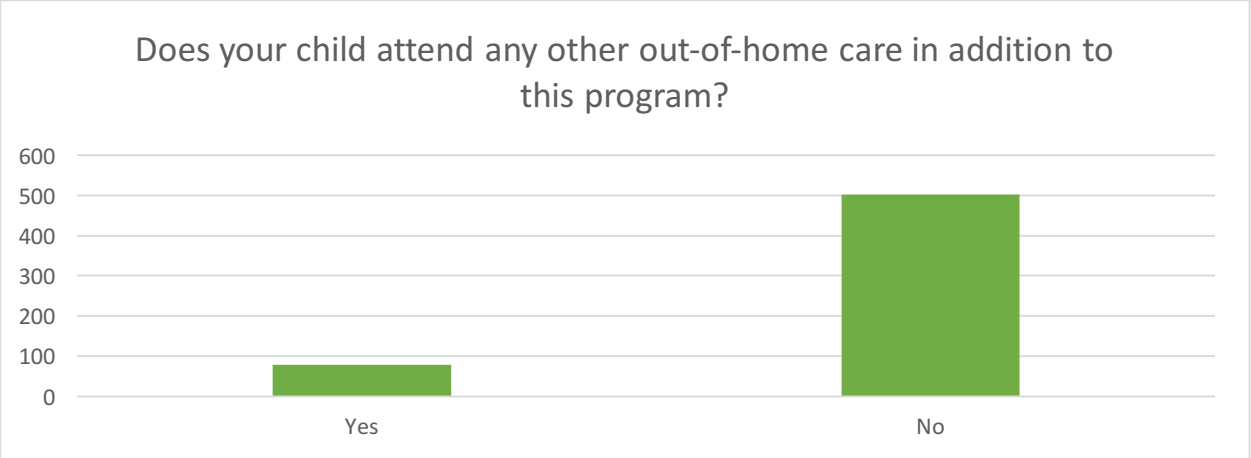
How comfortable would you feel about approaching your child's teacher/provider?	Percentage (N)
Very uncomfortable	7.7% (45)
Somewhat uncomfortable	2.4% (14)
Somewhat comfortable	8.5% (50)
Very comfortable	81.5% (479)

23. How often do you participate in the following program activities?



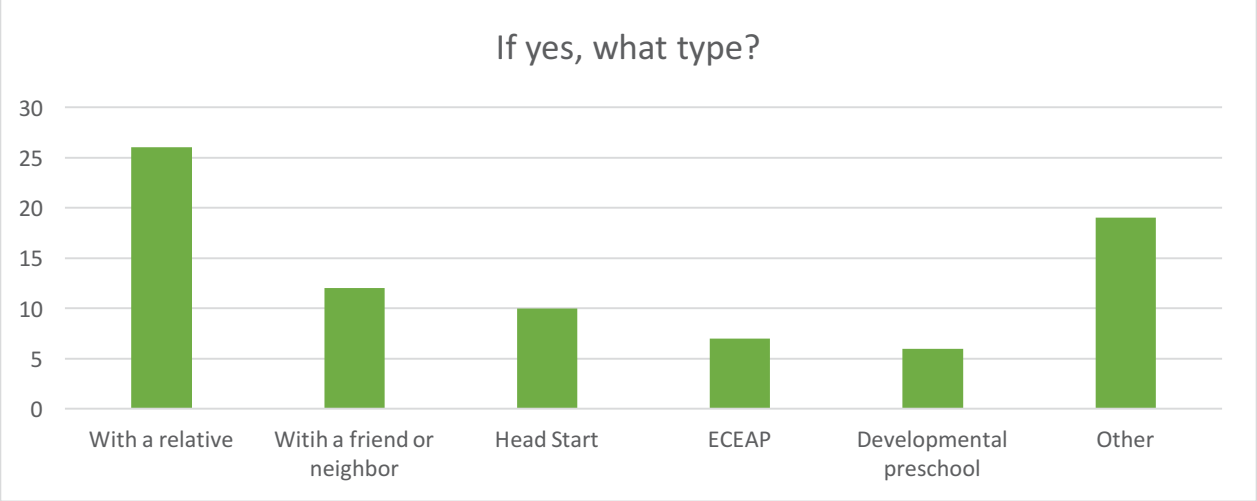
How often do you participate in the following program activities?	Have never done	Less than once per week	Once per week	More than once per week
Volunteer in your child's childcare program	73.1% (422)	21.8% (126)	2.3% (13)	2.8% (16)
Volunteer as a chaperone on your child's field trips	78.5% (445)	17.6% (100)	2.3% (13)	1.6% (9)
Talk with your child's teacher/provider at pick up and / or drop off	4.0% (23)	4.9% (28)	11.8% (68)	79.3% (457)
Phone or email teacher/provider	17.9% (104)	48.3% (280)	13.8% (80)	20.0% (116)

24. Does your child attend any other out-of-home care in addition to this program?



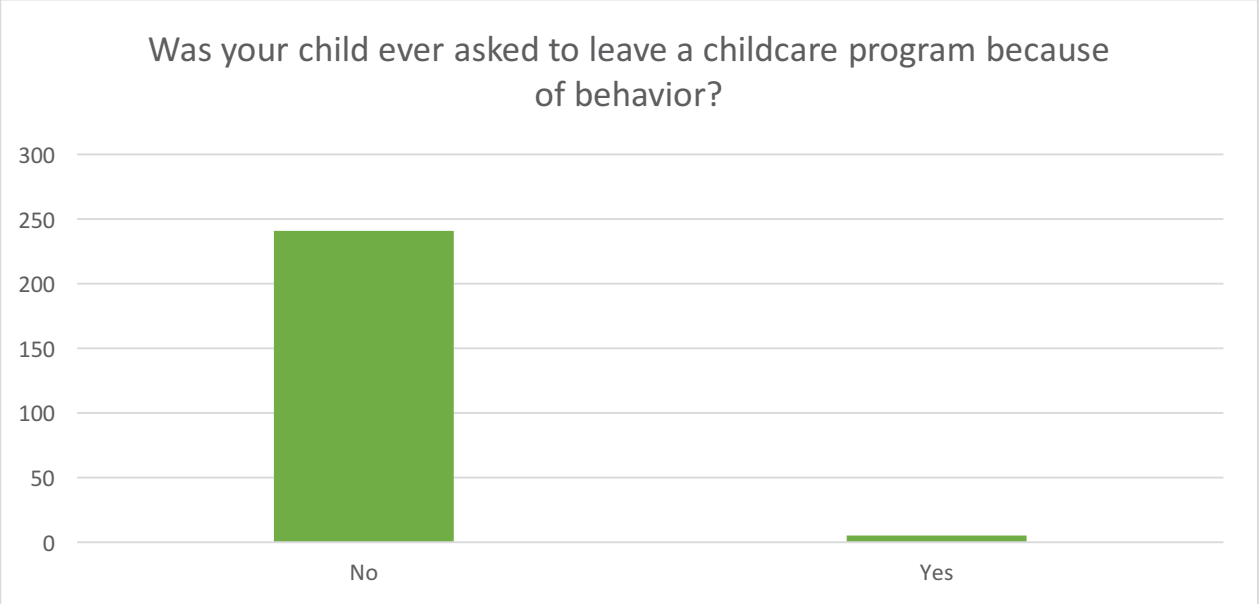
Does your child attend any other out-of-home care in addition to this program?	Percentage (N)
Yes	13.4% (78)
No	86.6% (502)

If you answered “yes” to the previous question, what additional type of out-of-home care does your child attend?



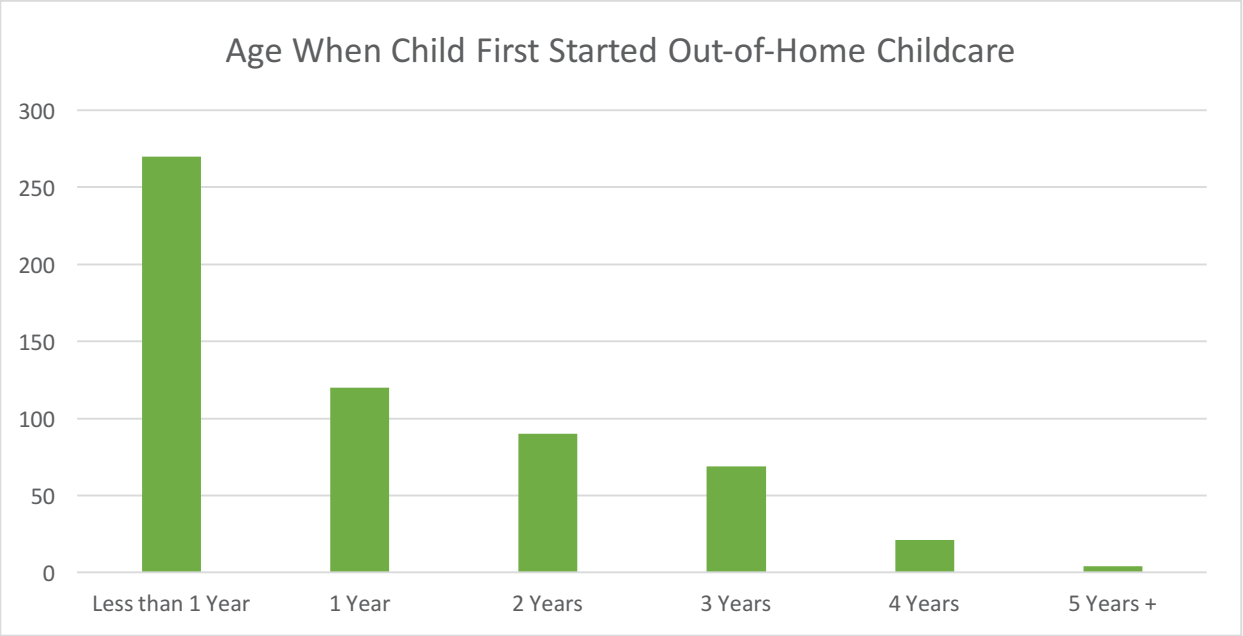
If yes, what type?	Percentage (N)
With a relative	32.5% (26)
With a friend or neighbor	15.0% (12)
Head Start	12.5% (10)
ECEAP	8.8% (7)
Developmental preschool	7.5% (6)
Other	23.8% (19)

25. Was your child ever asked to leave a child care program because of behavior?



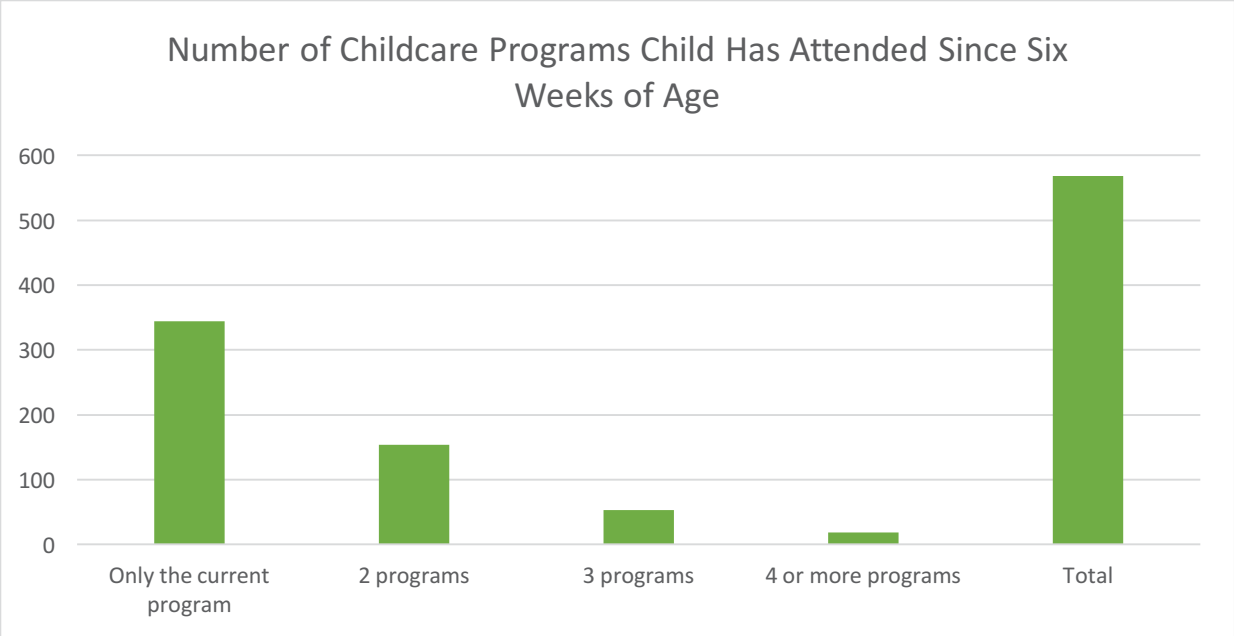
Was your child ever asked to leave a childcare program because of behavior?	Percentage (N)
No	98.0% (241)
Yes	2.0% (5)

26. Think back to when your child first started out-of-home childcare. How old was he/she at the time?



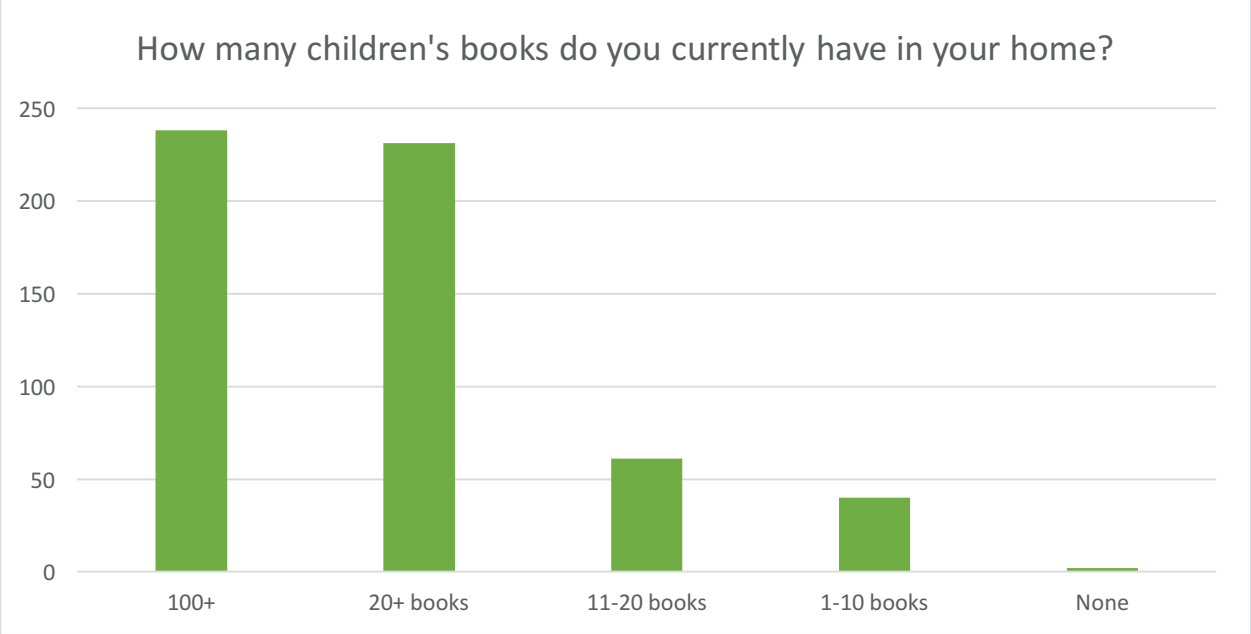
Age When Child First Started Out-of-Home Childcare	Percentage (N)
Less than 1 Year	47.0% (270)
1 Year	20.9% (120)
2 Years	15.7% (90)
3 Years	12.0% (69)
4 Years	3.7% (21)
5 Years +	0.7% (4)

27. How many childcare programs has your child attended since six weeks of age?



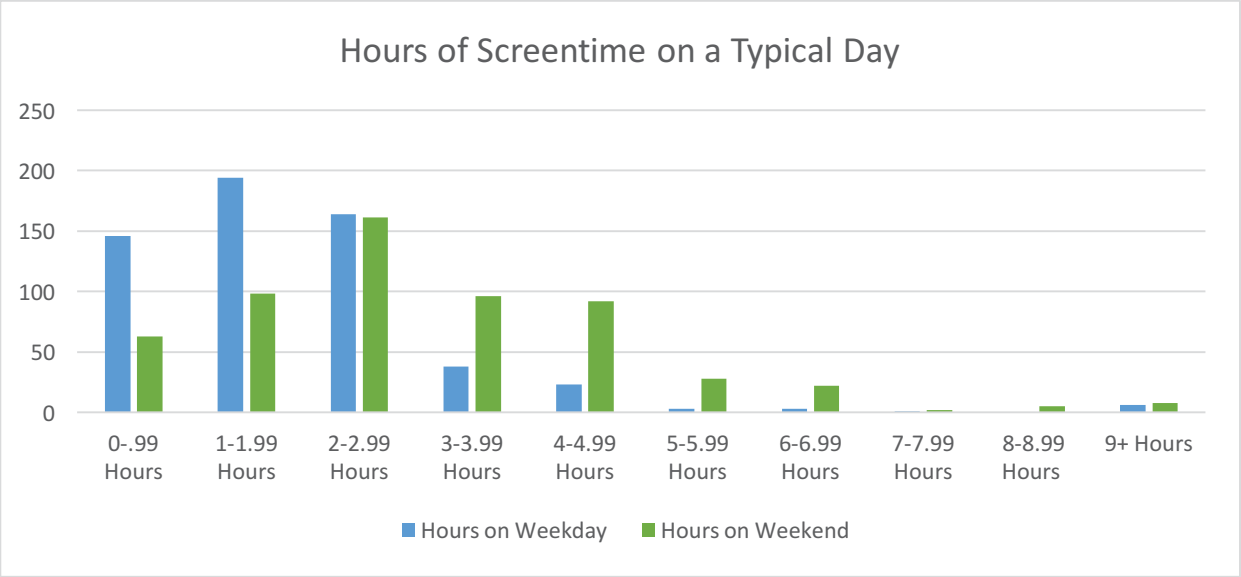
Number of Childcare Programs Child Has Attended Since Six Weeks of Age	Percentage (N)
Only the current program	60.4% (344)
2 programs	27.1% (154)
3 programs	9.3% (53)
4 or more programs	3.2% (18)

28. About how many children's books do you currently have in your home (including books from the library, school, etc)?



How many children's books do you currently have in your home?	Percentage (N)
100 or more	41.6% (238)
20-99 books	40.4% (231)
11-20 books	10.7% (61)
1-10 books	7.0% (40)
None	0.3% (2)

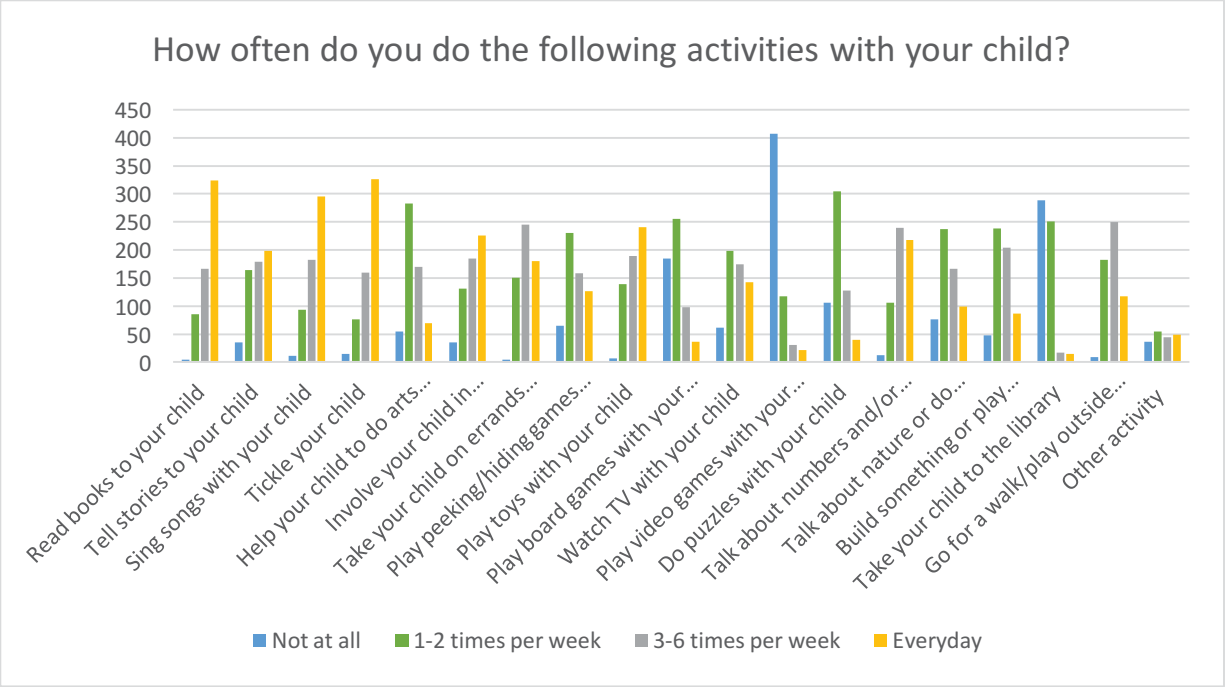
29. About how many hours of screen time (e.g., television, computers, iPad/tablet, cell phone) does your child view on a typical day?



Hours on Weekday	Percentage (N)
0-.99 Hours	25.3% (146)
1-1.99 Hours	33.6% (194)
2-2.99 Hours	28.4% (164)
3-3.99 Hours	6.6% (38)
4-4.99 Hours	4.0% (23)
5-5.99 Hours	0.5% (3)
6-6.99 Hours	0.5% (3)
7-7.99 Hours	0.2% (1)
8-8.99 Hours	0.0% (0)
9+ Hours	1.0% (6)

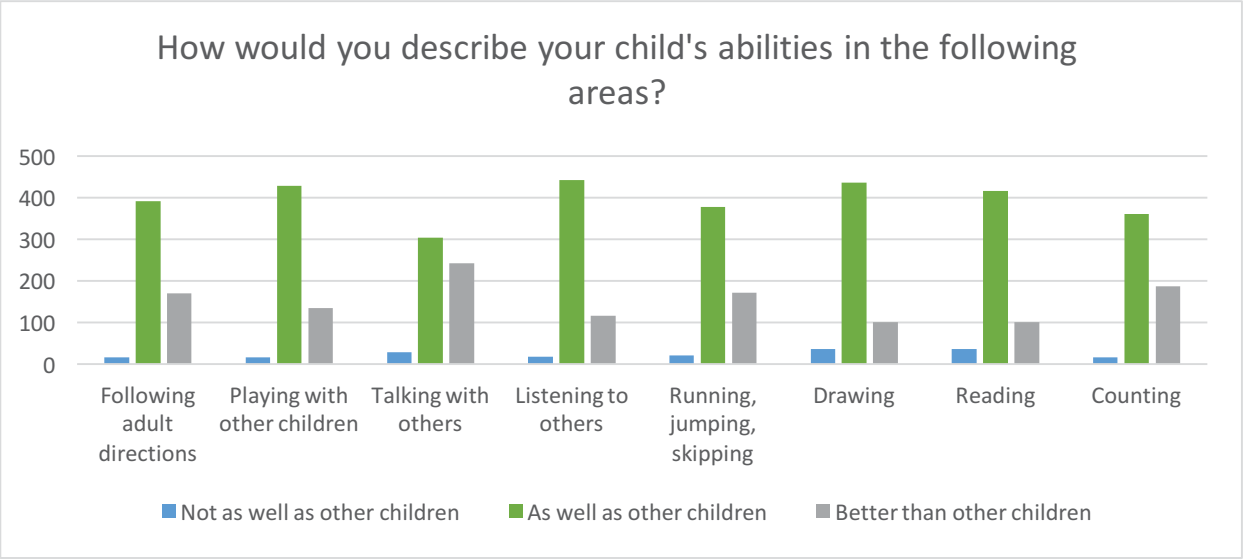
Hours on Weekend	Percentage (N)
0-.99 Hours	11.0% (63)
1-1.99 Hours	17.0% (98)
2-2.99 Hours	28.0% (161)
3-3.99 Hours	16.7% (96)
4-4.99 Hours	16.0% (92)
5-5.99 Hours	4.9% (28)
6-6.99 Hours	3.8% (22)
7-7.99 Hours	0.3% (2)
8-8.99 Hours	0.9% (5)
9+ Hours	1.4% (8)

30. In a typical week, how often do you do the following activities with your child?



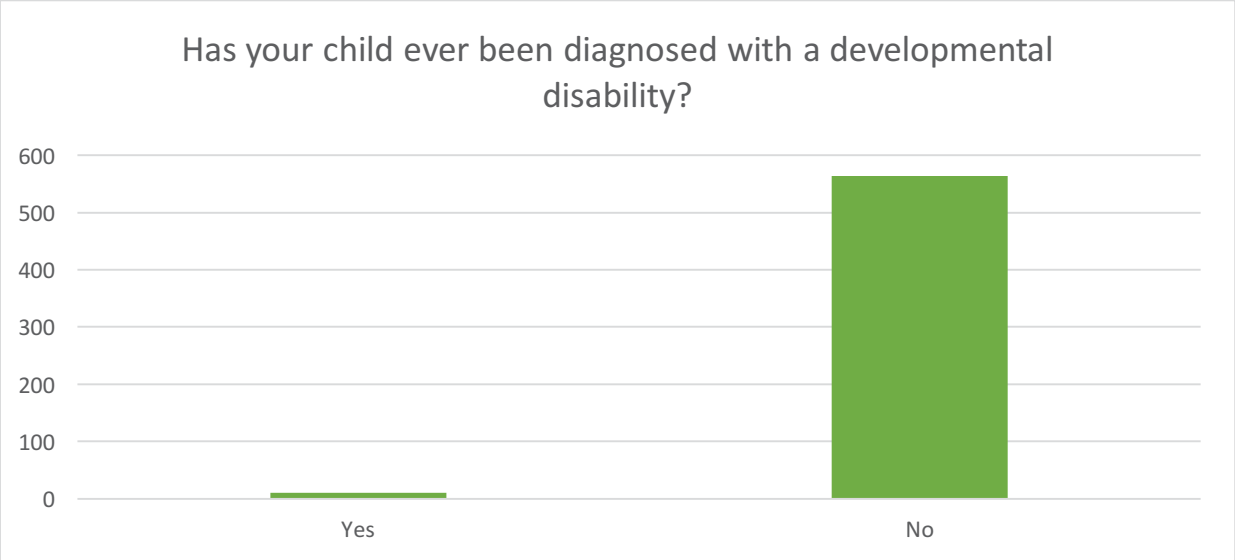
How often do you do the following activities with your child?	Not at all	1-2 times per week	3-6 times per week	Everyday
Read books to your child	0.7% (4)	14.8% (86)	28.6% (166)	55.9% (324)
Tell stories to your child	6.1% (35)	28.4% (164)	31.0% (179)	34.5% (199)
Sing songs with your child	1.9% (11)	16.2% (94)	31.3% (182)	50.7% (295)
Tickle your child	2.6% (15)	13.2% (76)	27.7% (160)	56.5% (326)
Help your child to do arts and crafts	9.5% (55)	49.0% (283)	29.4% (170)	12.1% (70)
Involve your child in household chores (e.g., cooking, cleaning, setting the table, or caring for pets)	6.1% (35)	22.7% (131)	32.1% (185)	39.2% (226)
Take your child on errands with you (e.g., grocery store, post office)	0.9% (5)	25.9% (150)	42.2% (245)	31.0% (180)
Play peeking/hiding games with your child	11.2% (65)	39.6% (230)	27.4% (159)	21.9% (127)
Play toys with your child	1.2% (7)	24.1% (139)	32.8% (189)	41.8% (241)
Play board games with your child	32.2% (185)	44.4% (255)	17.1% (98)	6.3% (36)
Watch TV with your child	10.6% (61)	34.4% (198)	30.3% (174)	24.7% (142)
Play video games with your child	70.5% (407)	20.3% (117)	5.4% (31)	3.8% (22)
Do puzzles with your child	18.3% (106)	52.6% (304)	22.1% (128)	6.9% (40)
Talk about numbers and/or shapes with your child	2.3% (13)	18.4% (106)	41.6% (240)	37.8% (218)
Talk about nature or do science projects with your child	13.1% (76)	41.0% (237)	28.7% (166)	17.1% (99)
Build something or play construction toys with your child	8.3% (48)	41.2% (238)	35.4% (204)	15.1% (87)
Take your child to the library	50.6% (288)	44.0% (251)	3.0% (17)	2.6% (15)
Go for a walk/play outside with your child	1.6% (9)	32.7% (183)	44.7% (250)	20.9% (117)
Other activity	19.6% (36)	29.9% (55)	23.9% (44)	26.6% (49)

31. Compared with children the same age, how would you describe your child's abilities in the following areas?



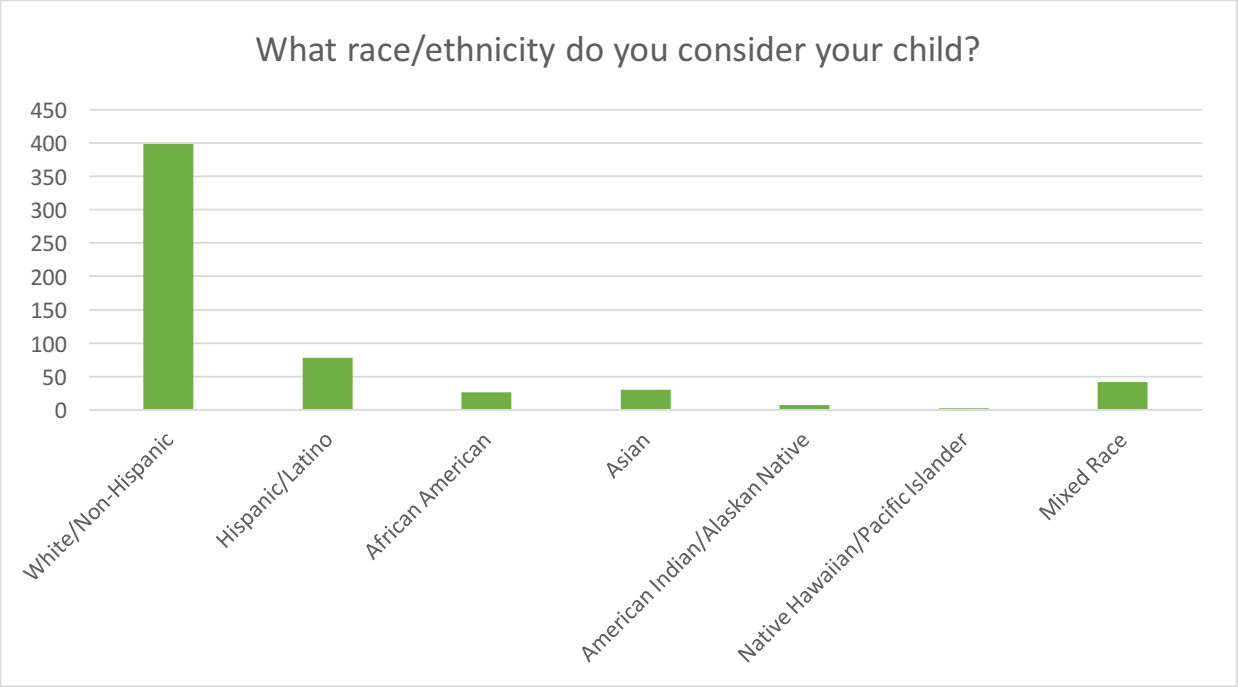
How would you describe your child's abilities in the following areas?	Not as well as other children	As well as other children	Better than other children
Following adult directions	2.8% (16)	67.7% (392)	29.5% (171)
Playing with other children	2.8% (16)	74.0% (429)	23.3% (135)
Talking with others	5.0% (29)	52.9% (304)	42.1% (242)
Listening to others	3.3% (19)	76.5% (443)	20.2% (117)
Running, jumping, skipping	3.7% (21)	66.2% (378)	30.1% (172)
Drawing	6.3% (36)	76.0% (436)	17.8% (102)
Reading	6.7% (37)	75.0% (417)	18.3% (102)
Counting	2.8% (16)	64.0% (361)	33.2% (187)

32. Has your child ever been diagnosed with a developmental disability?



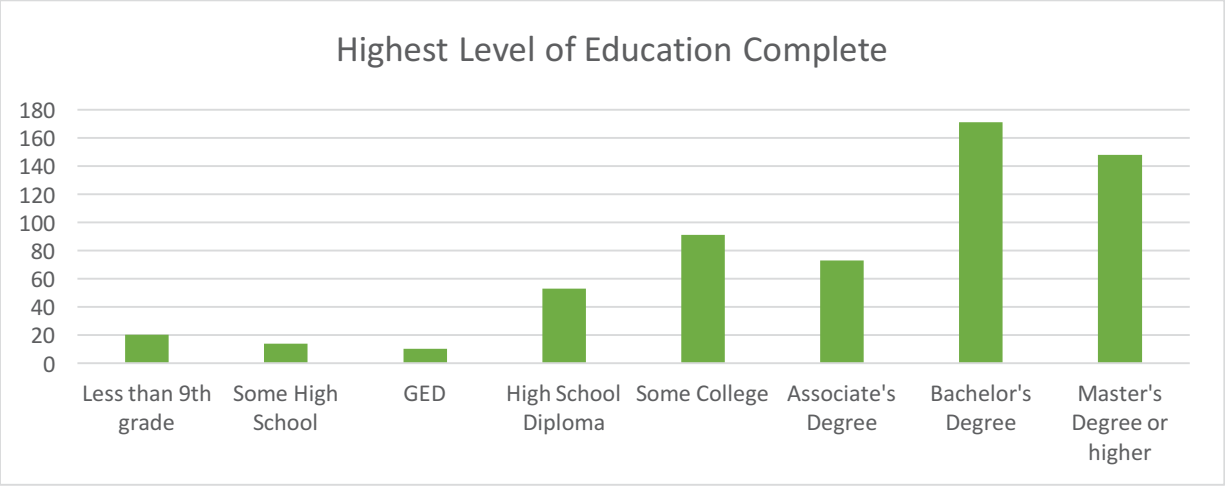
Has your child ever been diagnosed with a developmental disability?	Percentage (N)
Yes	1.7% (10)
No	98.3% (564)

33. What race/ethnicity do you primarily consider your child?

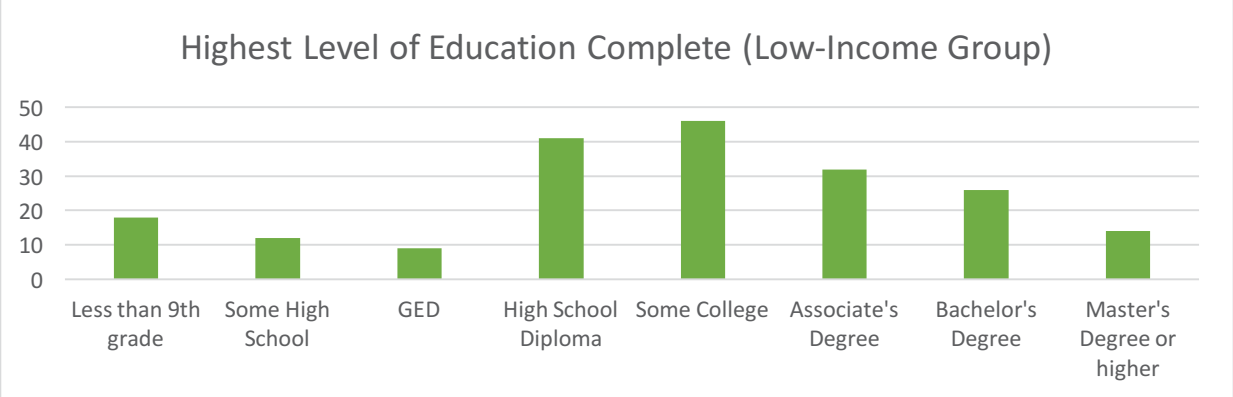


What race/ethnicity do you consider your child?	Percentage (N)
White/Non-Hispanic	68.3% (399)
Hispanic/Latino	13.4% (78)
African American	4.5% (26)
Asian	5.1% (30)
American Indian/Alaskan Native	1.2% (7)
Native Hawaiian/Pacific Islander	0.3% (2)
Mixed Race	7.3% (42)

34. What is the highest level of education you have completed?



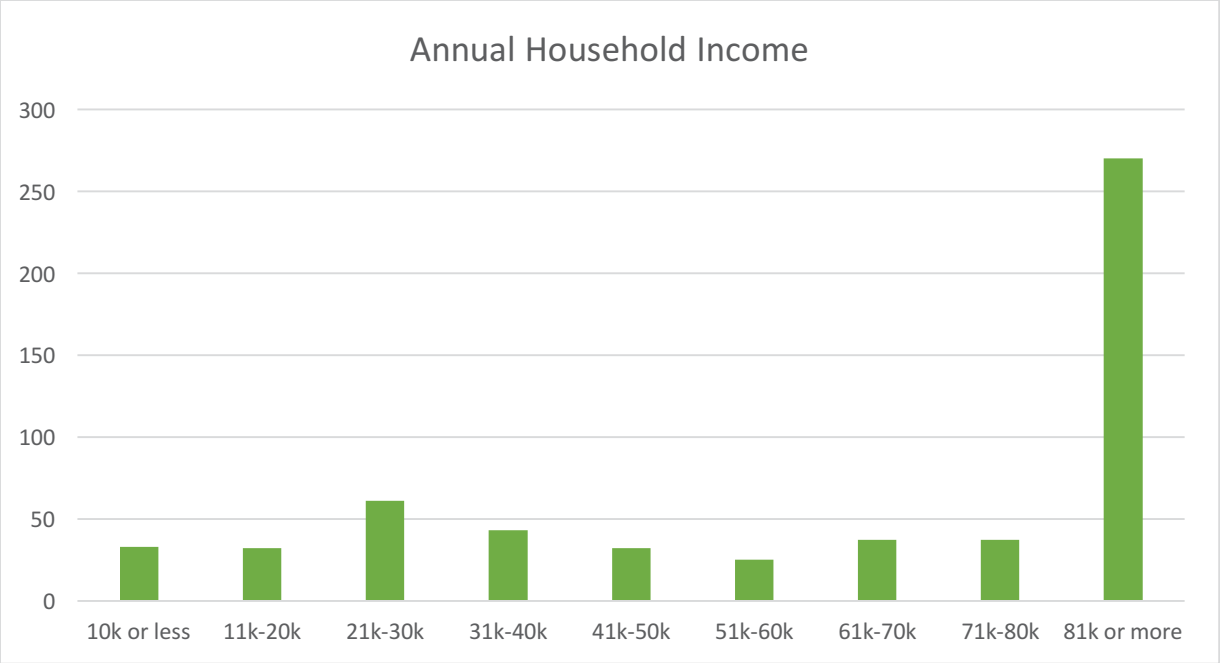
Highest Level of Education Complete	Percentage (N)
Less than 9th grade	3.4% (20)
Some High School	2.4% (14)
GED	1.7% (10)
High School Diploma	9.1% (53)
Some College	15.7% (91)
Associate's Degree	12.6% (73)
Bachelor's Degree	29.5% (171)
Master's Degree or higher	25.5% (148)



Highest Level of Education Complete (Low-Income Group)	Percentage (N)
Less than 9th grade	9.1% (18)
Some High School	6.1% (12)
GED	4.5% (9)
High School Diploma	20.7% (41)
Some College	23.2% (46)
Associate's Degree	16.2% (32)
Bachelor's Degree	13.1% (26)

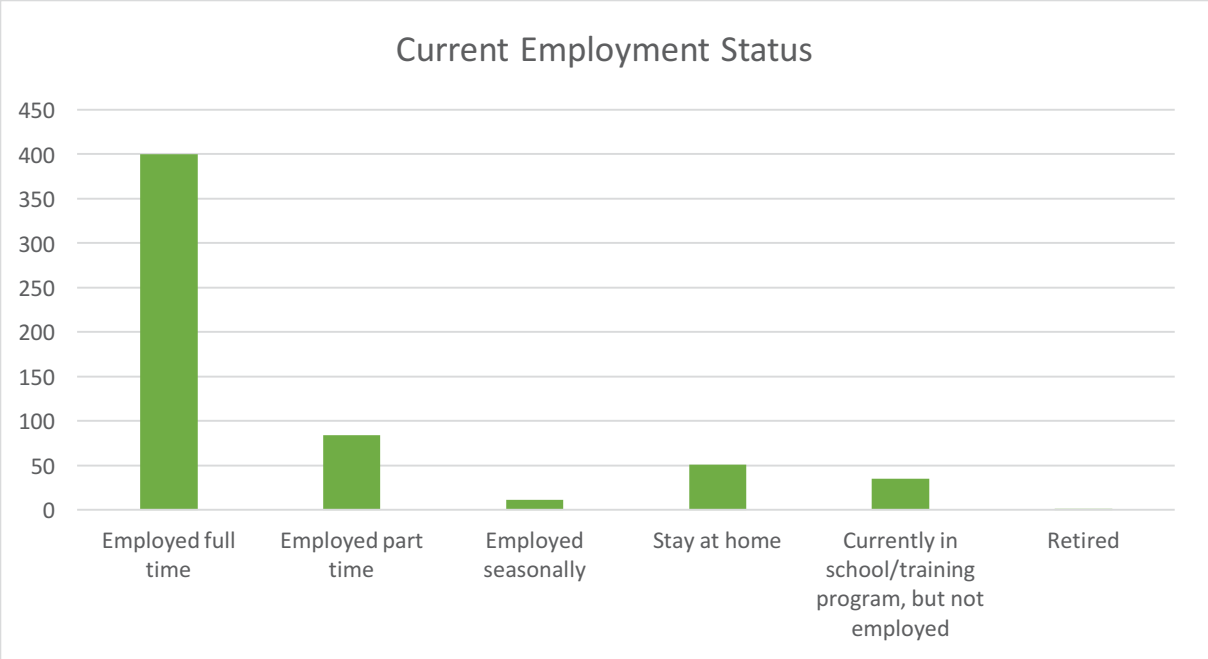
Master's Degree or higher	7.1% (14)

35. What is your annual household income?



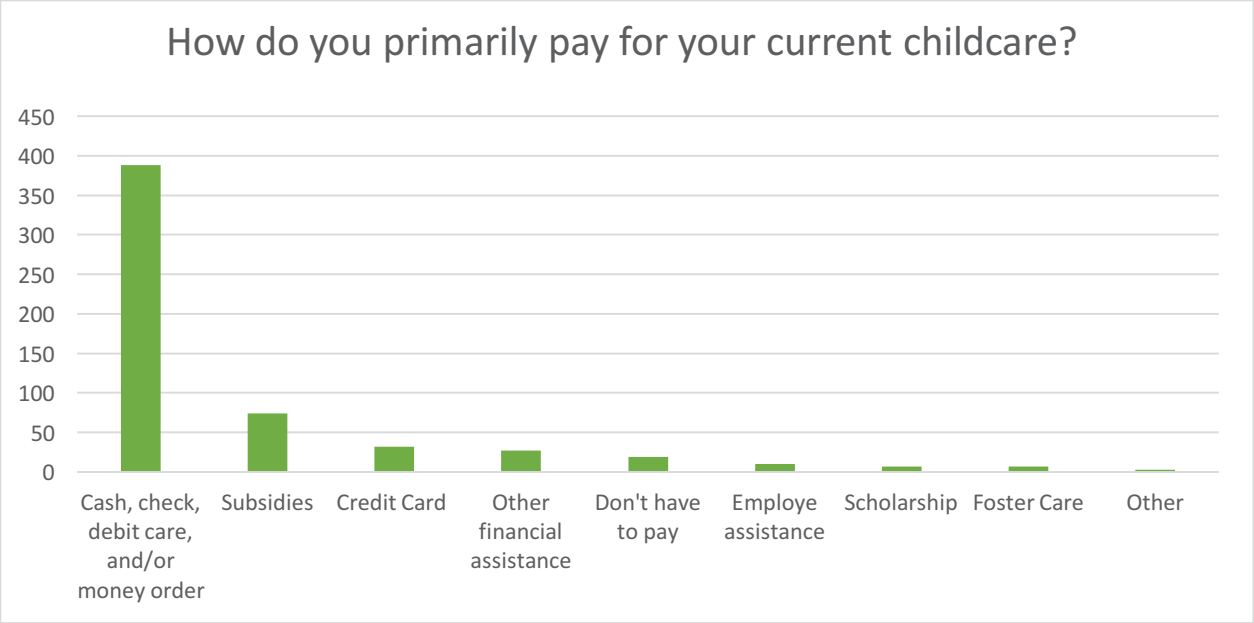
Annual Household Income	Percentage (N)
10k or less	5.5% (33)
11k-20k	5.3% (32)
21k-30k	10.2% (61)
31k-40k	7.2% (43)
41k-50k	5.3% (32)
51k-60k	4.2% (25)
61k-70k	6.2% (37)
71k-80k	6.2% (37)
81k or more	45.1% (270)

36. What is your current employment status?



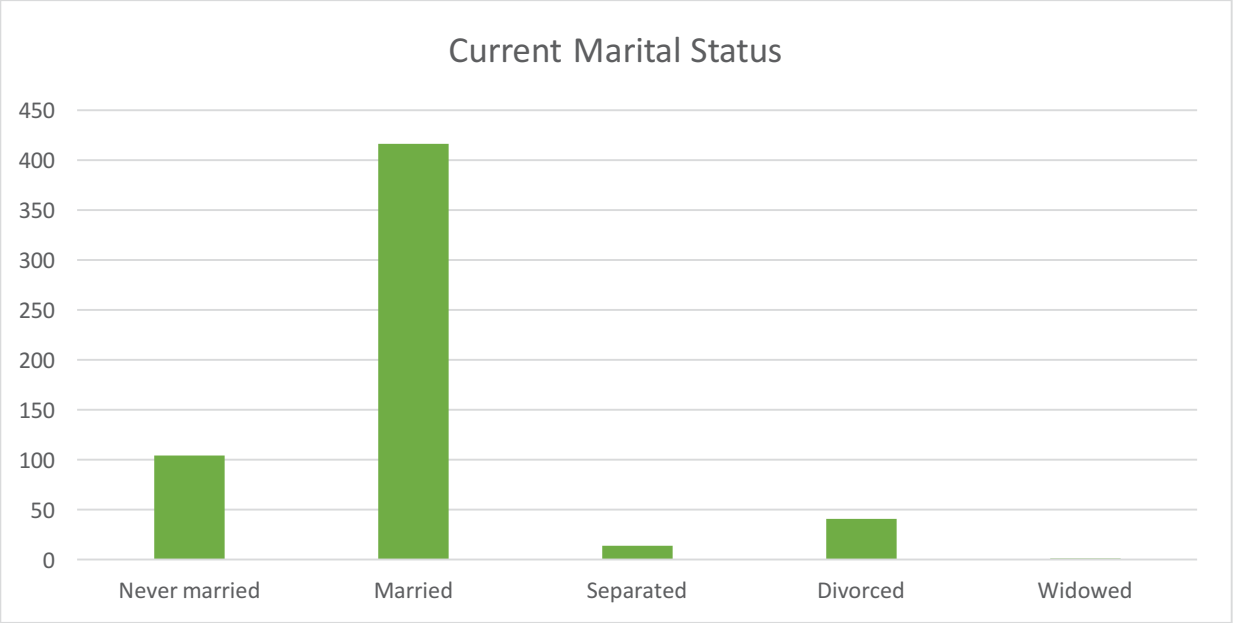
Current Employment Status	Percentage (N)
Employed full time	68.7% (400)
Employed part time	14.4% (84)
Employed seasonally	1.9% (11)
Stay at home	8.8% (51)
Currently in school/training program, but not employed	6.0% (35)
Retired	0.2% (1)

37. How do you primarily pay for your current childcare?



Primary Payment for Childcare	Percentage(N)
Cash, check, debit care, and/or money order	68.4% (388)
Subsidies	13.1% (74)
Credit Card	5.6% (32)
Other financial assistance	4.8% (27)
Don't have to pay	3.4% (19)
Employee assistance	1.8% (10)
Scholarship	1.2% (7)
Foster Care	1.2% (7)
Other	0.5% (3)

38. What is your current marital status?



Current Marital Status	Percentage (N)
Never married	18.1% (104)
Married	72.2% (416)
Separated	2.4% (14)
Divorced	7.1% (41)
Widowed	0.2% (1)

childcare quality & early learning
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