

Parent Possible 2017 Parents as Teachers (PAT) Evaluation

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Parent Possible

2017 Parents as Teachers (PAT) Evaluation:

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Executive Summary

Parent Possible (formerly Colorado Parent & Child Foundation) equips parents of young children with the tools and information to be their child’s most valuable teacher, trainer and mentor in life. The organization promotes and oversees the delivery of three evidence-based parent¹ engagement programs, providing access and support, ensuring efficacy and impact, and advocating and collaborating with early childhood partners across the state. Parent Possible is the state office for Parents as Teachers (PAT), Home Instruction for Parents of Preschool Youngsters (HIPPY) and Vroom, working with program sites across urban and rural communities throughout Colorado to ensure quality program delivery and success.

Each year, Parent Possible conducts an evaluation of the PAT and HIPPY programs. Evaluation tools include a parent survey, an assessment of parent-child interactions and a child assessment of school readiness. Data from these instruments are analyzed to describe families served by PAT and HIPPY, and to examine changes in parenting practices and family protective factors, the quality of parent-child interactions, and children’s school readiness.

This report includes details regarding the methodology and measures used for data collection, approaches taken for data analysis, and findings for PAT participants. Key findings are highlighted below.

KEY FINDINGS

PAT program sites were successful in providing services to vulnerable Colorado families.

- Of those who completed the PAT parent survey, many were low income, with 57% living in poverty and 24% living in extreme poverty.
- PAT program sites also served minority families, with 62% reporting Hispanic ethnicity and 48% reporting Spanish as their primary language in the home.

Parents are highly engaged in interactive reading behaviors with their children and report strong knowledge of developmentally appropriate parenting practices.

- Parents report strong protective factors with mean scores on the four Protective Factors Survey subscales all above 5.5 (out of 7).
- Parents are routinely participating in interactive reading behaviors. Many parents reported they are reading with their children every day and the majority reported they have a designated time for reading with their children.

¹ Throughout this report, the term “parent(s)” will be used to reference any caregiver who participated in this program.

- Parents are performing a wide range of literacy activities, especially parents with children under 2 years old.
- Parents reported “quite a bit” of knowledge increase due to participation in the PAT program on all parenting practices items. Parents also demonstrated high levels of knowledge in child development.

At pre- and post-test, parent educators observed parents using developmentally appropriate parenting behaviors when interacting with their children.

- At post-test, more than 65% of parents were exhibiting above average interactions with their children in all domains (affection, responsiveness, encouragement, and teaching).
- Although parent mean scores increased in every domain (except Affection) and the Total PICCOLO Score from pre- to post-test, these changes were not statistically significant.

From pre- to post-test, children demonstrated significant increases in school readiness.

- Children significantly increased their percentile ranks from pre- to post-test. On average, at post-test, participating children were performing better than 56% of their same-aged peers in overall school readiness.
- At post-test, 22% of children were performing at the advanced or very advanced level in overall school readiness.
- Children also significantly increased their scores from pre- to post-test in every domain (colors, letters, numbers/counting, sizes, and shapes).

Introduction

PARENT POSSIBLE

Parent Possible (formerly Colorado Parent & Child Foundation) equips parents of young children with the tools and information to be their child's most valuable teacher, trainer and mentor in life. The organization promotes and oversees delivery of evidence-based parent engagement programs Parents as Teachers (PAT), Home Instruction for Parents of Preschool Youngsters (HIPPY), and Vroom. Parent Possible provides access and support, ensures efficacy and impact, and advocates and collaborates with early childhood partners across the state. A full report of Parent Possible HIPPY program sites has been provided in a separate report.

PARENTS AS TEACHERS (PAT)

PAT is an evidence-based early childhood program that includes home visits, group meetings, health and developmental screenings, and development of resource networks. Parent educators utilize the PAT curriculum to promote positive parent-child interaction from pregnancy through kindergarten. The PAT curriculum is designed to increase parent knowledge of childhood development, improve parenting practices, provide early detection of developmental delays and health issues, prevent child abuse and neglect, and increase children's school readiness and school success.

Research on the PAT program has shown positive impacts for parents and their children. Specifically, parents involved in the program were more likely to promote reading in the home after participation (Albritton, Klotz, & Roberson, 2004; Pfannenstiel, Seitz, & Zigler, 2002; Zigler, Pfannenstiel, & Seitz, 2008). In addition, parents demonstrated significant improvements in parent knowledge, parenting behavior and parenting attitudes (Owen & Mulvihill, 1994; Pfannenstiel & Selzer, 1985, 1989; Wagner, Spiker, & Linn, 2002).

Methods

This evaluation uses a robust set of tools to measure parenting practices, family protective factors, parent-child interactions, and associated outcomes in children's school readiness. This section includes a description of each tool, details regarding data collection processes, and the statistical analyses conducted for each assessment.

MEASURES

At most program sites, parent educators conducted a Parent Survey, an assessment of parent-child interactions (PICCOLO), and a measure of children's school readiness (Bracken – BSRA - 3). Each of these is described in detail below.

Parent Survey

In 2017, Parent Possible contracted with OMNI Institute to provide recommendations for revisions to its PAT Parent Survey. OMNI conducted a literature review of available tools and resources to help inform the revisions and Parent Possible staff and its Evaluation Task Force provided input and feedback on the revised tool. The revised PAT Parent Survey is a 52-item measure that has three sections: The Protective Factors Survey; questions specific to engagement in Interactive Reading Behaviors and Frequency of Literacy Activities; and questions about Knowledge of Parent Practices and Knowledge of Child Development. Parents complete the survey in English or Spanish and complete the questions referring to the oldest child enrolled in PAT.

The revised PAT Parent survey is designed to be administered at the beginning and end of each year so that within-person change can be examined (except for the retrospective items on parental knowledge gains attributed to the program that are administered at post only). However, 2017 is a transition year and the tool was administered only in the spring. As such, results presented in this report are from a single post-only administration of the tool. In 2018, the PAT Parent Survey will be administered at the beginning and end of the year. Each section of the tool is briefly described next.

The Protective Factors Survey (PFS) is an evidence-based tool that measures protective factors in five areas: Family Functioning/Resiliency (5 items; 1-7 scale), Social Support (3 items; 1-7 scale), Concrete Support (3 items; 1-7 scale), Nurturing and Attachment (4 items; 1-7 scale), and knowledge of parenting/child development (5 items; 1-7 scale). Items in the first four areas are combined into scales and items assessing knowledge of parenting/child development are analyzed at the individual level. Cronbach's alpha for each of the scales were as follows: Family Functioning/Resiliency = .88, Social Support = .87, Concrete Support = .82, and Nurturing and Attachment = .70. The PFS was developed by the FRIENDS National Center for Community-

Based Child Abuse Prevention and was analyzed following the guidance published by the FRIENDS National Center.²

To assess Frequency of Literacy Activities, parents were asked to rate how frequently they participate in literacy activities with their children on a scale of 1-6, with higher scores indicating more frequent behavior. Parents with children 2 years or older had additional literacy activity questions that covered activities appropriate for older children only. Scores on literacy activities were added together to create two composite scores: literacy activities for children under 2 years old (e.g., sing songs, tell stories - 3 items in scale - 0.78 alpha coefficient) and literacy activities for children 2 years old and older (e.g., talk about and draw the letters of your child's name - 3 items - 0.83 alpha coefficient).

To assess engagement in Reading Activities, parents with children 2 years or older were asked to rate how often they performed a series of behaviors while reading with their child on a scale of 1-5, with higher scores indicating more frequent behavior (e.g., let your child turn the pages as you read together; point to the words as you read; and have your child identify objects in the pictures). Scores on these items were added together to create a composite score for Reading Activities (9 items in scale - 0.87 alpha coefficient).

To assess increases in Knowledge of Parenting Practices attributed to the PAT program, parents were asked to rate how much the PAT program increased their knowledge about several items on a scale from 1-4, with higher scores indicating a larger increase in knowledge (e.g., how to use good parenting practices; positive discipline techniques; and where to find resources to support you as a parent). The items were combined into a Parenting Practices scale (8 items in scale - 0.90 alpha coefficient).

To assess Knowledge of Child Development, parents were asked to rate how much they agreed with six items on a scale of 1-5, with higher scores indicating more agreement (e.g., children are learning from the moment they are born; and children's experiences before age three will affect their ability to do well in school). Two items were reverse coded so that higher mean scores for all items reflect higher parent knowledge.

Scale and item means are reported in the Findings section.

Parent-Child Interactions Assessment (PICCOLO)

The PICCOLO (Parenting Interactions with Children: Checklist of Observations Linked to Outcomes) is a strengths-based measure of parenting interactions that has been found to predict children's early social, cognitive, and language development.³ The tool is a checklist of 29 observable, developmentally supportive parenting behaviors for parents or guardians of children

² http://friendsnrc.org/jdownloads/attachments/pfs_user_manual_revised_2012.pdf

³ Roggman, L. A., Cook, G. A., Innocenti, M. S., Jump Norman, V., Christiansen, K., & Anderson, S. (2013). Parenting interactions with children: Checklist of observations linked to outcomes: PICCOLO User's Guide. Baltimore, Maryland. Paul H. Brookes Publishing Co., Inc.

ages 10-47 months. For this evaluation, however, the tool was administered to children up to 6 years old. A review of preliminary findings by the developers suggests that the tool can be used for children older than 47-months. The developers are currently working on validating the tool for older children. Parent educators completed the PICCOLO in the parents' preferred language, either English or Spanish.

To complete the assessment, parent educators observe caregivers while they engage in a 10-minute activity of their choice (e.g., shared reading, playing with toys, cleaning up) and record the frequency of each of the 29 behaviors on a scale of 0 to 2 (0 = behavior not observed at all; 1 = behavior barely present; 2 = behavior clearly present). The number of observed parenting behaviors are added to create four subscales, with higher scores indicating more developmentally supportive parenting. The four subscales include: Affection (14 items in scale)– characterized by warmth, physical closeness, and positive expressions toward child; Responsiveness (14 items in scale)– characterized by responsiveness to child's cues, emotions, words, interests, and behaviors; Encouragement (14 items in scale)– characterized by active support of child exploration, effort, skills, initiative, curiosity, creativity, and play; and Teaching (16 items in scale)– characterized by shared conversation and play, cognitive stimulation, explanations, and questions. In addition to these subscales, each of the 29 item scores are added to create a Total PICCOLO Score.

Higher domain scores indicate more developmentally supportive parenting behaviors and should be interpreted as parent strengths. Lower domain scores may indicate that the parent and child are having difficulty interacting in ways that support the child's development and are associated with poor performance on measures of children's language, social, and cognitive development. In the Findings section, this report includes scale and item means as well as proficiency cutoff scores (below average, average, and above average) designated by PICCOLO developers based on studies using the tool with diverse, low-income samples (Roggman et al., 2013).

Prior to administration of the tool, parent educators were required to study the PICCOLO items and coding guidelines provided for each item, watch The PICCOLO Training DVD: Implementation and Scoring (Roggman, Cook, Innocenti, & Jump Norman, 2013), and practice scoring by watching video clips of parent-child interactions. Parent educators also completed a PICCOLO quiz and participated in a follow-up webinar training provided by Parent Possible.

Parent Possible piloted the PICCOLO in 2016-2017 with only program sites receiving Maternal, Infant, and Early Childhood Home Visiting (MIECHV) funding. All PAT and HIPPIY sites will be using the PICCOLO beginning in the 2017-2018 program year.

Child School Readiness Assessment (Bracken)

The BSRA-3 is a validated school readiness assessment that measures children's skills in five areas: Colors (color recognition), Letters (letter recognition), Numbers (numbers and counting), Sizes (size comparisons), and Shapes (shape recognition) (Bracken, 2007). The BSRA-3 is

appropriate for children aged 36- to 83-months-old, and is administered by asking children to point to pictures in response to examiner questions. The BSRA-3 is offered in both Spanish and English.

Prior to administration, all Parent Educators were required to attend an all-day training to become familiar with the administration and scoring of the tool. Pre-assessments were administered on all enrolled children over age 3 in the fall between September 1, 2016 and October 31, 2016. Post-assessments for these children were administered in the Spring between March 1 and April 30, 2017 with no less than 3 months between pre-and post. Pre-assessments for children newly enrolled or those not yet 3 during the first pre-assessment period were assessed within 90 days of their enrollment or within 90 days of their 3rd birthday. Post-assessments were administered no less than 3 months following pre-assessments and occurred in the Spring between, March 1 and April 30 (or will occur in the Fall between September 1 and October 31).

Percent mastery scores are presented for pre- and post-tests on each of the 5 domains and reflect the mean percentage of correct responses in that domain. For example, an 80% in the Colors domain indicates that, on average, children named 80% of the colors correctly. The domain areas are not adjusted for age, thus do not necessarily account for typical child development over time. However, since all analyses are conducted with a matched sample, subtest scores are a strong indicator of growth and learning in a specific area over the course of a year.

In addition, raw scores from each domain (i.e., the number of correct responses given by the child) are added together to create a School Readiness score for each child. School Readiness scores are then weighted based on the child's age to provide a School Readiness Percentile Rank score. The percentile rank score indicates how a child scores relative to other same age peers. For example, if a child scores in the 30th percentile, he or she scored better than 30% of other same-aged children. The mean School Readiness Percentile Ranks are included in the Findings section at both pre- and post-test.

Finally, mean proficiency level scores, which are based on chronological age and indicate whether a child is considered very delayed, delayed, average, advanced, or very advanced in school readiness, are also included for the School Readiness scale.

DATA COLLECTION

Parents completed the PAT surveys on paper and then returned them to their parent educator. Parents were offered the opportunity to complete the survey in Spanish or English. All surveys were identified using only a unique ID number to ensure confidentiality. Surveys were scanned by Parent Possible using Remark software and provided to OMNI for analysis.

STATISTICAL ANALYSES

For the PAT parent surveys, scale and item means were calculated and reported. In addition, the means of each of the individual items are reported. Independent sample t-tests and chi-square analyses were conducted on 10 parent survey items/scales to determine any differences based on two demographic factors: family income and parent's preferred language.

For the PICCOLO assessment of parent-child interactions, four mean scale scores and Total PICCOLO Scores are reported for both pre- and post-tests. Paired-samples t-tests were conducted on mean scores for each of the four subscales and for the Total PICCOLO Scores to determine whether parents increased developmentally appropriate parenting behaviors from pre- to post-test.

Multivariate tests (general linear models measuring between-subject and within-subject effects) were conducted to evaluate whether parents' PICCOLO scale scores differed based on one demographic variable: family income. Two tests were conducted for this demographic:

1. Was there a significant difference **between groups in their mean scores** at pre- and post-test (i.e., did one group score higher than the other, on average, at pre- and post-test)?
2. Was there a significant difference **between groups in their change in score** from pre- to post-test (i.e., did one group demonstrate greater growth from pre- to post-test)?

For the BSRA-3 School Readiness Assessment, the percentile rank scores for each of the 5 subscales and for the School Readiness scale are reported for both pre- and post-tests. Changes in scores from pre- to post-test were analyzed using paired-samples t-tests.

Multivariate tests (general linear models measuring between-subject and within-subject effects) were conducted to evaluate whether children's Bracken scale scores differed based on two demographic variables: family income and parents' preferred language. Two tests were conducted for each demographic:

1. Was there a significant difference **between groups in their mean scores** at pre- and post-test (i.e., did one group score higher than the other, on average, at pre- and post-test)?
2. Was there a significant difference **between groups in their change in score** from pre- to post-test (i.e., did one group demonstrate greater growth from pre- to post-test)?

Findings

PARENT SURVEY

1,129 families across 25 program sites completed the PAT Parent Survey. Table 1 shows the distribution of surveys completed across participating PAT program sites.

Table 1. Survey Responses by Program Site

Program Site	# of Surveys	Percent of Total Analysis
Arapahoe County Early Childhood Council	19	1.7%
Boulder County Housing & Human Services	24	2.1%
Bright Futures for Early Childhood and Families	17	1.5%
Catholic Charities Diocese of Pueblo	172	15.2%
Delta Family Center	8	.7%
Divide Community Partnership Family Center	28	2.5%
El Paso County Family Resource Center	7	.6%
Estes Valley Investment in Childhood Success	12	1.1%
Family Development Center - Newborn Network	18	1.6%
Family & Intercultural Resource Center	131	11.6%
Family Star Montessori	38	3.4%
Florence Crittenton	5	.4%
Focus Points Family Resource Center	60	5.3%
Growing Home	237	21.0%
Hilltop Family First	30	2.7%
La Familia - The Family Center	52	4.6%
La Llave Family Resource Center	66	5.8%
La Plata Family Centers Coalition	11	1.0%
Metropolitan State University of Denver	31	2.7%
Mountain Resource Center	32	2.8%
North Range Behavioral Health - Family Connects	6	.5%
The Piñon Project	6	.5%
Rocky Mountain PAT (a program of Family First)	39	3.5%
Starpoint First Steps	39	3.5%
Tri County Family Care Center	41	3.6%
TOTAL	1,129	100%

FAMILY CHARACTERISTICS

PARENT AGE AND FAMILY SIZE

Table 2 displays the age distribution for participating parents. Parents' mean age was 32.8 years (SD = 7.28), with a range of 15 – 62. On average, families consisted of 4.2 (SD = 1.39) people.

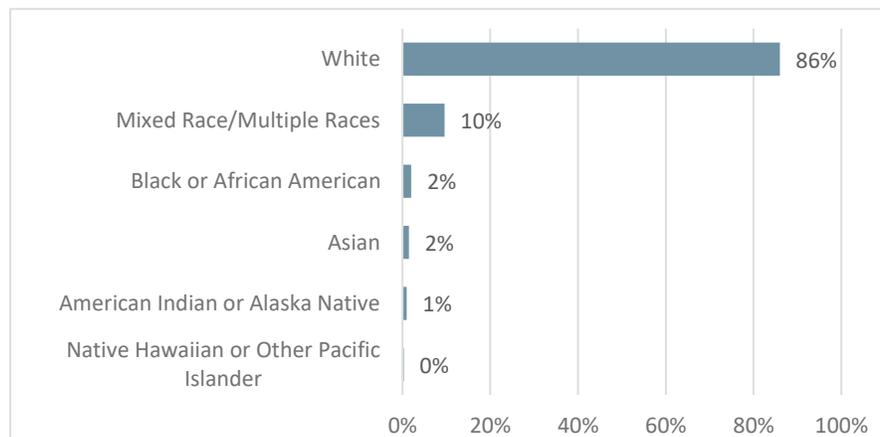
Table 2. Parent Age

AGE	SAMPLE SIZE	PERCENT
Under 18	10	0.9%
18-24 years old	153	13.6%
25-34 years old	562	49.8%
35-44 years old	354	31.4%
45 years or older	49	4.3%

RACE & ETHNICITY

Figure 1 displays the race distribution for participating parents. Most parents reported their race as White (86%) and 62% reported Hispanic or Latino ethnicity.

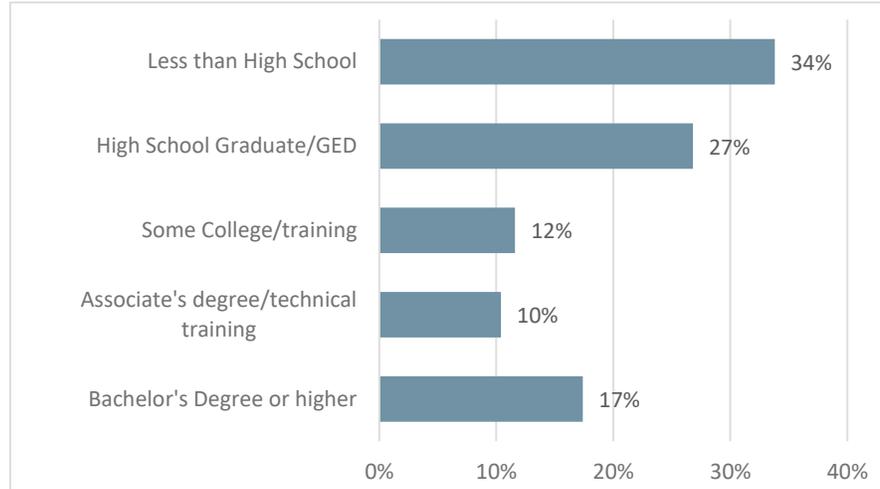
Figure 1. Parent Race



PARENT EDUCATION LEVEL

Figure 2 shows the education level distribution of participating parents. One-third of parents had not completed high school, 27% have a high school diploma or GED, 12% report some level of college completion, 10% have completed an Associate's degree or technical training, and 17% have completed a Bachelor's degree or higher.

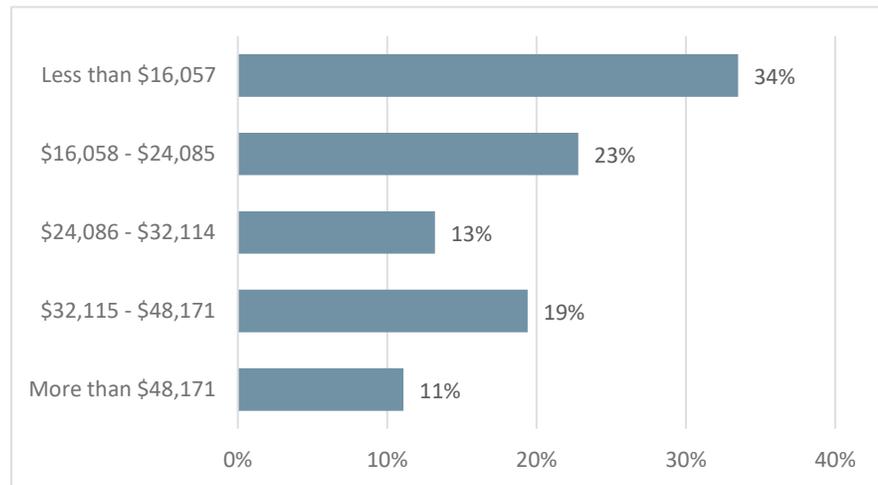
Figure 2. Parent Education Level



HOUSEHOLD INCOME

Figure 3 shows the household income distribution for participating families. One-third of families reported an annual income of less than \$16,057 (34%), which is equivalent to 65% of the Federal Poverty Level (FPL) for a family of four.

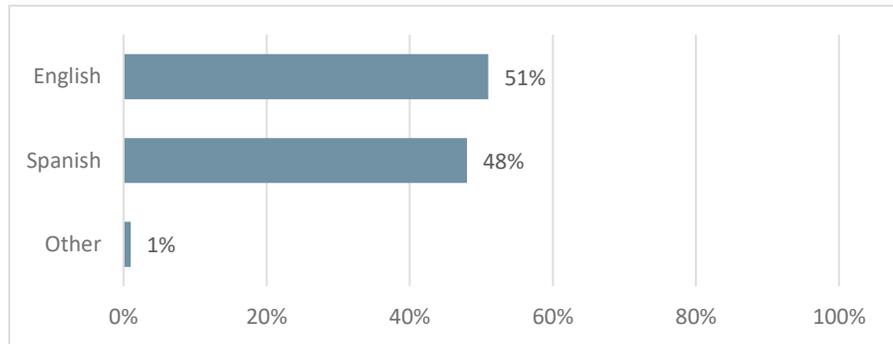
Figure 3. Household Income



57% of participating families are living in poverty (living at or below 100% of FPL, which is equal to \$24,600 for a family of four), and 24% are living in extreme poverty (living at or below 50% of FPL, which is equal to \$12,300 for a family of four).

PARENT PRIMARY LANGUAGE **Figure 4. Parent Primary Language**

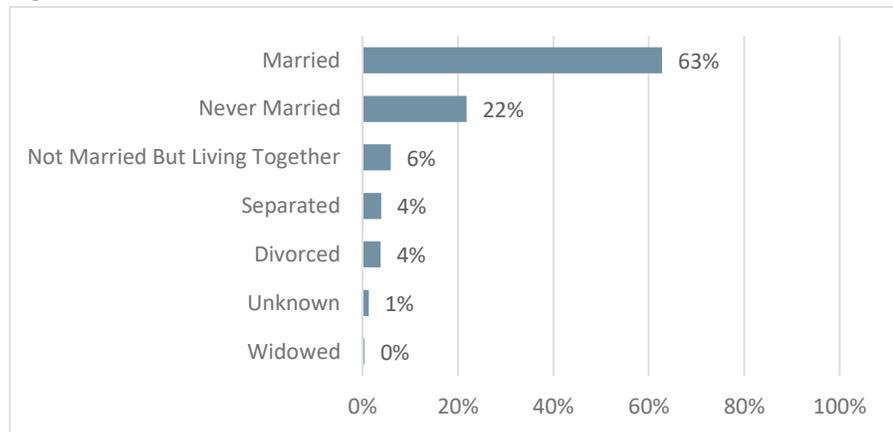
Figure 4 shows the primary languages spoken by participating parents. Most parents reported primarily speaking English in the home (51%), followed by Spanish (48%).



PARENT MARITAL STATUS

Figure 5 shows the distribution of marital statuses of participating parents. Most parents reported their marital status as “married” (63%), followed by “never married” (22%), and “not married but living together” (6%).

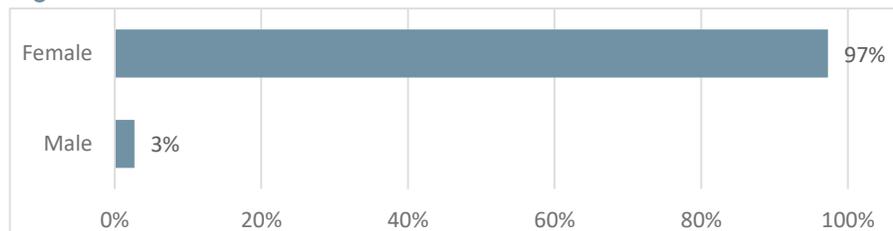
Figure 5. Parent Marital Status



PARENT GENDER

Figure 6 shows the gender distribution among participating parents. Nearly all participating parents were female (97%); 3% were male.

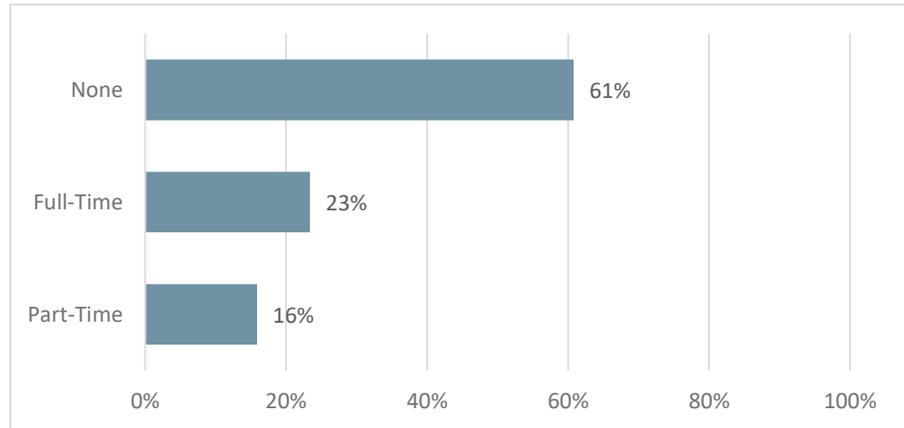
Figure 6. Parent Gender



PARENT EMPLOYMENT STATUS (BASED ON HOURS WORKED)

Figure 7 shows the employment statuses of participating parents. Over half of parents did not work at all (61%), 16% worked part-time (defined as 1-39 hours per week), and 23% worked full-time (40 or more hours per week).

Figure 7. Parent Employment Status (Based on Hours Worked)



PROTECTIVE FACTORS SURVEY (PFS)

The Protective Factors Survey (PFS) is a 20-item measure designed for use with parents receiving prevention services such as home visiting, parent education, and family support. The PFS measures parental protective factors in four domains, as well as knowledge of child development and parenting.

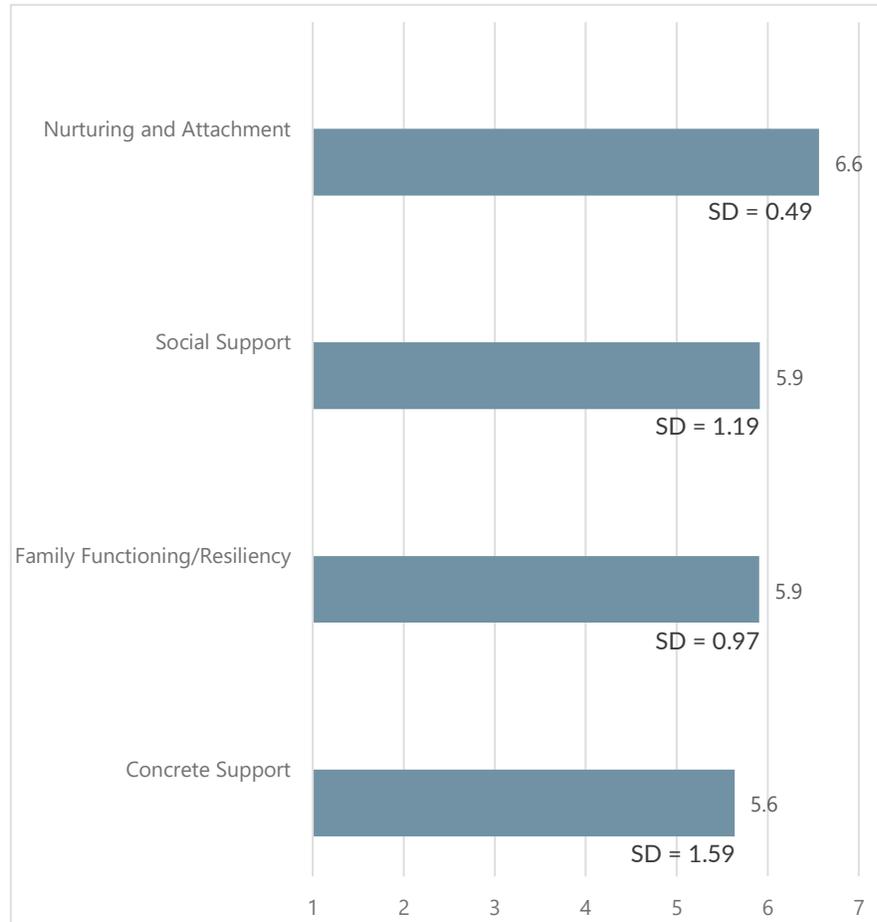
PROTECTIVE FACTORS

Four subscales of protective factors are derived from the PFS:

- Family functioning and resiliency
- Social support
- Concrete support
- Nurturing and attachment

Figure 8 shows the means and standard deviations of each subscale. Overall, parents report strong protective factors in all areas. Parents reported the strongest protective factors on Nurturing and Attachment followed by Social Support.

Figure 8 Protective Factors Subscales – Mean Scores and Standard Deviations

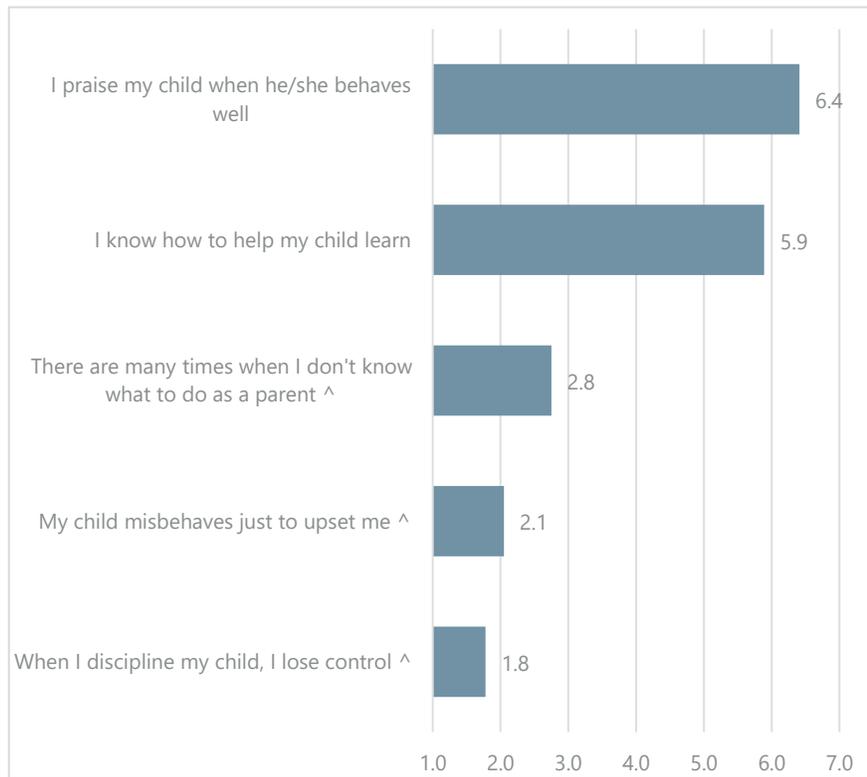


KNOWLEDGE OF PARENTING/CHILD DEVELOPMENT

For these five statements, parents were asked either how much they agreed with each statement (scale of 1-7 with 1 indicating “strongly disagree” and 7 indicating “strongly agree”), or how frequently the described situation occurs in their family (scale of 1-7, with 1 indicating “never” and 7 indicating “always”).

Mean response values for each question are shown in Figure 9. For items marked with a “^”, lower scores indicate stronger protective factors.

Figure 9. Mean Scores on Knowledge of Parenting/Child Development Items



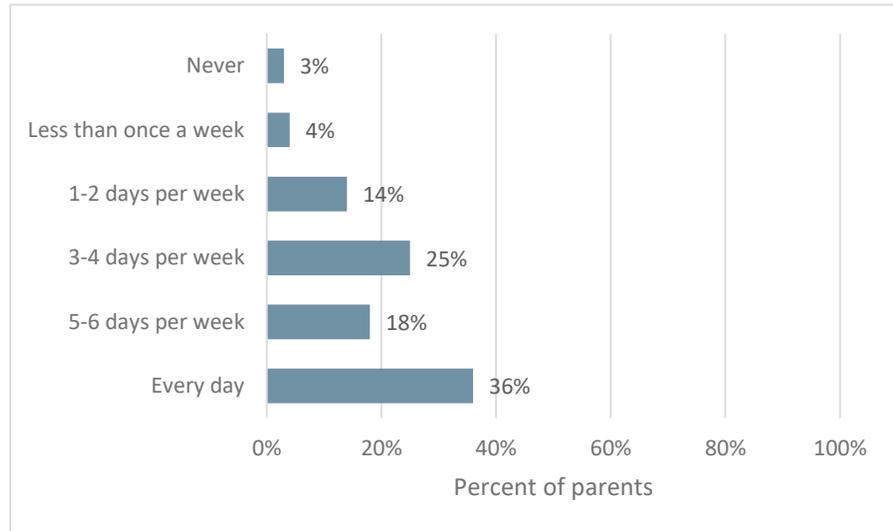
PARENT PRACTICES

FREQUENCY OF AND DESIGNATED TIME FOR READING WITH CHILD

More than one-third (36%) of parents report that they or someone else in their household reads or looks at books with their child every day.

The majority of parents (68%) reported that they or someone else in their household have a designated time for reading with their child.

Figure 10. Frequency of Reading with Child



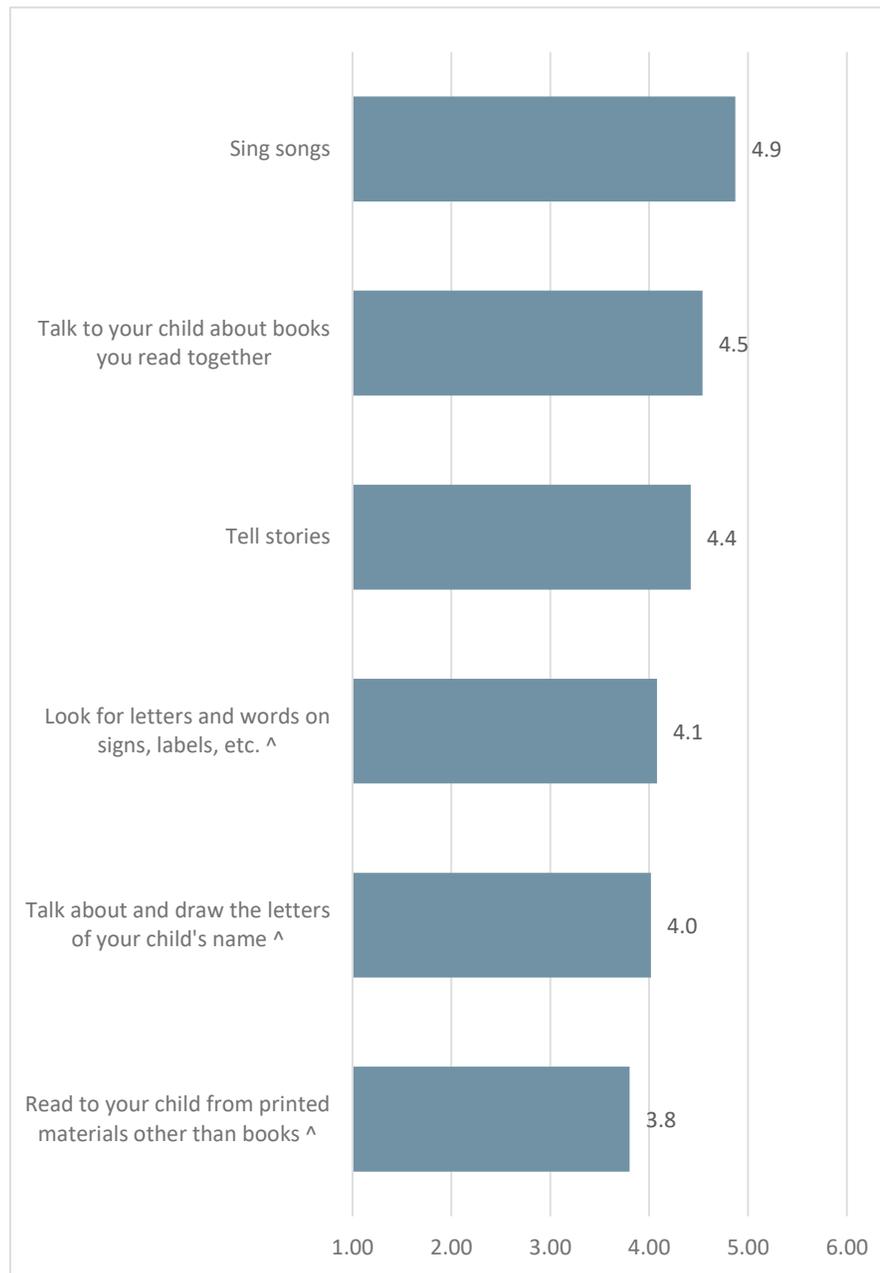
FREQUENCY OF LITERACY ACTIVITIES

Parents were asked to indicate how frequently they participate in each of these literacy activities with their child on a scale of 1-6, where 1 = never and 6 = every day.

Since some activities were not appropriate for children under 2 (those noted with a “^”), the literacy activity items were combined into two Frequency of Literacy Activities scales, each with a range of 3-18: activities for children under 2 years old and activities for children 2 years old and older.

The mean Frequency of Literacy Activities score for activities for children under 2 years old was 13.86 (SD = 3.35). The mean score for Frequency of Literacy Activities for children 2 years old and older was 11.91 (SD = 3.94).

Figure 11. Frequency of Literacy Activities



Note. ^ Questions only asked of parents whose oldest child enrolled in PAT was 2 years or older.

The most frequently reported literacy activity at post-test was “sing songs” (m=4.9, SD = 1.25), followed by “talk to child about books you read together” (m=4.5, SD = 1.38).

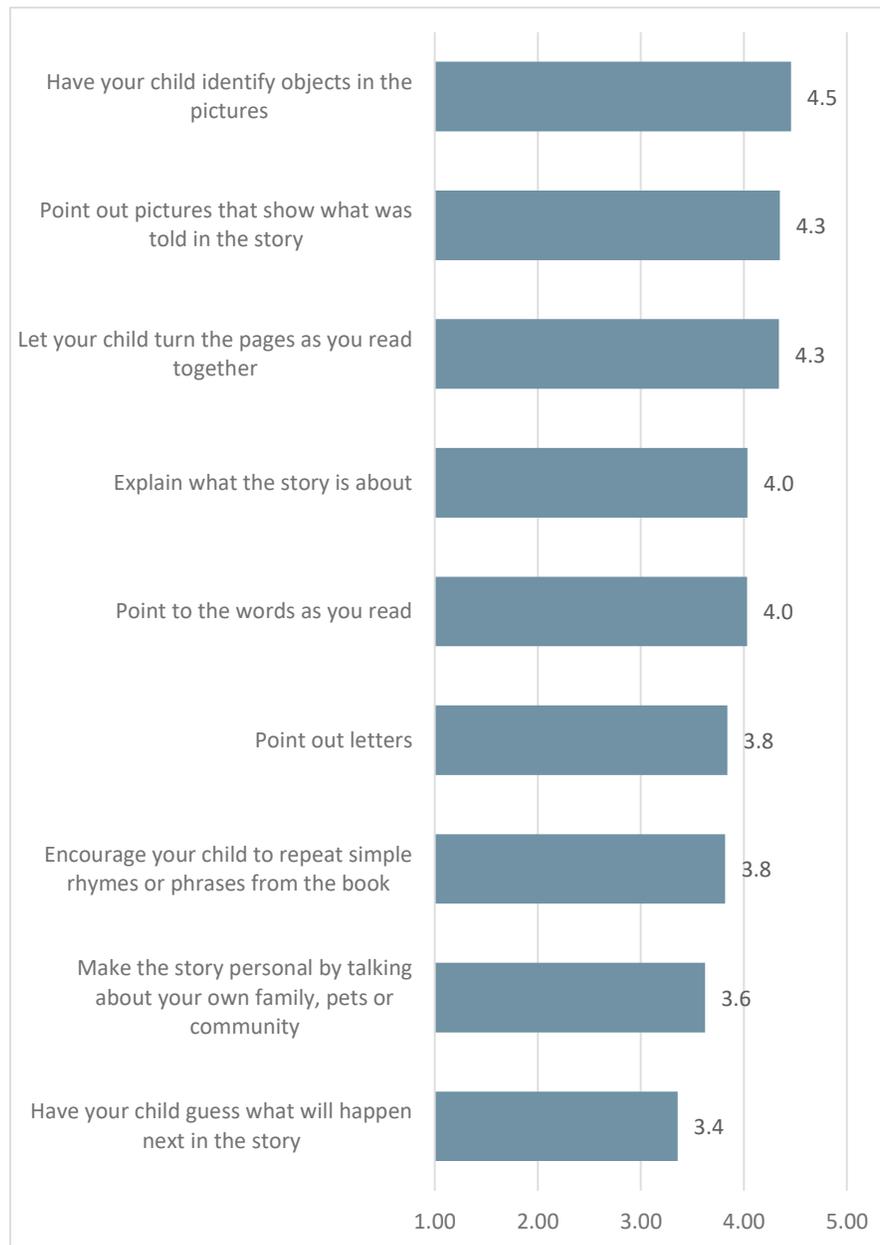
INTERACTIVE READING BEHAVIORS

Parents whose oldest child in PAT is 2 years-old or older were asked how frequently they do each of the Interactive Reading Behaviors listed in Figure 12 with their child while reading.

The most frequently reported behavior was “have your child identify objects in the pictures” ($m = 4.5$, $SD = 0.79$), followed by “point out pictures that show what was told in the story” ($m = 4.4$, $SD = 0.84$).

The least frequently reported behavior was “have your child guess what will happen next in the story” ($m = 3.4$, $SD = 1.29$).

Figure 12. Frequency of Interactive Reading Behaviors



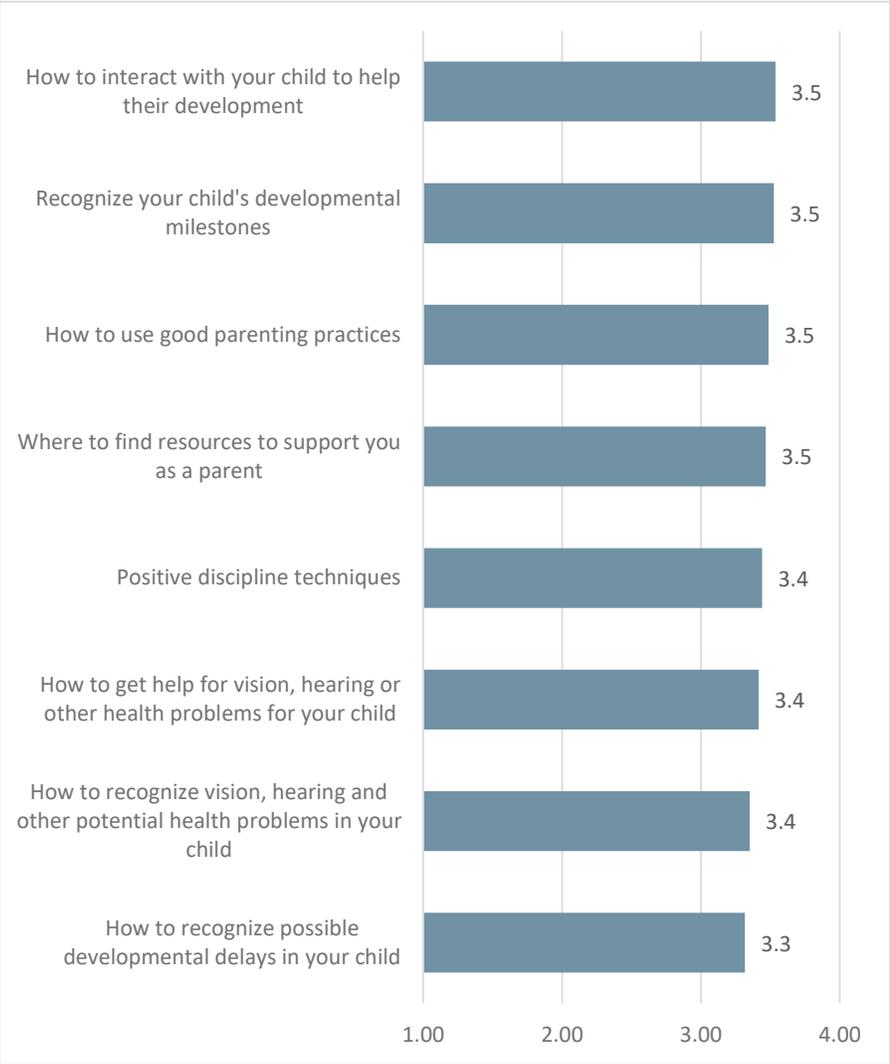
PARENT KNOWLEDGE

KNOWLEDGE OF PARENTING PRACTICES

Parents were asked how much the PAT program increased their knowledge about several aspects of parenting on a scale of 1-4, with 1 indicating their knowledge did not increase at all and 4 indicating their knowledge increased “a lot”.

Parents felt their knowledge increased the most on “how to interact with your child to help their development” (m = 3.5) and “how to recognize your child’s developmental milestones” (m = 3.5). Parent knowledge increased the least in “how to recognize possible developmental delays in your child” (m = 3.3).

Figure 13. Mean Increase in Knowledge of Parenting Practices



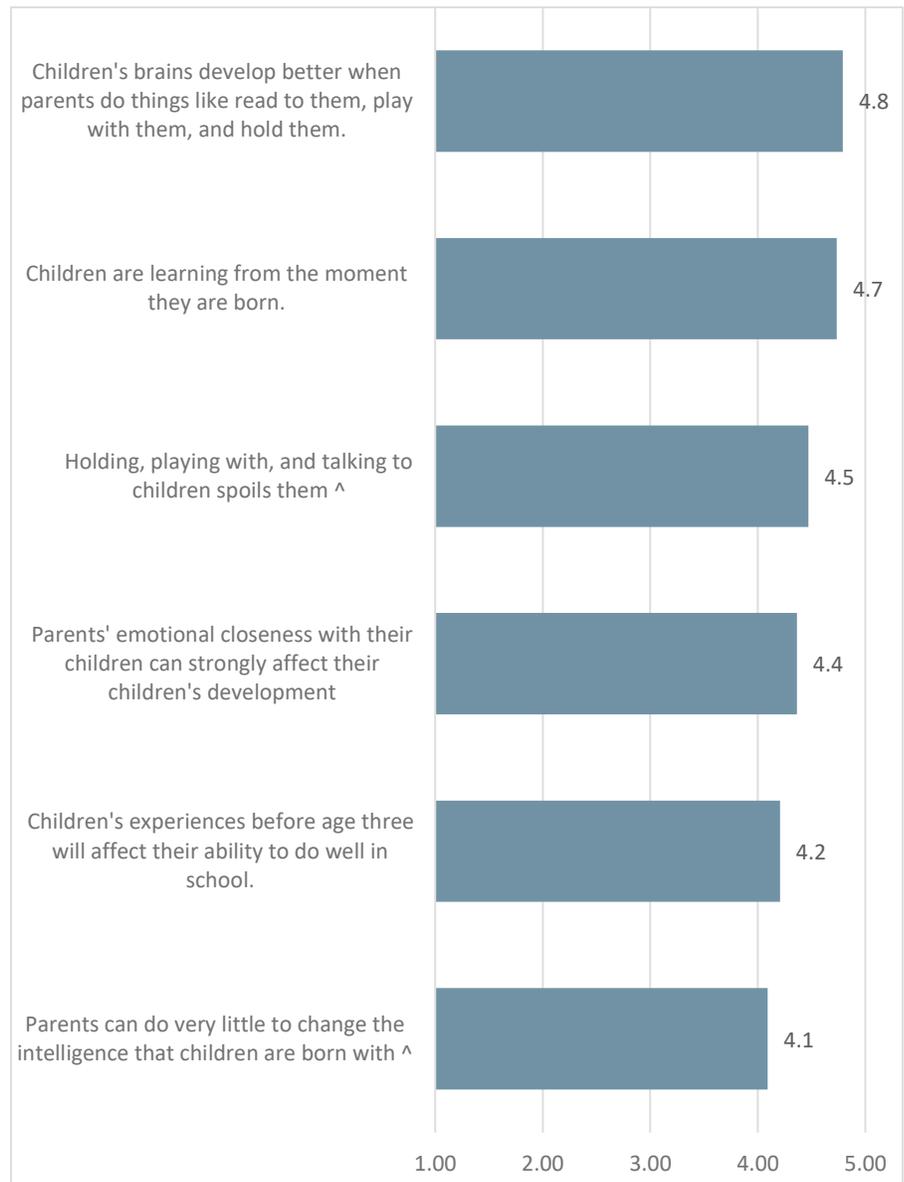
CHILD DEVELOPMENT KNOWLEDGE

Parents were asked to rate how much they agreed with each statement about child development. They used a scale of 1 to 5 with 1 meaning “strongly disagree,” and 5 indicating “strongly agree.” Figure 14 reports average agreement levels for each statement.

Items marked with a “^” were reverse coded so that higher mean scores for all items reflect higher parent knowledge.

Overall, parents were most knowledgeable about “children’s brains develop better when parents do things like read to them, play with them, and hold them” (m = 4.8) and “children are learning from the moment they are born” (m = 4.7). Parents were least knowledgeable about parents’ ability to change the intelligence that children are born with (m = 4.1).

Figure 14. Parent Knowledge of Child Development Items



DIFFERENCES IN PARENT SURVEY SCALE SCORES BY DEMOGRAPHICS

Independent samples t-tests were conducted to evaluate whether parents' scores differed on 10 parent survey items/scales based on two demographic variables: family income and parents' preferred language.

Items/scales included in analysis: Parent Frequency of Book Reading with their Child, Knowledge of Parenting Practices, Child Development Knowledge, Literacy Activities (children under 2-years-old), Literacy Activities (children over 2-years-old), Reading Activities, PFS – Family Functioning/Resiliency, PFS – Social Support, PFS – Concrete Support, PFS – Nurturing and Attachment.

Family Income: Differences between groups (only significant differences between groups are included below):

- **Child Development Knowledge:**
 - Families *not* living in poverty⁴ (n=452) scored significantly higher than families living in poverty⁵ (n=602), $t(1052) = 7.42, p < .05$.
- **Literacy Activities (children under 2-years-old):**
 - Families *not* living in poverty (n=456) scored significantly higher than families living in poverty (n=605), $t(1059) = 2.03, p < .05$.
- **PFS – Family Functioning and Resiliency:**
 - Families *not* living in poverty (n=462) scored significantly higher than families living in poverty (n=616), $t(1076) = 2.48, p < .05$.
- **PFS – Social Support:**
 - Families *not* living in poverty (n=463) scored significantly higher than families living in poverty (n=619), $t(1080) = 3.17, p < .05$.

⁴ Families with incomes greater than 100% of the FPL.

⁵ Families with incomes less than or equal to 100% of the FPL.

Parents' Preferred Language: Differences between groups (only significant differences between groups are included below):

- **Parent Frequency of Book Reading with their Child:**
 - Parents preferring English (n=567) scored significantly higher than parents preferring Spanish (n=520), $t(1085) = 7.85, p < .05$.
- **Child Development Knowledge:**
 - Parents preferring English (n=557) scored significantly higher than parents preferring Spanish (n=511), $t(1066) = 7.24, p < .05$.
- **Literacy Activities (children under 2-years-old):**
 - Parents preferring English (n=562) scored significantly higher than parents preferring Spanish (n=514), $t(1074) = 9.64, p < .05$.
- **Literacy Activities (children over 2-years-old):**
 - Parents preferring English (n=412) scored significantly higher than parents preferring Spanish (n=353), $t(763) = 7.85, p < .05$.
- **Reading Activities:**
 - Parents preferring Spanish (n=341) scored significantly higher than parents preferring English (n=401), $t(740) = 2.29, p < .05$.
- **PFS – Family Functioning and Resiliency:**
 - Parents preferring Spanish (n=523) scored significantly higher than parents preferring English (n=567), $t(1088) = 1.97, p < .05$.
- **PFS – Social Support:**
 - Parents preferring English (n=568) scored significantly higher than parents preferring Spanish (n=526), $t(1092) = 2.93, p < .05$.
- **PFS – Concrete Support:**
 - Parents preferring English (n=568) scored significantly higher than parents preferring Spanish (n=527), $t(1093) = 8.60, p < .05$.
- **PFS – Nurturing and Attachment:**
 - Parents preferring Spanish (n=524) scored significantly higher than parents preferring English (n=570), $t(1092) = 2.12, p < .05$.

PARENT-CHILD INTERACTIONS ASSESSMENT (PICCOLO)

739 parent-child dyads completed a PICCOLO pre-test. Of these 739 families, 75 also completed a PICCOLO post-test, resulting in a 10% match rate. In this section, we provide demographic information on all participating children (n=739), followed by results for all families that completed a pre-test (n=739), followed by results for all families with matched pre-test and post-test data (n=75).

Child Characteristics

At pre-test, children ranged in age from 1 years to 6 years, with a mean age of 2 years and 0 months ($SD=.99$ months).

There were an even number of girls and boys, with 50% female and 50% male.

Most were White (86%) and Hispanic (75%).

Figure 15. Child Gender

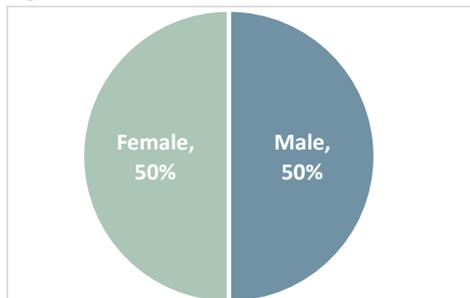
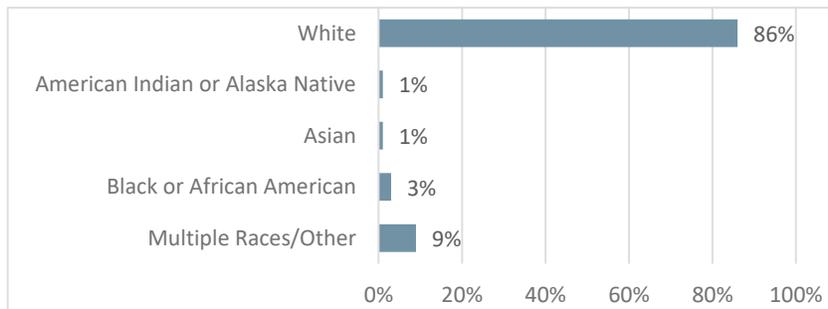


Figure 16. Parent Race



PICCOLO DOMAIN RESULTS FOR ALL FAMILIES WITH PRE-TEST DATA (N=739)

Figure 17 shows the percentages of parents at pre-test that scored within the below average, average, and above average cutoffs (established by PICCOLO Developers) for each domain and for Total PICCOLO Scores.

Figure 17. Percentage of Families at each PICCOLO Proficiency Level at Pre-Test



PICCOLO DOMAIN RESULTS FOR ALL FAMILIES WITH MATCHED DATA (N=75)

Figure 18 displays the percentages of families that scored within each proficiency level for each domain.

Figure 18. Percentage of Families at each PICCOLO Proficiency Level at Pre- and Post-Test



ADDITIONAL ANALYSES

In addition, paired-samples t-tests on each domain score and for Total PICCOLO Scores were conducted to determine whether parents increased developmentally appropriate parenting behaviors. Not surprisingly, significant changes from pre- to post-test were not found for any domain or Total PICCOLO Scores, possibly due to the small sample size and high scores in each domain at baseline.

In the **Affection** domain, there was not a statistically significant difference in parents' mean scores from pre-test ($m = 13.03$; $SD = 1.79$) to post-test ($m = 12.92$; $SD = 1.76$), $t(74) = -.63$, $p = .53$. At post-test, 74% of parents are considered above average in exhibiting affection with their child.

In the **Responsiveness** domain, there was not a statistically significant difference in parents' mean scores from pre-test ($m = 12.83$; $SD = 1.66$) to post-test ($m = 12.84$; $SD = 1.77$), $t(74) = .09$, $p = .93$. At post-test, 65% of parents are considered above average in exhibiting responsiveness with their child.

In the **Encouragement** domain, there was not a statistically significant difference in parents' mean scores from pre-test ($m = 12.16$; $SD = 2.31$) to post-test ($m = 12.47$; $SD = 2.18$), $t(74) = -1.23$, $p = .22$. At post-test, 68% of parents are considered above average in exhibiting encouragement with their child.

In the **Teaching** domain, there was not a statistically significant difference in parents' mean scores from pre-test ($m = 12.16$; $SD = 4.04$) to post-test ($m = 12.67$; $SD = 4.17$), $t(74) = 1.22$, $p = .23$. At post-test, 71% of parents are considered above average in exhibiting teaching behaviors with their child.

There was not a statistically significant difference in parents' mean **Total PICCOLO Scores** from pre-test ($m = 50.17$; $SD = 8.34$) to post-test ($m = 50.89$; $SD = 8.58$), $t(74) = .97$, $p = .34$. At post-test, 72% of parents are considered above average in exhibiting developmentally appropriate interactions with their child.

DIFFERENCES IN PICCOLO SCALE SCORES BY DEMOGRAPHICS

Additional analyses were conducted to evaluate whether parents' PICCOLO scale scores differed based on one demographic variable: family income. Two tests were conducted for this demographic:

1. Was there a significant difference **between groups in their mean scores** at pre- and post-test (i.e., did one group score higher than the other, on average, at pre- and post-test)?
2. Was there a significant difference **between groups in their change in score** from pre- to post-test (i.e., did one group demonstrate greater growth from pre- to post-test)?

Items/scales included in analysis: Affection Scale Score, Responsiveness Scale Score, Encouragement Scale Score, Teaching Scale Score, Total PICCOLO Score.

FAMILY INCOME: Differences between groups (only significant differences between groups are included below):

- **Affection:**
 - There was not a statistically significant difference in mean scores between families *not* living in poverty⁶ (n=31) and families living in poverty⁷ (n=42).
 - However, compared to families *not* living in poverty, families living in poverty demonstrated a greater increase in mean scores from pre- to post-test, $F(1, 71) = 5.46, p < .05$.

⁶ Families with incomes greater than 100% of the FPL.

⁷ Families with incomes less than or equal to 100% of the FPL.

CHILD SCHOOL READINESS ASSESSMENT (BRACKEN)

Parent educators conducted at least one Bracken School Readiness Assessment with 608 children. Of these 608 families, 291 also completed a post-test assessment, resulting in a 48% match rate. This section contains demographic information about participating families, followed by BSRA-3 results for matched families.

Family Characteristics

At pre-test, children ranged in age from 3 years to 6 years, 7 months, with a mean age of 3 years, 11 months ($SD = 9.7$ months).

There were an equal number of girls and boys, with 50% female and 50% male.

Most children were White (85%) and most report being of Hispanic or Latino Ethnicity (57%).

Most of the children lived with at least one biological parent (93%). 4% did not report child living situation.

Figure 19. Child Gender

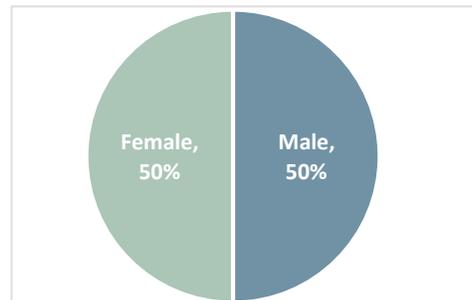


Figure 20. Child Race

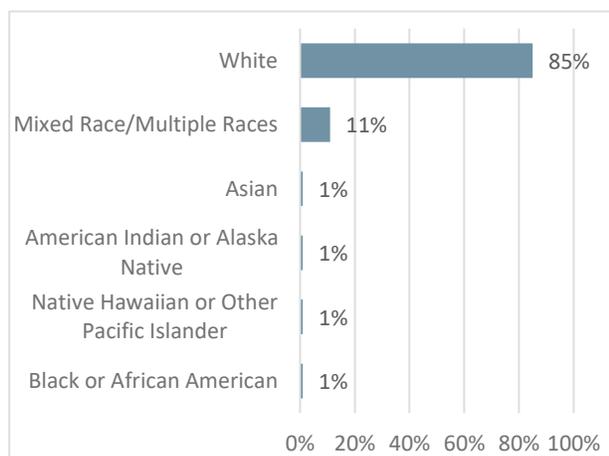
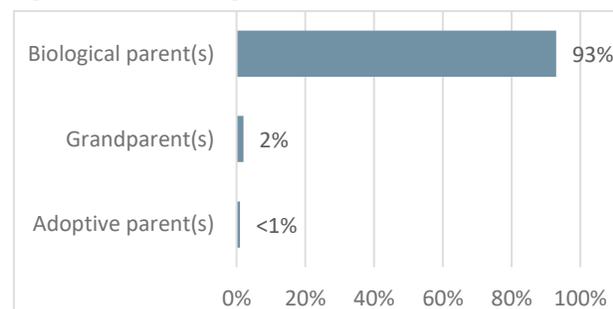


Figure 21. Child Living Situation

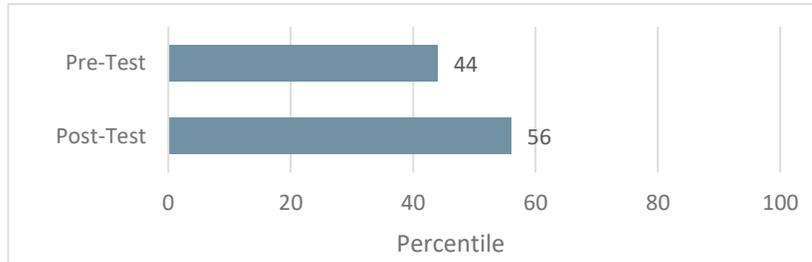


Findings from the BSRA-3 Assessment

Percentile Rank

Percentile ranks demonstrate school readiness skills compared to other children of the same age. This ranking takes into account normal growth based on child age. Scores range from 0-100, with 50th percentile as an average.

Figure 22. School Readiness Percentile Rank*

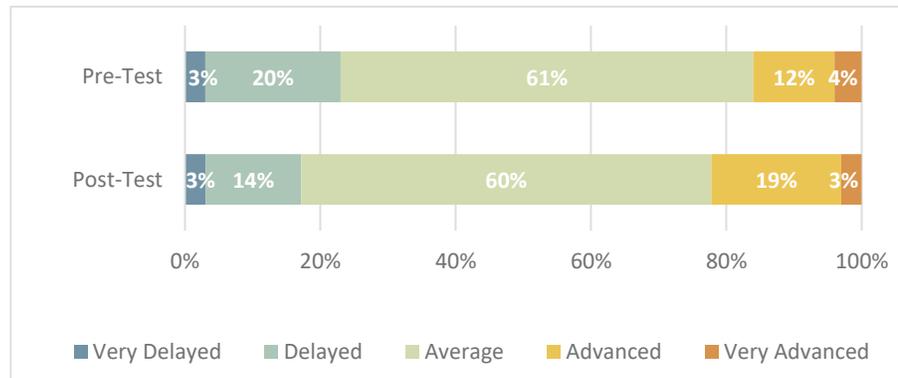


Children significantly increased their school readiness percentile rank from pre-test ($m = 43.78$; $SD = 22.32$) to post-test ($m = 56.40$; $SD = 22.73$), $t(290) = 17.73$, $p < .001$.

Proficiency Levels

Proficiency levels are calculated based upon the raw scores and then adjusted for age to determine whether children are very delayed, delayed, average, advanced, or very advanced in their school readiness.

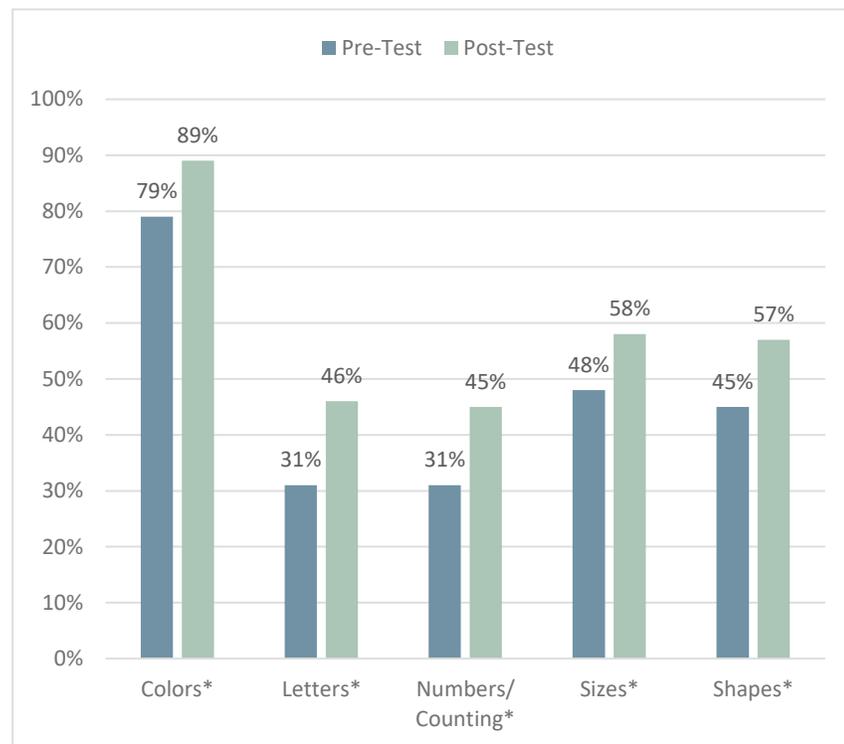
Figure 23. School Readiness Proficiency Levels



Percent Mastery of Subdomain Areas

Children's percent mastery was also assessed in each subdomain: colors, letters, numbers, sizes, and shapes.

Figure 24. Percent Mastery on Subdomain Categories*



Children had a statistically significant increase in their average percent mastery in each of the domain areas, with an increase of:

- 10% for **colors** ($t(290)=7.51, p < .001$);
- 15% for **letters** ($t(290)=10.29, p < .001$);
- 14% for **numbers/counting** ($t(290)=11.28, p < .001$);
- 10% for **sizes** ($t(290)=7.75, p < .001$); and
- 12% for **shapes** ($t(290)=10.70, p < .001$).

DIFFERENCES IN BRACKEN SCALE SCORES BY DEMOGRAPHICS

Additional analyses were conducted to evaluate whether children's scores differed on the 6 scales of the Bracken assessment based on two demographic variables: family income and parents' preferred language. Two tests were conducted for each demographic:

1. Was there a significant difference **between groups in their mean scores** at pre- and post-test (i.e., did one group score higher than the other, on average, at pre- and post-test)?
2. Was there a significant difference **between groups in their change in score** from pre- to post-test (i.e., did one group demonstrate greater growth from pre- to post-test)?

Scales included in analysis: Overall School Readiness, Colors, Letters, Numbers, Sizes, and Shapes.

Family Income: Differences between groups (only significant differences between groups are included below):

- **Overall School Readiness:**
 - At pre- and post-test, children *not* living in poverty⁸ (n=140) had significantly higher mean scores than children living in poverty⁹ (n=132), $F(1, 270) = 12.78, p < .05$.
 - There was not a significant group difference in mean score change (i.e., growth) from pre- to post-test.
- **Colors:**
 - At pre- and post-test, children *not* living in poverty (n=140) had significantly higher mean scores than children living in poverty (n=132), $F(1, 270) = 5.40, p < .05$.
 - There was not a significant group difference in mean score change (i.e., growth) from pre- to post-test.
- **Numbers:**
 - At pre- and post-test, children *not* living in poverty (n=140) had significantly higher mean scores than children living in poverty (n=132), $F(1, 270) = 8.59, p < .05$.
 - Compared to children living in poverty, children *not* living in poverty demonstrated a greater increase in mean scores from pre- to post-test, $F(1, 270) = 5.59, p < .05$.

⁸ Families with incomes greater than 100% of the FPL.

⁹ Families with incomes less than or equal to 100% of the FPL.

- **Sizes:**
 - At pre- and post-test, children *not* living in poverty (n=140) had significantly higher mean scores than children living in poverty (n=132), $F(1, 270) = 12.40, p < .05$.
 - There was not a significant group difference in mean score change (i.e., growth) from pre- to post-test.
- **Shapes:**
 - At pre- and post-test, children *not* living in poverty (n=140) had significantly higher mean scores than children living in poverty (n=132), $F(1, 270) = 15.10, p < .05$.
 - There was not a significant group difference in mean score change (i.e., growth) from pre- to post-test.

Parents' Preferred Language: Differences between groups (only significant differences between groups are included below):

- **Overall School Readiness:**
 - At pre- and post-test, children with parents preferring English (n=166) had significantly higher mean scores than children with parents preferring Spanish (n=119), $F(1, 283) = 31.00, p < .05$.
 - There was not a significant group difference in mean score change (i.e., growth) from pre- to post-test.
- **Colors:**
 - At pre- and post-test, children with parents preferring English (n=166) had significantly higher mean scores than children with parents preferring Spanish (n=199), $F(1, 283) = 27.13, p < .05$.
 - Compared to children with parents preferring English, children with parents preferring Spanish demonstrated a greater increase in mean scores from pre- to post-test, $F(1, 283) = 5.44, p < .05$.
- **Letters:**
 - At pre- and post-test, children with parents preferring English (n=166) had significantly higher mean scores than children with parents preferring Spanish (n=199), $F(1, 283) = 22.43, p < .05$.
 - There was not a significant group difference in mean score change (i.e., growth) from pre- to post-test.
- **Numbers:**
 - At pre- and post-test, children with parents preferring English (n=166) had significantly higher mean scores than children with parents preferring Spanish (n=199), $F(1, 283) = 18.56, p < .05$.
 - There was not a significant group difference in mean score change (i.e., growth) from pre- to post-test.

- **Sizes:**
 - At pre- and post-test, children with parents preferring English (n=166) had significantly higher mean scores than children with parents preferring Spanish (n=199), $F(1, 283) = 7.91, p < .05$.
 - There was not a significant group difference in mean score change (i.e., growth) from pre- to post-test.

- **Shapes:**
 - At pre- and post-test, children with parents preferring English (n=166) had significantly higher mean scores than children with parents preferring Spanish (n=199), $F(1, 283) = 49.56, p < .05$.
 - Compared to children with parents preferring Spanish, children with parents preferring English demonstrated a greater increase in mean scores from pre- to post-test, $F(1, 283) = 6.25, p < .05$.
* Please note that this finding is opposite of the Colors scale finding listed above (i.e., for Colors, children with parents preferring Spanish demonstrated greater growth; for Shapes, children with parents preferring English demonstrated greater growth).

Summary and Conclusions

Results from the 2016-17 evaluation indicate positive findings overall. Parents report frequent engagement in literacy activities and interactive reading behaviors with their children; parents were observed to engage in developmentally appropriate ways with their children; and children demonstrated overall gains in school readiness.

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