

The Parents As Teachers Program: Evaluating Parent-Child Interactions and the Implementation of the PICCOLO Assessment

Prepared for Bright Beginnings by Shawna Rohrman, PhD

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Contents

Executive Summary 1

Evaluation of participants’ parenting skills..... 1

Implementation of the PICCOLO..... 2

Background: The PICCOLO assessment of parent-child interactions and its use in the PAT program 4

Study 1: Evaluating interactions between parents and children 5

 Data and Sample..... 5

Sample 5

Measures..... 6

 Findings..... 7

Question 1: Characteristics of parents and children observed with the PICCOLO..... 7

Question 2: Assessments of interactions between parents and their children 12

Question 3: Similarities and differences across subgroups 14

Question 4: Variation across PAT agencies and Parent Educators 19

Study 2: Parent Educators’ experiences implementing the PICCOLO23

 Introducing the PICCOLO & getting buy-in23

 Implementing the PICCOLO: videoing, observing, and scoring.....24

How the assessment process shapes the parent-child interaction24

The process of recording25

Observing and scoring.....26

 Sharing results and shaping parent behavior.....26

 Perceptions about the PICCOLO assessment27

Summary and Conclusions29

References31

Appendix A: Focus group protocol and questions32

Executive Summary

This report describes results from two studies of Parents As Teachers (PAT) use of the Parenting Interactions with Children: Checklist of Observations Linked to Outcomes (PICCOLO assessment). The first is an evaluation of participants' parenting skills as measured by the PICCOLO, and the second study examines Parent Educators' experience implementing the PICCOLO one year after it was first added as a PAT assessment.

Evaluation of participants' parenting skills

The evaluation of PAT participants' supportive parenting behaviors is based on their assessment with the PICCOLO by PAT home visitors, called Parent Educators. The study sample includes 138 unique parents in 171 parent-child pairs who were assessed at least twice between July 1, 2018 and January 27, 2020. Several key findings emerged from this quantitative study:

- In general, average scores on both the first and the most recent assessment were quite high, indicating that PAT participants are displaying positive parenting skills in interactions with their children. The high scores on the first PICCOLO may in part be due to a high number of visits received by families before the PICCOLO was implemented by PAT.
- PAT participants made small but statistically significant improvements in their positive parenting practices, specifically on the Responsiveness domain (5% increase), which taps into whether parents react positively and sensitively to their child's needs and behaviors, and on the Teaching domain (7% increase), which assesses the parent's conversations, explanations, and shared play with their child.
- Gains in developmentally supportive parenting skills were most evident in select subgroups of the sample: Black parents, parents who reported three or more stressors, and parents who received more than 12 visits between the first and most recent assessment all made significant improvements in their Responsiveness and Teaching skills. High-stress parents also demonstrated significant gains in their Encouragement skills.
- Parents whose initial PICCOLO scores were below the sample average made significant and larger gains than those seen in the larger sample. Their improvements on all four domains ranged from 13% to 20%.
- There were differences in PICCOLO scores across agencies who deliver the PAT program, primarily in the scores on the most recent assessment. Parent Educators also differed in their average scores, even after controlling for four participant characteristics.

Taken together, these findings suggest that PAT is helping parents develop their positive parenting practices, and that the program is especially effective for parents' responsiveness and teaching skills. They also show that focusing retention efforts on participants who enter the program with less developed parenting skills and who report a high number of stressors may yield the biggest returns. If these families stay in the program longer, it would likely be very beneficial for them and could translate to greater improvements in the program overall.

Despite the encouraging results, the ability to understand PAT's full impact on participants is limited by the program's initial biannual assessment schedule. Most families who enrolled

before PICCOLO was first implemented had already received many visits, and most newly enrolled families also got several visits before they were first assessed. This means that, in the sample studied here, the first assessment is not a true pre-test. PAT has since shifted to administer the assessment soon after the family enrolls, which means the first assessment will better serve as a pre-test in future program evaluations.

Program staff may want to take a closer look at the differences in PICCOLO scores across agencies and Parent Educators. The variation in scores could reflect different populations served by agencies and Parent Educators, and true underlying differences in those populations that shape how parents participate in programs and interact with their children. Alternatively, factors such as program delivery, training, staff turnover, or amount of time the Parent Educator has spent in the job could explain differences in scores across agencies and Parent Educators. These differences bear further examination to ensure the validity of the PICCOLO assessment and the consistency of the PAT program for its participants.

Implementation of the PICCOLO

Invest in Children staff facilitated a focus group with 13 PAT Parent Educators in November 2019. The focus group discussion yielded a few key themes about the implementation of the PICCOLO, which began in fall 2018.

The questions posed to the focus group participants asked about the implementation of the PICCOLO, from the introduction of the assessment to families to the ways the PICCOLO results are communicated to families and shape the work PEs do with them. The most-discussed aspect of doing the PICCOLO assessment is the video recording component. Although PEs noted that most families agree to have the interaction with their child recorded, the PEs' discussion underscored the large role the video component plays in the PICCOLO experience. Some examples the PEs gave include the video recording being a barrier to participation for some families, with objections ranging from concerns about appearance on video to concerns about family safety; having enough storage space on the device to record videos for multiple families; the influence the camera has on the authenticity of the parent's behavior with their child or level of comfort in front of the camera; and the compounding effect of the requirement that PEs observe and not talk to the parent during the 10-minute interaction. Despite these downsides to video recording, a few PEs also acknowledged that having the videos to review with their supervisors was helpful in the scoring process because the extra set of eyes sees things they may not see on their own.

Although one of the reasons PAT administrators chose the PICCOLO was because it includes observable behaviors that reflect PAT's core aims, it seems the PEs generally do not use the PICCOLO results to inform their work with parents. A few PEs mentioned specific follow-ups on underdeveloped skills, but the overall response from PEs was that they follow the curriculum and know what they need to do to work with parents.

Throughout the conversation, questions asked by facilitators elicited questions from the PEs. When asked if PEs show parents the video, there were a mix of "yes" and "no" responses, followed by a question of whether they *should* show the video. This also happened when discussing whether PEs should participate in the parent-child interaction as they normally do, and in a conversation about whether the PEs are required to video record at all. The uncertainty on these issues of assessment protocol suggest a need for more frequent and/or consistent

messaging across agencies to ensure the assessment is being implemented in the same way for all participants.

The Parents As Teachers Program: Evaluating Parent-Child Interactions and the Implementation of the PICCOLO Assessment

Parents as Teachers (PAT) is an evidence-based, home visiting program administered by Bright Beginnings of Cuyahoga County that supports parents as their child's earliest and best teacher. The goal of the PAT program is to provide caregivers with the knowledge and tools they need to support the healthy development of their children during the first critical years of brain development. Cuyahoga County pregnant women and families with a child under the age of three are eligible for the program. They can receive PAT home visiting services until kindergarten entry.

PAT is implemented by trained child development professionals known as Parent Educators. Parents Educators bring age-appropriate, educational activities and materials to the home for parents and children to interact with together. In addition, they provide resources, referrals, and information, conduct developmental screenings, and offer knowledge about child development and guidance regarding challenging behavior. Bright Beginnings contracts with three local agencies to deliver the PAT curriculum to families, referred to in this report as Agencies A, B, and C. The PAT program has four intermediate goals:

1. Improved child health and development;
2. Reduced rates of child abuse and neglect;
3. Increased school readiness; and
4. Increased parent involvement in children's care and education.

This evaluation focuses on an assessment the PAT program has recently implemented, called the PICCOLO (Parenting Interactions with Children: Checklist of Observations Linked to Outcomes; Roggman et al. 2013). The PICCOLO measures developmentally supportive parenting practices that are associated with PAT's intermediate goals. The purpose of the evaluation is twofold. First, it examines changes in the quality of parent-child interactions during participants' time in the PAT program with a quantitative analysis of parents' PICCOLO scores. Second, it summarizes findings from a focus group with Parent Educators about their experiences conducting the PICCOLO assessment. Conclusions and recommendations from both are included at the end of the report.

Background: The PICCOLO assessment of parent-child interactions and its use in the PAT program

The nationwide Parents As Teachers program instituted a new Essential Requirement for State Fiscal Year 2019¹, requiring PAT affiliates to choose a tool to measure parenting skills, practices, and capacity. In consultation with its advisory committee, Bright Beginnings' PAT program chose the PICCOLO because it includes observable behaviors that represent the core of what PAT aims to provide to its families. PAT staff also felt that this observational assessment would be more valuable to families' skill development than a survey would be. When the PICCOLO was first implemented, the plan was to conduct assessments twice per year: once in March or April, and once in September or October. This schedule was based in

¹ SFY 2019 started July 1, 2018.

part on a) the timing of other duties Parent Educators perform throughout the program year, and b) supervisors' feedback that it would be easier for Parent Educators to remember to conduct the assessment at two common time points rather than at differing times that would depend on each family's enrollment and child's age, and c) the requirement that the assessment be given to at least 60% of families (and thus not just newly enrolled families). The fall-spring schedule did not work as well as anticipated, and Bright Beginnings' PAT staff shifted to family-specific scheduling of the PICCOLO starting in January 2020. Implications of the fall-spring schedule for evaluating change in parenting skills are discussed further in the Findings.

The PICCOLO is a 29-item scale used to determine the frequency of positive parenting practices. It consists of four domains—Affection, Responsiveness, Encouragement, and Teaching (all described in the *Measures* section below)—and has been shown to be predictive of children's cognitive, language, and social-emotional development (Anderson, Roggman, Innocenti, & Cook, 2013). As mentioned above, the PICCOLO is an observational assessment, conducted by the Parent Educator. Prior to the visit, the Parent Educator plans an activity for the parent and child, often supplying the family with new materials. The Parent Educator observes the pair's interaction, recording at least a portion of the activity, and then watches the video and scores the interaction after the visit.

Study 1: Evaluating interactions between parents and children

As described above, the first aim of this evaluation is to examine whether, and to what extent, the quality of parents' interactions with their children changes while they are in the PAT program, as measured by the PICCOLO. The analyses are guided by four research questions:

1. What are the characteristics of parents and children observed and assessed with the PICCOLO?
2. How have the quality of parents' interactions with their children changed during their time in the PAT program?
3. Are changes in the quality of parents' interactions consistent across subgroups, or do some groups see larger changes than others?
4. Do PICCOLO scores vary meaningfully across the three service providing agencies, or across the Parent Educators conducting the assessments?

Data and Sample

Sample

These analyses use data on PAT families, collected by Parent Educators at enrollment and during program participation. Parent Educators entered the data into the Visit Tracker data management system. The evaluator extracted data from Visit Tracker on program participants who received at least one PAT home visit between July 1, 2015 and January 27, 2020 (when data were downloaded for this evaluation). The data extracted include child and parent demographic characteristics, socioeconomic characteristics, program participation, and outcomes assessments.

Because the evaluation focuses on changes in the frequency of positive parenting practices, the sample was restricted to PAT parent-child pairs who were assessed at least twice with the PICCOLO by the same observer between July 1, 2018 and January 27, 2020. Of the 394

parent-child pairs who were ever assessed with the PICCOLO, 183 were only assessed once and thus change in parenting skills could not be determined, and an additional 40 were assessed by a different Parent Educator at each time point (likely due to staff turnover). Excluding these 223 cases yielded a sample of 171 parent-child pairs. These pairs represent 138 unique parents and 171 unique children: 109 parents have been assessed with one child, 25 parents with two children, and four parents were assessed with three children.

Measures

The demographic and socioeconomic characteristics described in this report include age at the first PICCOLO assessment, gender, race, and ethnicity for both parents and children, as well as parent's relationship to the child, marital status, education level, weekly hours worked, and housing status. Two sets of measures were created to reflect the duration of program participation: one set counts the total number of visits received during the evaluation window (July 1, 2015 to January 27, 2020), and the second set counts the number of visits received from July 1, 2015 to the date of the first PICCOLO. Each of these measures is created to reflect a) the parent's experience in PAT and b) the parent-child pair's experience. Some parents (n=29) have participated in PAT with more than one child; when participation with multiple children has been consecutive or overlapping, rather than concurrent, the parent's exposure to the program may be longer than a child's (and, hence, longer than the parent-child pair's exposure). This means some parents benefit from even more exposure to the program, which is important to consider when looking at the first PICCOLO scores. Other program participation measures include the number of children each parent has participated with in the PAT program, the number of PICCOLO assessments each pair has received, and the number of months between each pair's first and most recent PICCOLO assessment.

The outcome being evaluated is the quality of parent-child interactions, as measured by the PICCOLO assessment. The PICCOLO consists of four domains:

- The Affection domain measures the parent's warmth, physical closeness, and positive expressions toward their child, and items include whether the parent "speaks in a warm tone of voice" and "smiles at child." (7 items)
- In the Responsiveness domain, observers watch to see if the parent "pays attention to what child is doing" and "changes pace or activity to meet child's interests or needs," among other items, to assess how the parent responds to the child's cues, emotions, words, interests, and behaviors. (7 items)
- The Encouragement domain measures the parent's active support of exploration, effort, skills, initiative, curiosity, creativity, and play by observing the extent to which the parent "waits for child's response after making a suggestion" and "encourages child to handle toys." (7 items)
- The Teaching domain assesses shared conversation and play, cognitive stimulation, explanations and questions between parent and child with items such as parent "explains reasons for something to child" and "suggests activities to extend what child is doing." (8 items)

Observers score each item using a 3-point subscale: 0=No behavior observed or "absent"; 1=Brief, minor, or emerging behavior or "barely"; 2=Definite, strong, or frequent behavior or "clearly". Possible scores range from 0 to 14 on the Affection, Responsiveness, and Encouragement domains, and from 0 to 16 on the Teaching domain.

Findings

Question 1: Characteristics of parents and children observed with the PICCOLO

Table 1 below summarizes demographic information on PAT parents and their children. Starting first with parents, all PAT parents or guardians included in this sample are female. This is fairly typical of the larger population PAT serves: among all 394 parent-child pairs who had ever been assessed with the PICCOLO, there were 316 unique parents and only three were male (two fathers and one whose relationship to the child is unknown). The average age of the parent at their first PICCOLO assessment was 32.5 years old (ranging from age 21 to 69). Over half (55.1%) of the parents are Black or African-American and just over one-third (34.8%) are white, while a smaller number are multiracial (5.8%), Asian (3.6%), and American Indian or Alaska Native (0.7%). About one in eight parents (12.3%) reported Hispanic or Latinx ethnicity. Nearly all adults in the sample are the child's parent—in other words, the child's mother since all parents and guardians in this sample are female—with 3.6% as either the grandparent or legal guardian and 4.3% not reporting their relationship to the child. Almost half (46.4%) of parents had never married, while about 30% were married or living with an unmarried partner. About 4% were divorced, separated, or widowed, and 18% did not report a marital status.

Table 1: Demographic information on PAT parents and children

Characteristic	Parent (n=138)	Child (n=171)
Age at first PICCOLO: mean (SD)	32.5 (8.7) years	29.8 (14.2) months
Gender		
Female	100.0%	46.8%
Male	0.0	53.2
Race		
Black or African-American	55.1%	59.1%
White	34.8	29.2
Multiracial	5.8	8.8
Asian	3.6	2.9
American Indian or Alaska Native	0.7	0.0
Ethnicity		
Hispanic or Latinx	12.3%	13.5%
Not Hispanic or Latinx	87.7	86.5
Relationship to child		
Parent	92.0%	
Other (grandparent, legal guardian)	3.6	
Not reported	4.4	
Marital status		
Single (never married)	46.4%	
Married	23.9	
Living with unmarried partner	7.2	
Divorced, separated, or widowed	4.3	
Not reported	18.1	

Education level	
Less than HS diploma/GED	17.4%
HS diploma/GED	23.9
Some college or training	21.0
Technical training or certification	8.0
College degree (Associate's or higher)	9.4
Not reported	20.3
Weekly hours worked	
0	68.8%
1-39	13.8
40 or more	17.4
Housing status	
Homeless & sharing housing	1.4%
Lives with parent or family	5.8
Lives in public housing	9.4
Rents or shares own home	52.2
Owns or shares own home	13.8
Not reported	17.4

In general, this sample has fairly low levels of education: 17.4% reported not completing high school or a GED, while 23.9% did receive a high school diploma or equivalent. Another 21% had attended courses for, but did not complete, a degree or certificate. Eight percent of parents reported completing a training or certification program, and another 9% had completed a college degree at the Associate's level or higher. One-fifth of the parents did not report their education level. In terms of time spent in employment, most parents reported not working (68.8% working an average of zero hours per week), while 13.8% worked part time and the remaining 17.4% worked 40 hours or more per week. Lastly, the most common housing situation for parents in this sample was renting their own home (52.2%). Another 13.8% of parents own their own home. About one in six parents (16.6%) report a different living situation—either homeless and sharing housing, living with a parent or family members, or in public housing. The remaining 17.4% did not report their housing status.

Looking at the children in this sample, there are slightly more male than female children (53.2% vs. 46.8%). The average age of the child at their first PICCOLO assessment was 29.8 months old (about 2.5 years), ranging from 6 months to 59 months (or about 5 years) old. The distribution of children by race and ethnicity is similar to what was described above for parents: most children—59.1%—were Black or African American, 29.2% were white, 8.8% were multiracial, and 2.9% were Asian. A slightly higher percentage of children than parents were Hispanic or Latinx (13.5%).

Table 2 describes details about program participation for the 171 parent-child pairs. The first row shows that, on average, the *parents* in each pair received about 55 PAT home visits in total since July 1, 2015. The second shows that *parent-child pairs* received an average of 52 visits since that date. The first number is higher because some parents appear in this sample with more than one child across different or overlapping time periods, thus their total exposure to

PAT is longer than it is with any one child. The third and fourth rows count visits before the pair's first PICCOLO, again for the parent individually and then for the pair. On average, *parents* received about 35 visits before the first PICCOLO with the child, and each *pair* has received an average of 32 visits before their first PICCOLO. The last measure in Table 2 is the number of children paired with each parent in this sample. Nearly four-fifths (79%) of parents have only one child in this sample, while 18.1% have two children in the sample and the remaining small percentage (2.9%) have three children.

Table 2: Program participation characteristics, n=171 parent-child (P-C) pairs

Program participation characteristics	Mean (SD) or %	Range
Parent's total number of PAT visits*	55.4 (24.0)	13 - 109
Number of visits P-C pair received together*	52.1 (23.4)	13 - 109
Parent's number of visits before P-C pair's 1 st PICCOLO*	34.7 (22.1)	1 - 77
Number of visits P-C pair received before 1 st PICCOLO*	31.9 (21.4)	1 - 77
Parent's number of children in this sample**		
1 (n=109)	79.0%	
2 (n=25)	18.1%	
3 (n=4)	2.9%	

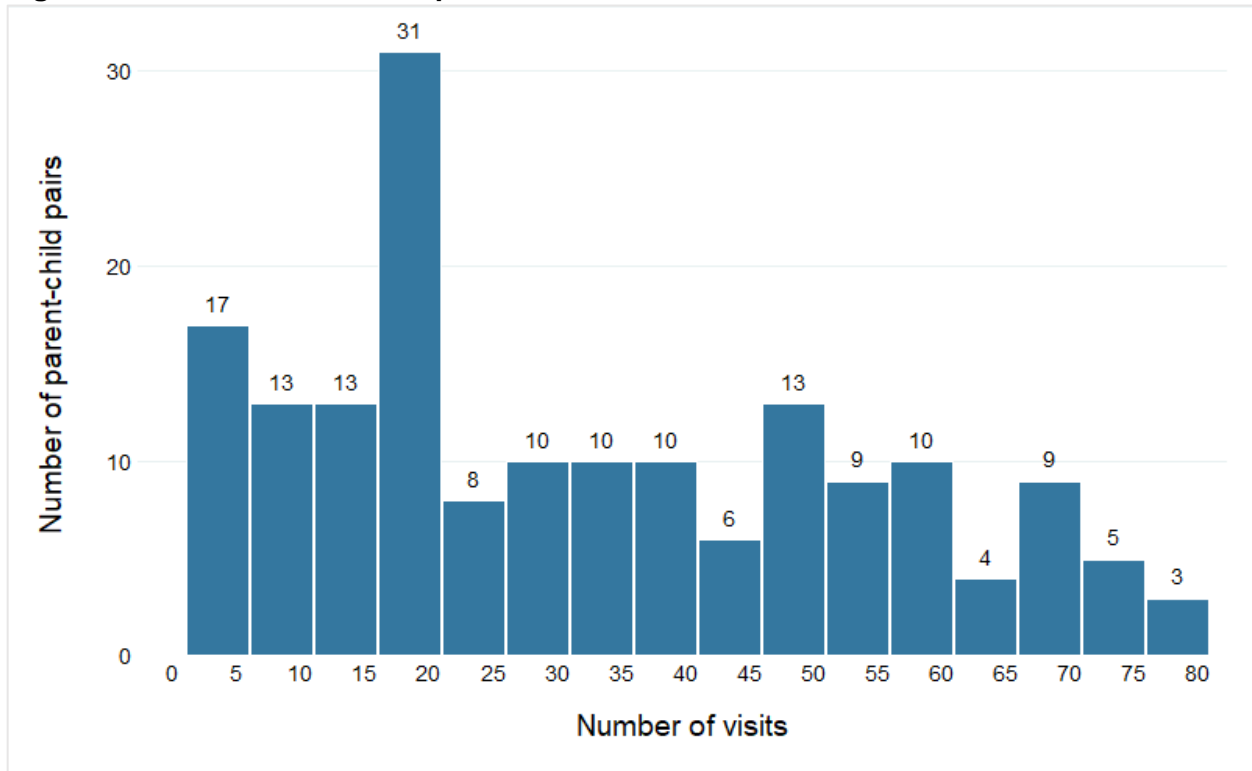
Notes: *since July 1, 2015. **Some parents have participated in PAT with more children than are included in this sample. For example, one parent may appear twice in this sample, paired with two children, but has participated in PAT with three children. The participation with the third child may have occurred before the PICCOLO was administered or did not meet the requirements for inclusion in the sample.

The high average number of visits that parent-child pairs receive before the first assessment is tied to the initial fall-spring assessment schedule and has implications for looking at change in parent-child interaction skills. The ideal way to evaluate the impact a program has on participants' behavior is to administer an assessment at or close to the time of enrollment (a pre-test), when the participant has had little or no exposure to the program. This timing helps support claims that changes made by the next assessment (post-test) are the result of the program's impact. The initial fall-spring assessment schedule observed in this sample means that families who joined after PAT began using the PICCOLO in fall 2018 may have received as many as 12 visits (twice per month for six months) before the first assessment. For families who were enrolled in the program before PAT's use of the PICCOLO began in fall 2018, the number of visits before their first PICCOLO could be much higher, as evidenced by the range shown in Table 2. This all means that the parent-child pairs' first PICCOLOs cannot be interpreted as a true pre-test here because they were not given at the time of enrollment in this sample. With PAT's recent shift to a schedule determined by the family's enrollment date and age of the child, the PICCOLO will be better able to measure the impact of PAT on parenting skills for families who have enrolled after January 2020.

Figure 1 below illustrates the distribution of the number of visits each parent-child pair received before their first PICCOLO assessment. Despite the higher frequency of pairs receiving fewer than 5 visits and between 15 to 20 visits before the first PICCOLO, and some tapering off

toward the higher number of visits on the right, the sample is relatively evenly spread out across the range of visits. This graph highlights just how much variation there was among families in their exposure to the PAT program before they were assessed for the first time with the PICCOLO. With the shift to assessing families earlier in their program participation, future versions of this graph should show larger frequencies (taller bars) on the left because families will tend to have few visits before their first PICCOLO observation.

Figure 1: Number of visits P-C pair received before first PICCOLO assessment



The final set of measures to describe the sample and their participation in PAT pertain to the implementation of the PICCOLO and are shown in **Table 3**. Nearly three in five pairs (58.5%) have been assessed twice with the PICCOLO since it was introduced in fall 2018, while 41.5% have been assessed three times. The average number of months between the first and second assessment for parent-child pairs with two PICCOLOs was about 6 months (5.8 months, range = 2.9 to 12.3 months). For pairs with three PICCOLOs, the time between the first and third assessment was nearly a year (11.7 months, range = 9.8 to 13.3 months).

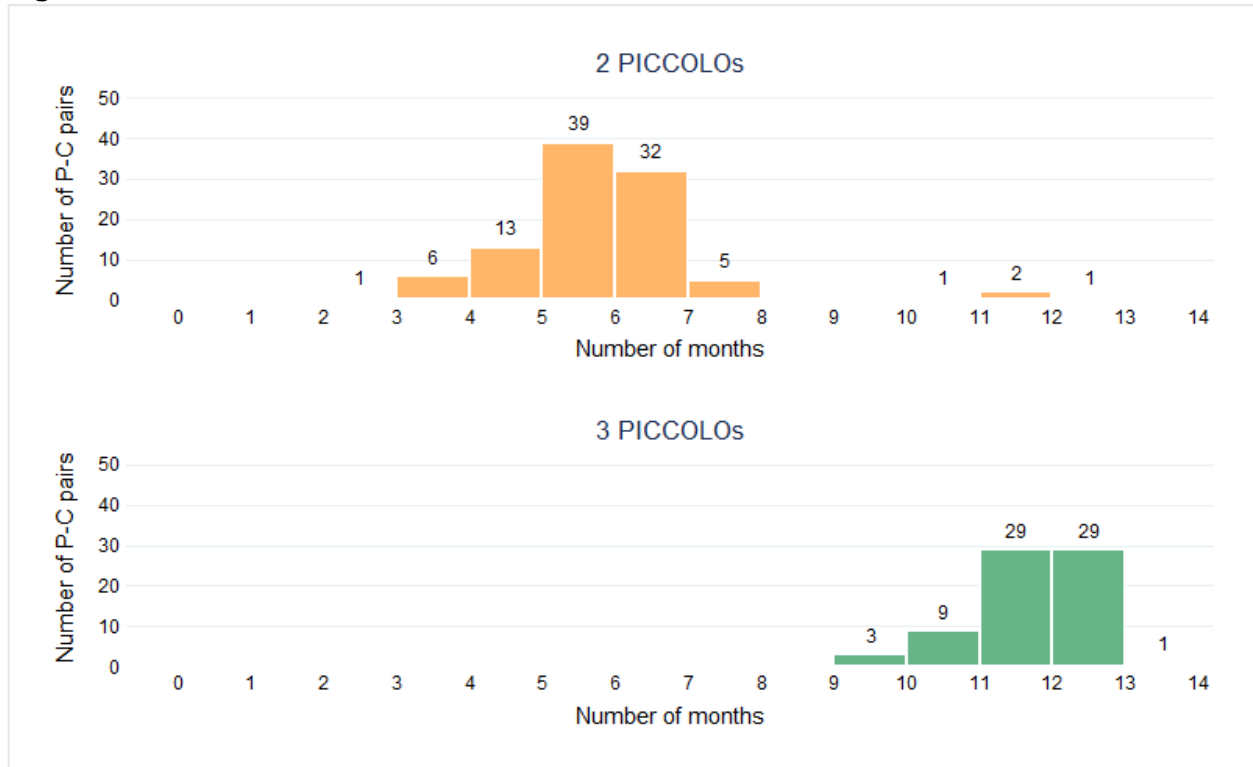
Table 3: PICCOLO implementation, n=171 parent-child (P-C) pairs

PICCOLO implementation characteristics	Mean (SD) or %	Range
Number of times P-C pair was assessed with PICCOLO		
2	58.5%	

3	41.5%	
Number of months between first and most recent PICCOLO		
All P-C pairs	8.2 (3.1)	2.9 – 13.3
P-C pairs with 2 PICCOLO assessments	5.8 (1.5)	2.9 – 12.3
P-C pairs with 3 PICCOLO assessments	11.7 (0.8)	9.8 – 13.3

Figure 2 shows the distribution of months between first and most recent PICCOLOs, broken out by the number of times the pair was assessed. Based on the PAT protocol to conduct the PICCOLO assessment twice per year, in March or April and September or October, we would expect to see that most parent-child pairs with two PICCOLOs would have been assessed about six months apart, and that those with three PICCOLOs would have been assessed about 12 months apart.

Figure 2: Number of months between first and most recent PICCOLO assessments



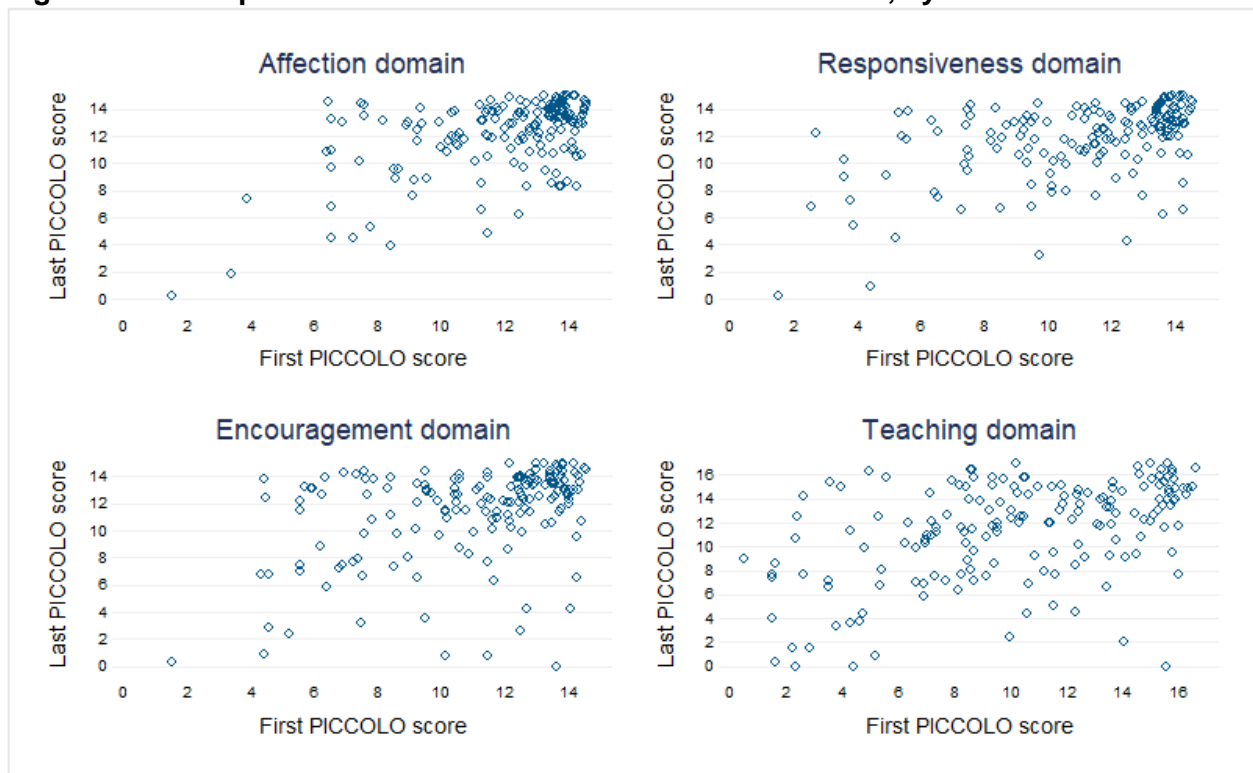
The top panel of Figure 2 shows that, indeed, most of the pairs with two PICCOLOs were assessed five or six months apart. Some pairs had fewer than five months between the two assessments, and for a few pairs the assessments were between 10 and 12 months apart. It may be that these parent-child pairs did not have visits in the intervening months when the PICCOLO is offered. Among pairs with three PICCOLOs (bottom panel), most had their first and most recent assessments between 11 and 12 months apart, which again is consistent with the program's protocol.

Question 2: Assessments of interactions between parents and their children

The second research question asks how the quality of parents' interactions with their children changed from the first to most recent assessment with the PICCOLO—in other words, are parents making improvements and building their parenting skillsets?

To examine the patterns of PICCOLO scores, **Figure 3** shows scatterplots of scores on the first and most recent PICCOLO, with each panel showing a domain of the assessment. Within the panels, each point represents one parent-child pair; the point's location on the horizontal axis indicates the score on their first assessment, while the location on the vertical axis shows the most recent (last) assessment score. For each domain, the dots tend to cluster in the upper-right hand corner of the plot, indicating that most parents score on the high end of the scale at both time points. This is most pronounced on the Affection domain, which suggests parents generally display warmth and positive expressions toward their child. There is also some clustering in the top-middle area of each domain's plot; these points represent parents who scored mid-range on the first assessment and had improved with scores on the higher end at the most recent assessment.

Figure 3: Scatterplots of first and most recent PICCOLO scores, by domain



On the Encouragement and Teaching domains, there are some parents who scored high on the first assessment and low on the most recent assessment (lower right corner of each plot), including one parent receiving the maximum and then the minimum score on each domain. And, on the Teaching domain, the reverse was also true for some parents who scored low initially and high at the most recent observation (upper left corner). These patterns were not common on the Affection and Responsiveness domains. The tendency for high scores on the Affection domain, and to some extent the Responsiveness domain, suggests that these types of skills

may come more naturally to parents, whereas skillsets measured by the Encouragement and Teaching domains require more conscious effort and thus may not be displayed as consistently. Although developers of the PICCOLO maintain that a 10-minute interaction is sufficient for the observation, parents may have good and bad days that are more likely to show up in the Encouragement and Teaching domains.

Table 3 shows means, standard deviations, and ranges for the first and most recent PICCOLOs, as well as for the change between first and most recent (statistically significant changes are indicated by asterisks), for each of the domains illustrated in Figure 3.

Table 3: PICCOLO subscale scores for whole sample (N=171)

PICCOLO Domain	First		Most recent		Change from first to most recent	
	M (SD)	Range	M (SD)	Range	M (SD)	Range
Affection	11.95 (2.5)	1 – 14	12.16 (2.7)	0 – 14	0.21 (2.5)	-7 – 7
Responsiveness	11.20 (3.1)	1 – 14	11.84 (2.7)	0 – 14	0.64 (3.0)**	-7 – 10
Encouragement	11.05 (2.9)	1 – 14	11.45 (3.4)	0 – 14	0.40 (3.5)	-14 – 9
Teaching	10.29 (4.3)	1 – 16	11.35 (4.2)	0 – 16	1.06 (4.3)**	-16 – 13

Notes: M = mean, SD = standard deviation. Statistical significance of difference between first and most recent PICCOLO was calculated with t-tests, and are denoted as: *p<.05 **p<.01 ***p<.001. Each domain has seven items, except Teaching which has eight items. Each item is rated as follows: 0 = No behavior observed; 1 = Brief, minor, or emerging behavior; and 2 = Definite, strong, or frequent behavior.

At both time points, the average scores on each PICCOLO domain are toward the high end of the range, which indicates that PAT parents typically demonstrate positive parenting practices during interactions with their child. Parents tended to show the most skill (i.e., highest average score) in the Affection domain, followed by the Responsiveness, Encouragement, and Teaching domains. This is fairly consistent with findings from Roggman’s (2013) validation study, where parents with toddlers scored highest on Encouragement, parents with infants scored highest on Affection, and both groups had the lowest scores on the Teaching domain. For the first three domains in Table 3, which each have a possible range of 0 to 14 points, the average scores were about 11 or 12 at both time points. Participants with these scores would have been rated a 2 (strong or frequent behavior) on most items and a 1 (minor or emerging behavior) on a few items. The Teaching subscale, which ranges from 0 to 16 possible points, has average scores of about 10 and 11 points; parents with these scores would receive a rating of 2 on a few items, and a score of 1 on the rest.

On average, PAT participants made improvements on all four areas, but these gains were only statistically significant in the Responsiveness and Teaching domains. Parents scored 11.20, on average, on the Responsiveness domain in their first assessment. On the most recent assessment, the Responsiveness score was 11.84, an increase of 0.64 points (p<.01) or about 5% on the 14-point scale ($0.64 \div 14 = 0.05$). Similarly, parents improved their teaching skills from their first to most recent assessment, as evidenced by a 1.06-point increase (p<.01) from 10.29 to 11.35, which translates to a 7% gain on the 16-point Teaching scale ($1.06 \div 16 = 0.07$). These results suggest that parenting practices that reflect the parent’s ability to meet their

child's needs and cognitively stimulate the child are teachable skills that PAT Parent Educators are helping parents master.

Question 3: Similarities and differences across subgroups

This section drills down to examine whether PICCOLO scores vary across parent characteristics. It is possible that the gains shown above in Responsiveness and Teaching are happening among some groups of parents and not others; it is also possible that some subgroups are seeing gains in the other domains that are not evident when looking at the whole sample.

Four questions guide the subgroup analyses:

1. Are there differences by race in participants' parenting skills, or in the amount of change they make while in the program? Analyzing scores by parent's race will not only show whether disparities exist, but will also show whether any initial race gaps narrow while parents are in the PAT program.
2. Do parents differ in their skills or the amount of change they make depending on how many stressors they experience? Because one of PAT's intermediate goals is to reduce rates of child abuse and neglect, this analysis will facilitate a better understanding of how PAT is helping its high-need participants foster positive parenting skills.
3. Are improvements in parenting skills more evident for participants who score below-average on the first assessment than for parents who score above-average? Prior evaluations of local programs (cite) have shown that participants with lower scores on initial assessments make larger gains than their peers do. Such a finding here could highlight where the PAT program is having the most impact.
4. Are there differences in the most recent scores or the amount of change depending on the number of visits between assessments? This analysis explores whether scores differ based on a parent's exposure to the PAT program.

In each section, the results table is organized to show differences in two ways. First, the asterisks in the "Change from first to most recent" column show *within-group change*, or whether the change for a particular group is statistically significant. Second, bolded numbers show *between-group differences*, or whether the groups differ significantly from each other on one of the assessments or on the amount of change made from the first to the most recent.

Parent's race. **Table 4** shows scores on each PICCOLO domain by parent's race. The small race categories shown in Table 1 (Multiracial, Asian, American Indian or Alaska Native) have been combined into a new group, "other race," in Table 4. Because this new group is still quite small (n=15) compared to the number of Black (n=99) and white (n=57) participants, any significant between-group differences by race are largely driven by the Black vs. white comparison. It's important to note at the outset that the findings shown below should be a first step toward establishing a deeper understanding of differences by race. There are other factors that shape race differences, including but not limited to parent socioeconomic status and the (in)congruence of race between the parent and the Parent Educator, which are not included in the analysis below.

Table 4: PICCOLO subscale scores, by parent race

	First		Most recent		Change from first to most recent	
	M (SD)	Range	M (SD)	Range	M (SD)	Range
Affection						
Black or African American	11.60 (3.0)	1 – 14	11.82 (3.1)	0 – 14	0.22 (2.7)	-7 – 7
White	12.44 (2.2)	4 – 14	12.70 (1.8)	7 – 14	0.26 (1.9)	-5 – 6
Other race	12.47 (1.8)	8 – 14	12.40 (2.2)	7 – 14	-0.07 (2.9)	-6 – 5
Responsiveness						
Black or African American	10.60 (3.2)	1 – 14	11.54 (3.0)	0 – 14	0.94 (3.1)**	-7 – 9
White	12.42 (2.3)	4 – 14	12.33 (2.0)	5 – 14	-0.09 (1.9)	-6 – 6
Other race	10.53 (3.5)	3 – 14	11.93 (2.8)	5 – 14	1.40 (4.8)	-7 - 10
Encouragement						
Black or African American	10.64 (3.3)	1 – 14	11.07 (3.9)	0 – 14	0.43 (4.0)	-14 – 9
White	11.84 (2.3)	6 – 14	12.02 (2.1)	6 – 14	0.18 (1.9)	-5 – 6
Other race	10.80 (2.5)	6 – 14	11.80 (3.8)	2 – 14	1.00 (4.3)	-11 – 8
Teaching						
Black or African American	9.59 (4.5)	1 – 16	10.69 (4.5)	0 – 16	1.10 (4.7)*	-16 – 12
White	11.63 (3.9)	1 – 16	12.33 (3.5)	0 – 16	0.70 (3.4)	-8 – 8
Other race	9.80 (3.1)	2 – 14	11.93 (3.2)	6 – 16	2.13 (5.0)	-8 - 13

Notes: M = mean, SD = standard deviation. Black or African American n=99; white n=57; other race n=15. Statistical significance of difference between first and most recent PICCOLO are denoted as: *p<.05 **p<.01 ***p<.001. Bolded means and SDs indicate that there is statistically significant variation across race groups at p<.05. Results of all statistical tests are available upon request.

Looking first at *within group change*, there are two instances of significant change, both among Black parents: they saw statistically significant gains in their Responsiveness skills, improving by an average of 0.94 points or about 7% (p<.001), and in their Teaching skills, with an average gain of 1.10 points or about 7% (p<.05). These results correspond to those shown in Table 3, where the sample made significant improvement in Responsiveness and Teaching skills, and suggests that the sample-wide improvements are driven by gains made by Black parents.

Bolded sets of numbers show that there are statistically significant differences in the means of the three race groups (*between-group differences*). We see these differences mainly in the scores on the first PICCOLO assessment. There are no significant differences in Affection skills, but white parents were rated as having higher skill levels than Black parents and parents of other races on the first assessment's Responsiveness (p<.001), Encouragement (p<.05), and Teaching (p<.01) domains. These race differences were smaller on the most recent assessment, owing to larger average gains by Black and other-race parents and small or negative average change by white parents—particularly evident on the Responsiveness domain, where Black and white parents differed significantly in the amount of change made from the first to most recent assessment (p<.01). On the Teaching domain, significant differences remained between Black and white parents on the most recent assessment.

Overall, these results suggest that the PAT program helps narrow initial race differences in parenting skills. However, the results do not help us understand why these differences exist. Supplemental analyses² controlled for parent education level, number of stressors reported, and number of PAT visits before the first PICCOLO (which is significantly lower for Black parents compared to white parents). Race differences on the first assessment were only slightly reduced after adjusting for these factors. The findings in Table 4 warrant further study, both to clarify why the disparities exist at the first assessment and to better understand why some of these differences are narrowed during participation in PAT.

Number of stressors. The second subgroup analysis examines differences by the number of stressors families reported. The PAT program asks participants about 16 stressful circumstances; common examples include having low income, being a parent with mental health issue, being a young parent, having a low level of education, and having a history of child abuse or neglect. The analysis shown in **Table 5** separates participants into three groups: those with no or one of the identified stressors (n=60), those with two stressors (n=43), and those with three or more of the 16 stressors (n=68).

Table 5: PICCOLO subscale scores, by number of stressors

	First		Most recent		Change from first to most recent	
	M (SD)	Range	M (SD)	Range	M (SD)	Range
Affection						
0-1 stressors	12.78 (1.9)	4 – 14	12.85 (1.7)	7 – 14	0.67 (2.1)	-6 – 7
2 stressors	11.93 (2.8)	1 – 14	11.70 (3.1)	0 – 14	-0.23 (2.1)	-7 – 6
3+ stressors	11.24 (2.7)	3 – 14	11.85 (3.0)	1 – 14	0.62 (2.9)	-7 – 7
Responsiveness						
0-1 stressors	12.18 (2.3)	4 – 14	12.33 (2.4)	4 – 14	0.15 (2.5)	-7 – 7
2 stressors	11.28 (2.9)	1 – 14	11.88 (3.0)	0 – 14	0.60 (2.5)	-7 – 7
3+ stressors	10.28 (3.5)	3 – 14	11.37 (2.8)	0 – 14	1.09 (3.5)*	-7 – 10
Encouragement						
0-1 stressors	12.27 (2.3)	5 – 14	12.08 (3.0)	0 – 14	-0.18 (3.7)	-14 – 8
2 stressors	11.12 (3.0)	1 – 14	11.28 (3.8)	0 – 14	0.16 (3.3)	-11 – 8
3+ stressors	9.94 (3.1)	4 – 14	11.00 (3.4)	0 – 14	1.06 (3.3)*	-7 – 9
Teaching						
0-1 stressors	12.22 (3.7)	2 – 16	12.78 (3.9)	0 – 16	0.57 (5.0)	-16 – 13
2 stressors	9.86 (4.1)	1 – 16	10.98 (4.5)	0 – 16	1.12 (3.7)	-6 – 10
3+ stressors	8.85 (4.2)	1 – 16	10.31 (3.9)	0 – 16	1.46 (4.0)**	-8 – 11

Notes: M = mean, SD = standard deviation. 0-1 stressors n=60; 2 stressors n=43; 3+ stressors n=68. Statistical significance of difference between first and most recent PICCOLO are denoted as: *p<.05 **p<.01 ***p<.001. Bolded means and SDs indicate that there is statistically significant variation by number of stressors at p<.05.

² Not shown here but available upon request

Looking first at *within-group change*, only the group with three or more stressors demonstrated statistically significant average gains from the first to most recent assessment, suggesting that the PAT program is a particularly helpful resource for parents facing many challenges. This high-need group improved their Responsiveness and Encouragement skills by just over one point or about 8% ($p < .05$), and their Teaching skills by 1.46 points or about 9% ($p < .01$).

Turning next to *between-group differences*, Table 5 shows a stress gradient in PICCOLO scores: the more stressors a family experiences, the lower their scores tend to be. Differences between the 0-1 group and the 3+ group are smallest on the Affection domain (1.54 points) and largest on the Teaching domain (3.37 points) but are statistically significant on all four domains ($p < .05$). At the most recent assessment, the differences are smaller but remain statistically significant on all domains ($p < .05$) except Encouragement, where the slight negative change of the 0-1 stressor group is significantly different from the average gain made by the 3+ stressors group ($p < .05$). These results are promising in that they show the PAT program may help offset the negative impact that high stress levels can have on supportive parenting practices. Future evaluations should return to this question, ideally with true pre- and post-tests, to examine whether high-stress parents receiving a full dose of PAT exit the program with similar parenting skillsets as their lower-stress counterparts.

Below- or above-average score on first assessment. The third subgroup analysis examines whether participants whose initial PICCOLO score was below average are different from their above-average counterparts in the level of change between the first and most recent assessment. Prior evaluations of other local early childhood programs have found this to be the case in those programs: children who began the program with lower skill levels made larger gains during their participation compared to children who entered the program with higher skill levels (Rohrman, 2020; Fischer et al., 2013). If this pattern holds here, we would expect to see parents displaying below-average skill levels at the first PICCOLO assessment to make larger improvements than their counterparts. **Table 6** shows that this is indeed the case.

Table 6: PICCOLO subscale scores, by above- or below-average first PICCOLO score

	First		Most recent		Change from first to most recent	
	M (SD)	Range	M (SD)	Range	M (SD)	Range
Affection						
Below average (n=52)	8.71 (2.1)	1 – 11	10.58 (3.5)	0 – 14	1.87 (2.9)***	-4 – 7
Above average (n=119)	13.37 (0.7)	12 – 14	12.86 (1.8)	5 – 14	-0.51 (1.8)**	-7 – 2
Responsiveness						
Below average (n=71)	8.20 (2.5)	1 – 11	10.73 (3.3)	0 – 14	2.54 (3.3)***	-6 – 10
Above average (n=100)	13.33 (0.9)	12 – 14	12.62 (1.9)	5 – 14	-0.71 (1.8)***	-7 – 2
Encouragement						
Below average (n=74)	8.22 (2.3)	1 – 11	10.41 (3.8)	0 – 14	2.18 (3.6)***	-10 – 9
Above average (n=97)	13.21 (0.8)	12 – 14	12.25 (2.8)	0 – 14	-0.96 (2.8)***	-14 – 2
Teaching						
Below average (n=89)	6.84 (2.7)	1 – 10	10.08 (4.5)	0 – 16	3.24 (4.1)***	-6 – 13

Above average (n=82)	14.02 (1.7)	11 – 16	12.72 (3.3)	0 – 16	-1.30(3.2)***	-16 – 5
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Notes: M = mean, SD = standard deviation. Statistical significance of change from first and most recent PICCOLO are denoted as: *p<.05 **p<.01 ***p<.001. Bolded means and SDs are significantly different from each other at p<.05.

Looking first at within-group change, indicated by asterisks in the “Change from first to most recent” column, we see that parents in both groups had statistically significant average changes from their first to most recent assessments on every domain of the PICCOLO. Among the below-average group, these were significant score increases—13% on Affection, 18% on Responsiveness, 16% on Encouragement, and 20% on Teaching—indicating substantial improvements in their positive parenting practices. In contrast, parents with above-average scores at the first assessment tended to have slightly lower scores at the most recent assessment. The loss of points ranged from a 4% decline on the Affection domain to an 8% decline on the Teaching domain. Further analysis of these two groups showed that participants in the above-average group was most likely to see a change of one point or no change at all; since their initial scores were so high, the average declines for this group were driven by a few participants who had large declines in scores at the most recent assessment.

Given how the two groups were constructed, it is not surprising to see that they differed significantly on every domain the first PICCOLO, as indicated by the bolded numbers (p<.05). But these differences carry through to the most recent assessment and the average amount of change each group saw from the first assessment. It is important to point out that these differences are not due to the below-average group receiving fewer visits before the first PICCOLO; supplemental statistical tests show no significant differences between the below- and above-average groups in the number of pre-PICCOLO PAT visits. Rather, the results suggest the PAT program is helping parents with below-average scores at the first assessment develop and hone their positive parenting skills. At the same time, the decline in scores for the above-average group is more perplexing; the decline could reflect a regression to the mean, true loss of skills, a “stabilization” of ratings by Parent Educators as they administer more of these assessments, or the most recent assessment happening on a particularly “off” day for the parent. This comparison should be reexamined in the next evaluation of PICCOLO scores.

Number of visits between first and most recent PICCOLO. The final subgroup analysis splits the sample of parent-child pairs based on the number of visits they received between their first and most recent assessments. It is reasonable to expect that the more a parent is exposed to the PAT program and curriculum, the more skilled in their parenting practices they will become. In the context of the PICCOLO, one way to look at program exposure is with the number of visits between assessments. In **Table 7**, PAT participants are split into two groups: those with 12 or fewer visits between their first and most recent assessment, and those with more than 12 visits.

There are two significant *within-group changes*, both among parents who received more than 12 visits between their first and most recent PICCOLOs. On the Responsiveness domain, the average score for this group increased by 0.92 points, or about 7% on the 14-point scale (p<.05). On the Teaching domain, the average change was a 1.86-point increase, which is about a 12% increase on the 16-point scale (p<.01).

With regard to *between-group differences*, there was only one, suggesting that the amount of exposure to PAT between the first and most recent assessment is not a key factor in explaining the variation in PICCOLO scores. The exception here is that participants who had more than 12 visits between the two assessments made significantly larger gains compared to their counterparts with 12 or fewer visits between assessments ($p<.05$).

Table 7: PICCOLO subscale scores, by number of visits between first and most recent assessment

	First		Most recent		Change from first to most recent	
	M (SD)	Range	M (SD)	Range	M (SD)	Range
Affection						
12 or fewer visits	12.01 (2.8)	1 – 14	12.22 (2.7)	0 – 14	0.21 (2.0)	-6 – 7
More than 12 visits	11.88 (2.2)	7 – 14	12.08 (2.7)	4 – 14	0.21 (3.0)	-7 – 7
Responsiveness						
12 or fewer visits	11.30 (3.1)	1 – 14	11.74 (2.9)	0 – 14	0.43 (2.7)	-7 – 10
More than 12 visits	11.06 (3.0)	4 – 14	11.97 (2.5)	4 – 14	0.92 (3.3)*	-7 – 9
Encouragement						
12 or fewer visits	11.23 (3.0)	1 – 14	11.48 (3.4)	0 – 14	0.25 (3.1)	-11 – 8
More than 12 visits	10.81 (2.9)	4 – 14	11.40 (3.4)	0 – 14	0.60 (4.0)	-14 – 9
Teaching						
12 or fewer visits	10.78 (4.4)	1 – 16	11.24 (4.2)	0 – 16	0.47 (4.0)	-11 – 13
More than 12 visits	9.61 (4.1)	1 – 16	11.47 (4.2)	0 – 16	1.86 (4.7)**	-16 – 12

Note: M = mean, SD = standard deviation. Pairs with fewer than 9 months between first and most recent PICCOLO $n=96$; pairs with 9 or more months between first and most recent PICCOLO $n=75$. Statistical significance of difference between first and most recent PICCOLO are denoted as: * $p<.05$ ** $p<.01$ *** $p<.001$. Bolded means and SDs are significantly different from each other at $p<.05$.

Although the differences on the first PICCOLO assessment domains are not significant, there is an interesting pattern to them. Parents with more than 12 visits tend to have lower average scores on this first assessment compared to parents with 12 or fewer visits. Additional analyses (not shown here) revealed a possible explanation: average scores for the first assessment were slightly higher when the first assessment was done in spring 2019 compared to those done in fall 2018, and nearly all of the “more than 12 visits” group had their first assessment in fall 2018. It is possible these differences—again, not significantly different—are an artifact of Parent Educators’ adjustment to the new assessments rather than true baseline differences between the two groups.

Question 4: Variation across PAT agencies and Parent Educators

The last research question asks whether there are meaningful differences in PICCOLO scores across the three agencies with whom Bright Beginnings subcontracts to deliver the PAT program, or across the Parent Educators conducting the observations and assessments. It is central to program fidelity that the program is delivered consistently to its participants, so the

question of differences across agencies and home visitors is important to address. If agencies differ in their average scores or the amount of change participants make, it may suggest differences in the populations the agencies serve, but may also point differences in how the agencies deliver the program. Variation across Parent Educators may indicate may reflect different approaches to the observation and scoring process.

PAT Agency. **Table 8** shows results by PAT agency. First, we look the *within-group changes* for participants in each agency, of which there are a few. Parents served by Agency C saw significant improvements in their Responsiveness skills, with a score increase of 1.12 points or 8% ($p<.05$), as well as a 2.35-point or 15% increase in their Parenting skills ($p<.01$). Parents served by Agency A also made gains in their Parenting skills with a 1-point increase on this scale (6%, $p<.05$). These results are consistent with others in this report, which consistently show significant improvements in PAT parents' Responsiveness and Teaching skillsets.

Table 8: PICCOLO subscale scores, by PAT agency

	First		Most recent		Change from first to most recent	
	M (SD)	Range	M (SD)	Range	M (SD)	Range
Affection						
Agency A	11.93 (2.2)	6 – 14	11.83 (2.5)	4 – 14	-0.10 (2.2)	-6 – 7
Agency B	11.56 (3.3)	1 – 14	12.14 (3.4)	0 – 14	0.58 (2.9)	-7 – 7
Agency C	12.51 (1.7)	8 – 14	12.74 (1.5)	9 – 14	0.23 (2.1)	-4 – 6
Responsiveness						
Agency A	11.28 (2.9)	4 – 14	11.66 (2.5)	4 – 14	0.38 (2.7)	-7 – 8
Agency B	10.84 (3.5)	1 – 14	11.44 (3.5)	0 – 14	0.60 (3.2)	-7 – 9
Agency C	11.53 (2.7)	3 – 14	12.65 (1.6)	8 – 14	1.12 (3.1)*	-6 – 10
Encouragement						
Agency A	10.94 (2.8)	4 – 14	11.15 (3.2)	2 – 14	0.21 (3.0)	-11 – 9
Agency B	11.07 (3.4)	1 – 14	11.21 (4.2)	0 – 14	0.14 (4.1)	-14 – 8
Agency C	11.21 (2.6)	6 – 14	12.26 (2.2)	5 – 14	1.05 (3.4)	-9 – 18
Teaching						
Agency A	9.92 (4.0)	1 – 16	10.92 (3.8)	1 – 16	1.00 (3.8)*	-8 – 13
Agency B	10.94 (4.8)	1 – 16	11.11 (5.1)	0 – 16	0.16 (4.5)	-16 – 11
Agency C	10.02 (3.9)	2 – 16	12.37 (3.3)	3 – 16	2.35 (4.7)**	-11 – 12

Note: M = mean, SD = standard deviation. Statistical significance of difference between first and most recent PICCOLO are denoted as: * $p<.05$ ** $p<.01$ *** $p<.001$. Agency A n=71; Agency B n=57; Agency C n=43. Bolded means and SDs indicate that there is statistically significant variation by agency at $p<.05$.

Second, examining the *between-group differences* shows interesting patterns in differences between agencies (or, lack thereof). The first column of Table 8 shows that there are no statistically significant differences between agencies in the first assessment of participants' parenting skills. However, differences emerged at the most recent assessment. The pattern here is that participants served by Agency C perform significantly better on each domain of the

assessment than Agency A participants did on the Affection, Encouragement, and Teaching domains ($p < .05$ on all), and also had higher Responsiveness scores than participants served by Agency A or Agency B ($p < .05$ for both). There was also significant variation among the three agencies in the amount of change participants made on the Teaching domain ($p < .05$).

The higher average scores at Agency C suggest something different about program delivery, or PICCOLO implementation, compared to the other agencies delivering PAT. As with the results shown in the subgroup analyses above, this table shows only that the agency-level differences exist at the most recent assessment; *why* they emerged is a different question that merits further investigation. There are a number of agency-level factors, including consistency or turnover of Parent Educators, that could affect the differences shown in Table 8. This may be an area for PAT staff to look into further, perhaps asking Parent Educators at Agency C to share their best practices.

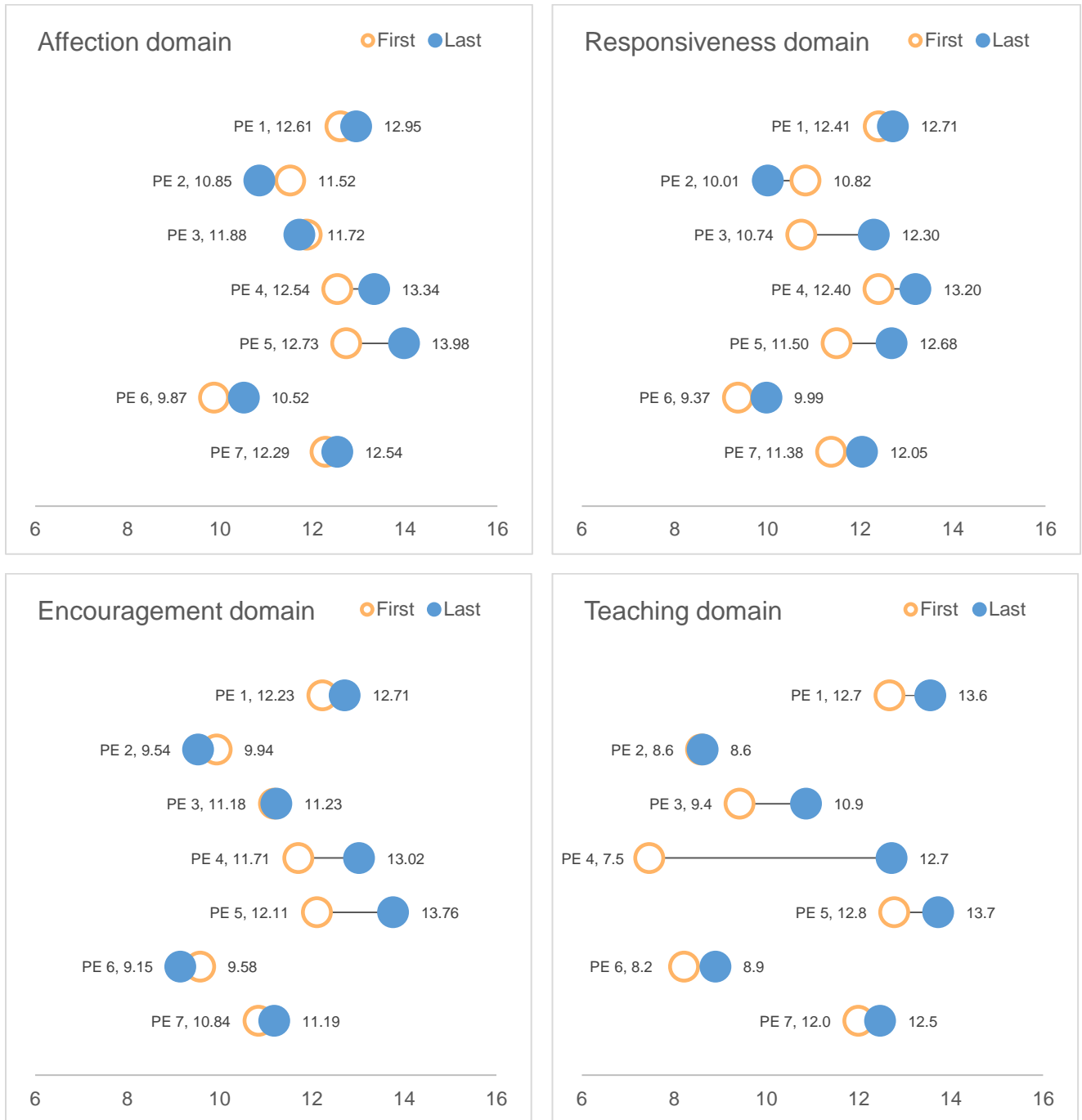
Parent Educators. The analysis of PICCOLO scores by Parent Educators (PEs) differs from what has been presented above in two ways. First, these analyses are restricted to PEs who have observed and scored at least 10 parent-child pairs in this sample.³ Of the 15 represented in the data, seven PEs meet that condition. Second, the subgroup differences shown above suggest that the characteristics of parents with whom PEs work will have an effect on the scores they give. With that in mind, these analyses generate average scores given by PEs on the first and most recent assessment, controlling for four parent characteristics: the parent's race, the number of stressors they report, the number of visits before the first PICCOLO, and the number of visits between the first and most recent PICCOLO (only used to predict most recent scores).

Figure 4 displays the adjusted mean scores for each PE on the first PICCOLO (yellow dots) and most recent PICCOLO (blue dots). These panels tell a story similar to what we saw in Figure 3: scores are most consistent on the Affection domain, and appear to vary the most on the Teaching domain, with the other two domains falling in between. Here, though, we are able to see two forms of variation: the average amount of change between first and most recent scores for each PE, and the extent to which the PEs differ from each other in their average scores. The scores on the Affection domain seem most consistent on both fronts, while on the Teaching domain there are some pronounced changes within PEs as well as pretty widely varying scores across PEs.

Some interesting patterns emerge from these graphs. In general, the amount of change PE's observe is small. Of the 28 score pairs (7 PEs x 4 domains) shown in Figure 4, the change from the first to most recent assessment is greater than one point in only five instances, and by only two PEs (#4 and #5). This means that the gains we see among the larger sample may be driven by participants served by a few PEs—especially on the Teaching domain, where the average gain for PE #4's participants is more than five points (33%). There are also five instances where the average most recent domain score is lower than the average first score, although these tend to be small declines. Three of these five decreases are reflected in the average scores of one PE (#2).

³ PEs who assessed fewer than 10 parent-child pairs gave higher scores, on average, compared to PEs who assessed more than 10 pairs.

Figure 4: First and most recent average PICCOLO domain scores, by Parent Educator



There are also patterns in who tends to give the highest and lowest scores. Three PEs (#1, #4, and #5) tended to give the highest scores on both the first and most recent assessment, with the notable exception of PE #4's average on the first Teaching assessment. In contrast, two PEs (#2 and #6) tend to give the lowest scores at both time points.

In sum, Figure 4 shows that there is variation in how PEs tend to score PAT participants on the PICCOLO. The patterns among of scoring across the PEs explains a substantial portion of the variation in scores in this sample of parent-child pairs. For example, 10% of the total variation in scores on the first Responsiveness assessment can be explained just by who the participants' PEs are; on the first Teaching assessment, PEs scoring patterns explain 22% of the total variation in participants' scores. Even when we control for some parent characteristics and limit the sample to participants whose PEs had administered the PICCOLO to at least 10 parent-child pairs, we still see differences among the PEs. There are likely other factors shaping how PEs score parents, including other parent-level characteristics not included here or characteristics of the PE such as how long they have been on the job.

Study 2: Parent Educators' experiences implementing the PICCOLO

The focus group discussion summarized here took place in November 2019 and was facilitated by Marcos Cortes, Program Manager at Invest in Children, and Shawna Rohrman, Evaluation Manager at Invest in Children. The purpose of the focus group was to get a better sense of how implementation of the new assessment, the PICCOLO, was going for the Parent Educators (PEs). At the time of the focus group, the assessment had been given to PAT participants twice at most: for the first time in September/October 2018, and again in March/April 2019. The facilitators worked with Parents As Teachers staff to develop a protocol focusing on how PEs introduce the PICCOLO to families, the process of observing and sharing results with the family, and what they find useful or not useful about the assessment. The facilitators met with 13 PEs at PAT agency's offices in Cleveland. The discussion lasted 52 minutes, and was audio recorded with the PEs' permission to assist with the development of notes. The summary of findings below consolidates the key themes that arose from the discussion.

Introducing the PICCOLO & getting buy-in

PEs' descriptions of how they introduce the PICCOLO elicited two themes: giving parents advance notice about the PICCOLO, and addressing parents' concerns about being recorded on video. Several PEs said they let parents know beforehand—in the visit before, for example—that the PICCOLO assessment is coming up. They noted that most parents like the “warning.” One PE said:

I always inform them. I tell them, every six months we have to PICCOLO where I have to record your interaction with you and your child for ten minutes, so I let them know in the beginning. I tell them what month so when I go in, not only my new families, I [say] well it's September so it's PICCOLO month. So I can record you today... or I can record you the next visit.

Another PE described her approach, which she felt contributed to her families' positive response to recording. She said she tells them “Today is your day. Today I have to see you interact with your child today. This is your interaction.”

The facilitator also asked PEs how they explain the purpose of the PICCOLO to parents. There were two responses to this question, perhaps indicating that PEs are generally unsure about the assessment's purpose. One PE said she tells parents she's administering the PICCOLO

because she was told to; another said she thinks it is used to look at how interactions change over time.

The main obstacle PEs describe encountering when getting families to participate in the PICCOLO assessment is the video recording aspect of the observation. They did say that most families are okay with having their interaction recorded, but there was much discussion about the objections they've encountered. Sometimes the resistance is easier to overcome. For example, a parent will not want to see themselves on video, or will try to put the PICCOLO off by saying they forgot and didn't do their hair, and they want to wait until the next time. In these instances, PEs tell moms to quickly go get ready, or reassure them that only they (the PE) and their supervisor will see the video. PEs have come to expect this put-off, and is perhaps one reason they start letting parents know early on that the PICCOLO is coming up.

Parents are also concerned about who will see the video—for example, one mom cited a religion-based concern that men would watch the video. PEs tell parents that the video is confidential and, as described above, that only the PE and the PE's supervisor will see the video. A few PEs emphasized the importance of not making parents feel bad for not wanting to be recorded, but to try to focus on the positives of having fun with their child during the activity. One mentioned "you just gotta be a little persistent with the ones who don't want to do it." Another highlighted the importance of the PE-parent relationship: "The ones I have that are [living in the U.S. without legal permission], they know I'm giving you my word that this has nothing to do with your status, and they believe me." In some cases parents raised concerns about privacy and safety, and in those cases parents refused to be recorded. When the facilitator asked about the protocol when a parent says no, one PE mentioned that there is no specific protocol.

Implementing the PICCOLO: videoing, observing, and scoring

How the assessment process shapes the parent-child interaction

There was much discussion about how the assessment itself can influence the visit and the parent-child interaction. Two specific aspects of the PICCOLO were mentioned: the effect of being recorded, and of the PE not being able to participate or talk to the parent during the 10-minute recording.

PEs generally agreed that parents acted differently when they were being recorded, but they differed in what they saw as the implications of that. One PE said some parents "put on a show whenever the camera hits play" and she isn't sure if what she's seeing is real or fake. In these cases, PEs seem to feel that the PICCOLO will not be an accurate assessment of how parents "normally" are. Another PE noted that the parent could be more authentic without the video recording: "you don't have the pressure that someone is watching you, and there is evidence of you having a bad day, or you didn't do your hair, or you look crappy. You're just yourself, there is no pressure."

Other PEs felt that the pressure of recording the interaction was a positive because "it makes [parents] sit down with their kids and interact" when they might not do so otherwise. In one case, a PE told a story of a mom whose parenting skills improved because she was observed with the PICCOLO: "She's a better parent now, she works more.... She's more in tune." Another PE described how the nature of the assessment means parents have to interact with their child on their own and can't rely on PEs to jump in. She said:

Even with the videos it's hard. I have to jump in sometimes because they're just sitting there and they're really not interacting. If I don't have the video it's going to be even harder because you think, I don't want to be the child's teacher all the time. No, you're your child's teacher. So sometimes the video forces them to do what they have to do.

A similar story came up, this one a case where the family had just joined. The mother did not think she was going to be able to do the activity for 10 minutes. The PE encouraged her, telling her "you can, try it." The parent used the toys the PE gave her and did the activity for 10 minutes. Afterward, she told the PE "oh my god, I need to play with him more!" The PE said she praised the parent and noted that having to do the 10-minute activity helped the parent do more with her son.

The observer role of the PE during the PICCOLO assessment also seems to reinforce the focus on the parent-child pair. Training to administer the PICCOLO includes the observer not interacting with the parent or child during the observation. One PE described how she prepares the parent for this: "you just try to engage them a little bit before it starts, you know like 'I can't talk to you. If she leaves, try to redirect her and bring her back.' Or something like that."

There was some confusion about whether PEs are allowed to interact with parents during the recording. As noted above, parents will look to PEs for help during the 10-minute interaction, and one PE said "it will help the parent more and it probably will help the worker a little bit more too" if the PEs were able to talk to the parent "while they're doing it." Another PE elaborated:

I think when you interact with them, they don't feel that shy or nervous. Because it feels like a regular visit, the only difference is that there's like an iPad over there that's like staring at us. Other than that you're talking to them, having regular conversation will make them more comfortable to be themselves.

These comments highlight a tension between the purpose of the assessment—to evaluate the participant's supportive parenting skills—and the role of the PEs in supporting and teaching parents.

The process of recording

Discussions about the process of recording underscored the different approaches PEs take to recording their participants' interactions. There were several examples offered of parents who were unable to make it through the 10-minute activity for the PICCOLO observation. In those cases, PEs seem split on how they proceed. One said she stops recording if a parent doesn't make it the full 10 minutes, although if the child or parent comes back to the interaction she'll resume recording. Others said they keep recording, "thinking, maybe something will happen. I don't want to stop it early." Another PE agreed: "I keep mine on. I have some kids that have run off. But I don't hold it, I set the tablet right there on the floor and I let it record. If they [the child] run off I say, we'll see how long it takes them to come back."

This conversation evolved into one about how PEs are using their devices to record. All PEs were issued iPads by PAT to record the parent-child interactions for later scoring on the PICCOLO. Here, too, differences emerged in the PEs' processes. About half of the PEs said they hold the device to record, while the other half set it down somewhere in the room to record. One PE commented that parents "are much more comfortable if there's something over there [the iPad is set down somewhere], they forget that they're being recorded." But those who hold the device asked what she does when the child runs away, because they just follow the parent-

child interaction wherever it goes; several PEs responded they get mom to redirect and bring the child back.

Notably, there are some PEs who are using their smartphones to record the interactions. They noted problems with the iPad not working or lack of storage space. One said, “I use my phone the majority of the time. Cause the iPad—I’m tired of deleting videos. You can only do so much, you gotta do your whole caseload. You still gotta delete them. And then we have events in between so I have to record events or take pictures.”

Observing and scoring

After the visit where the parent-child activity was recorded, the PE views the video and evaluates the parent’s skills in the four PICCOLO domains: affection, responsiveness, encouragement, and teaching. The facilitator asked about the process of scoring the interactions with the PICCOLO—namely, whether it became easier over time, and objectivity/subjectivity of the process. One PE mentioned that scoring did get easier over time: “The first time I had to watch every single video for every single score. Now, I can score while it’s recording, I don’t have to watch the whole thing. But maybe [I go] back and say, okay have I seen this? Let me just double-check that. I guess we know what to look for.” It seems that the frequency of reviewing videos with supervisors also changed over time, as PEs mentioned that they did this at first, especially the very first time. They don’t review every video with supervisors, in part because they don’t have the storage space to keep the videos until their supervision meeting.

Nonetheless, PEs mentioned that reviewing the videos with supervisors is helpful when it comes to scoring because “two different [sets of] eyes see two different things.” PEs felt that, for some of the PICCOLO items, the rating was clear and it was easy to give a score. On other items, they have to use their judgement: “to me, this is what this person is doing.” Having another person viewing the interaction provides another perspective.

Sharing results and shaping parent behavior

After watching the interaction back on video and scoring the interaction, PEs return to the next visit with feedback for the parent based on their scores on the PICCOLO. Some PEs said they give immediate feedback about the parent’s interaction with their child, but it was not clear that everyone does. For example, one PE mentioned that they would be able to give “immediate feedback” if they didn’t video record and instead observed and scored in the visit. A few PEs talked about showing parts of the video to the parent so they can see what they did or did not do, but it wasn’t clear if this happened during the same visit or at the next one. (There was also confusion about whether PEs *should* show the video to the parent.)

When they do share feedback, PEs agreed that they do not show parents the scores, or even the exact rating categories (absent, barely, clearly). They use the results to tell parents which things they’re doing well, and which they should focus on. When there are items the parent does not display and are thus rated “absent,” they do not say it that way (“this was absent, that was absent”). One PE said, “you don’t want to make them feel like they’re bad moms by judging them.” Another agreed: “I always want to be super tactful.... I always try to phrase it, ‘There are some areas you might want to look into, pay a little more attention.’”

When asked how parents react to the feedback, PEs’ responses were similar in that parents generally say “okay” and not much more. They are “happy to hear the positives.” If the PE is

telling them to work on a certain skill that was absent, the parent might say they thought they were doing it. But overall it seems the reactions are brief. One PE said, “I’ve never had anybody ask a follow-up question, when I tell them how they did, you know. Pretty much it’s just, okay, you know, and that’s it.”

And, as one PE pointed out, “you can’t guarantee that they’re gonna always listen to you.” They gave a number of reasons why parents might not incorporate PE feedback into their parenting practices. Parents may be used to the way they do things and changing that is hard. For example, one mom wanted to be more playful like the child’s dad is, but it is not her personality. Or, “It’s their parenting style. The way they always do stuff... and until they’re ready to change or make a change, there’s nothing you’re gonna say that’s gonna make them.” Some parents, one PE said, may not value the child’s education and thus may not see the value in their own parenting skills. For other parents, their circumstances may impact their ability to focus on improving the areas the PE has pointed out. PEs mentioned that things happening in the parent’s neighborhood may be chaotic and stressful, and/or the parent may be dealing with mental health issues. Many parents also face time constraints: “Sometimes it’s hard to find the time to be a mom since you have to like pay the bills and make sure that everything is okay.”

There seem to be some circumstances in which PEs use the PICCOLO results to shape what they do in future visits. For example, when a parent has multiple children and scores are different for their interactions, the PE might prepare activities for the parent to do with the child with whom the parent’s score was lower. In general, however, PEs said the PICCOLO results do not change the way they work with the family: “The parent interaction is always a part of the visit, so we continue to keep doing it, we are always doing it.”

Perceptions about the PICCOLO assessment

To close up the focus group discussion, the facilitator asked PEs what they and parents like or find useful (or dislike/find less useful) about the PICCOLO. From the parent perspective, it seems that a few—“the ones who are really into their kids”—like the videos and want them after the observation is over. One mom liked it because she had never had anyone record her with her child. Another liked the positive feedback: “They didn’t know that they were good at teaching their children or they were really good at engaging in play. Someone complementing specifically, that was a good thing.” But PEs noted that parents also disliked being recorded, because they don’t like how they may look on camera, and because part of the recording process is that PEs are observing and not interacting with the parent and child.

As noted above, PEs tended to have strong feelings about video recording the parent-child activity. They cited the amount of time spent watching each video for scoring, difficulty using the iPads, and the awkward conversation with parents when they explain the process of the PICCOLO observation. When one PE mentioned they would get more participation if they did not record, another responded that they are allowed to do the observation without video. This seemed to confuse other PEs:

“I mean, we’re allowed to do the observation without the video, so...”

“We are? I didn’t know that.”

“I mean we did have a training for it but a lot of you guys weren’t there. We can do observations without the video.”

“We just met with our staff meeting a month ago and said absolutely not.”

“Well when we were in the training we were told we can do observations without the video.”

“The trainer said that to you guys?”

“I’m pretty sure. You didn’t do it there in their home, you just made observations and you did those scoring on your own without the use of the video.”

“It may have changed.”

“If we can do it that way, I think it will be so much useful for the family to give them immediate feedback. Because when we go back next time, they don’t remember how they did or what they did. I think that would be very useful for them.”

Another PE agreed, saying the current process of just watching (“doing nothing”) while she is recording could be more productive if she was able to start recording her observations during the interaction.

There are also certain scenarios where the PICCOLO is more difficult to administer. One is with new families. It’s easier to get families they’ve worked with for a while to consent to the PICCOLO because they have established a rapport with the parent and feel the parent trusts them. One PE told a story of a family for whom the PICCOLO would have happened on the second visit. She said, “I could tell they were uncomfortable and I was like “well if you’re uncomfortable, we don’t have to” and then they kind of got through that visit and that was the end of it.” The family did not respond to her follow-ups for the next visit and ended up closing. Having just met them and then wanting to videotape was too much. PEs said they like the set times of the year, but suggested waiting a few months, perhaps the fourth or fifth visit for families who enroll right before the PICCOLO is administered.

The situation where PEs said it is difficult to administer the PICCOLO is in families with multiple children. The parent is observed and assessed interacting with each child, and it can be difficult to keep other children busy and away from their parent for those 10 minutes. Moreover, the PE has to actually conduct the assessment with each parent-child pair in the two-month period. When there are three or four children, PEs say “it’s a lot” because there is “so much other stuff to do.”

One limitation PEs noted had to do with the PICCOLO instrument itself, namely the lack of a “not applicable” category. There are times that items on the assessment don’t apply to kids at certain ages or to the activity the parent and child are doing—for example, one PE mentioned the “following steps” item⁴, saying “There are no steps to [the activity]. I get that a lot.” In those instances where the PICCOLO item doesn’t apply, the PE marks the item “absent” which brings down the parent’s overall score.

When asked about the usefulness or other positive aspects of the PICCOLO, PEs had less to say than they did about its limitations. One PE reiterated that it “forces” some parents to interact with their children, which the PE otherwise has a hard time getting the parent to do. Sometimes these cases where the parent is resistant end up helping the parent see the value of playing

⁴ This is an item on the Teaching domain that looks at whether parent “does activities in a sequence of steps.”

with their child or boosts their confidence that they can do it. These types of examples or stories were told by PEs less commonly than stories about the difficulties with the PICCOLO.

Summary and Conclusions

This report has detailed the first year of the PICCOLO assessment in the Parents As Teachers program: first through a quantitative evaluation examining the extent to which parents improved their positive parenting skills, as measured by the PICCOLO, and second through feedback from a focus group with Parent Educators on their experience implementing the PICCOLO. Key findings emerged from both studies.

Results from the quantitative evaluation showed that, in general, parents scored fairly high on all four domains of the PICCOLO at both the first and the most recent assessments. Average scores were highest on the Affection domain and lowest on the Teaching domain, with Responsiveness and Encouragement scores falling between the two. When comparing the scores from participants' initial assessment to their most recent assessment, PAT participants made modest, yet statistically significant improvements on the Responsiveness and Teaching domains (5% and 7% gains, respectively).

These findings suggest that skills measured on the Affection and Encouragement domains, such as displaying warmth and positive expressions toward their child, may come more naturally to parents, while responding sensitively to a child's needs (Responsiveness) and engaging in conversations and shared play (Teaching) are more "teachable" skills that the PAT program effectively helps parents develop.

It is important to note that the high initial assessment scores and the modest gains on only two of four domains may be due in part to the high number of PAT lessons participants had already received. Thus, these skills may have already been honed before parents were first observed with the PICCOLO. The rollout of the PICCOLO in PAT programs required all eligible families to be assessed, including those who had been enrolled for months or years. Given their prior exposure to the program, the initial assessment should not be interpreted as a true pre-test. As PAT continues to assess families as they enroll, first assessment scores will serve as a better pre-test because they now capture parents' skill levels before they benefit from working with the Parent Educators. A future evaluation with these families will provide a clearer picture of where parents' skills lie in each of the PICCOLO domains as they begin PAT, and may show more substantial gains when the entirety of their participation is reflected.

Another key finding from the quantitative evaluation is that the gains observed in the sample as a whole were driven by key subgroups of participants. For example, Black parents, but not white or other-race parents, demonstrated significant increases in their Responsiveness and Teaching scores. The same was true of parents who received a higher "dose" of visits (more than 12) between assessments. Parents who reported experiencing three or more stressors made significant gains on the Responsiveness, Encouragement, and Teaching domains, but their lower-stress counterparts did not. And, the largest gains on all four domains were observed among participants who scored below-average on their first PICCOLO observation. It remains to be determined why these groups made gains but their counterparts did not, especially with regard to race. However, they do show that retention seems especially important for the subgroups of participants who are benefiting most from the program.

In addition to showing how participants improved from their first to most recent assessment, the analysis also revealed differences between participants by race: on the first assessment, the average scores for Black and other-race participants was significantly lower than scores for white participants. This difference was not explained by white participants reporting fewer stressors at enrollment. When this finding was brought to the PAT Advisory Council, one staff person suggested that the difference could, in fact, reflect different stress levels that are not captured in the enrollment process, either because Black participants are less likely to report struggles or because the stressors PAT asks about do not fully capture the universe of stressors participants of color face—for example, systemic and everyday racism. There may be additional explanations for the difference that are not captured in the PAT data. PAT program administrators may want to explore this pattern to better understand the race disparity at the first time period, and monitor data by race moving forward.

This evaluation also summarized the experience of implementing the PICCOLO in the first year, as told by Parent Educators in a focus group discussion. The PEs described how they get buy-in from parents to record the interaction, ways the interaction is shaped by the observation, the scoring process, and how they share feedback with the parents. Much of the discussion centered on the recording component of the PICCOLO observation. There were many examples of instances where parents were not comfortable with being recorded and of ways to address the concerns parents expressed. However, PEs said that most participants consented, and it was less frequent that parents refused to be recorded. The PEs also noted a sort of Hawthorne effect where, in many cases, the act of the observation and recording influenced how parents interacted with their children. Despite the challenges PEs reported around recording the parent-child interactions, and their description that the scoring is getting easier the more they do it, they also noted that having the videos is helpful for later review with supervisors.

There were a few moments in the focus group where uncertainty about PICCOLO protocol arose; these may support quantitative findings about PE- and agency-level differences in participant scores. One point of uncertainty came up during the discussion about how they share the results of the assessment with parents. When asked if they show the video to the parent at the next visit, there was some confusion about whether they *should* be doing that. Another point of uncertainty involved the question of whether the PEs can conduct the observation without recording it. In the quantitative evaluation, the results showed significant variation in scoring across agencies, and even more so across PEs. It is possible that the confusion around protocol is unrelated to the PICCOLO score differences by agency and PE, and that these variations reflect differences in the populations served by agencies and PEs. Alternatively, there may be differences in program delivery, training, staff turnover, or amount of time the PE has spent in the job that explain the confusion described above and the agency- and PE-level differences in the quantitative scores.

In sum, the findings presented here suggest that there are areas in which the delivery of the PICCOLO can be refined. One step already in progress is assessing families as they enroll in the program, which will provide a clearer picture of how their parenting skills improve while in PAT. Program administrators may also consider ongoing training or refresher sessions for all PEs, ideally with PEs from different agencies together in the same session. Implementing these ongoing trainings may mean there is less time to focus on continuing education or training in other areas. However, they would help clarify protocol and provide more opportunity for PEs to share best practices around implementing the PICCOLO, and in turn make sure the PICCOLO

is delivered consistently and is valid in assessing positive parenting skills. Future research could incorporate parents' perspectives on their experience in the program generally and with PICCOLO observations specifically, which may help program staff and administrators better understand how this assessment tool supports parents' development in the PAT program.

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Appendix A: Focus group protocol and questions

Introductory Script:

Welcome and thank you for agreeing to participate in this focus group discussion! We recognize that as the people who are connecting directly with families and conducting assessments, you are in the best position to provide insight into the participants, how the program works on the ground, and how the Parents As Teachers program can respond. Today we would like to hear from you about your experience administering the PICCOLO assessment. We hope that you feel comfortable sharing and we'd like to ask that we all agree to maintain the confidentiality of what is said today during this focus group. We will not be audio recording our discussion.⁵ We are just going to take notes. We will not write down who says what in my notes. Your names will not be associated with anything you say today. After today's discussion, we will write a document summarizing what's been shared during this conversation. This document will be shared with Parents As Teachers program staff and the Cuyahoga County Office of Early Childhood. Do you have any questions before we get started?

[Answer any questions Parent Educators have.]

Okay, great, let's get started.

As you know, the Parents As Teachers began using The Parenting Interactions with Children: Checklist of Observations Linked to Outcomes, or PICCOLO, assessment last year. The Parents As Teachers staff are interested in hearing how that process has gone on-the-ground.

1. How do you introduce PICCOLO to families for the first time?
 - a. *Prompts if needed:* How do you describe it? Its purpose? What to expect?
2. How do families react when you explain the PICCOLO to them?
 - a. *Prompt if needed:* Are there common questions/concerns?
3. Tell us about the process of observing the interaction and scoring the PICCOLO.
 - a. *Prompts if needed:* Do you find it more objective or subjective? Does it become easier/quicker over time? Do you review some videos with your supervisor? If so, it is helpful?
4. Do you share the results with the family? How do you frame that conversation?
 - a. *Prompts if needed:* Do you show them the scores? Do you show them video clips? How do you talk to parents about behaviors clearly observed? Barely observed? Absent?
5. How do families react to the PICCOLO scores?
 - a. Do they seem interested? Are they offended or put off? Do they ask questions?

⁵ We did record for note-taking purposes and received confirmation from all participants that this was okay.

6. After you've done a PICCOLO observation, does it change how you work with the family? If so, how? If not, why not?
 - a. *Prompts if needed:* Do PICCOLO results impact the planning of activities? The planning of visit topics? Why or why not?
7. What do you think families like or find useful about the PICCOLO? What do they dislike about the PICCOLO or find less useful?
8. What about you – what do you like or find useful about incorporating the PICCOLO into this program? What do you dislike or find less useful?