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Pre-K 4 SA Education Centers: Year 11 Technical Report

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Executive Summary

Pre-K 4 SA served more than 2,000 children during its eleventh year of implementation. The Year 11 evaluation of Pre-K 4 SA sought to address research questions regarding attendance, classroom quality, kindergarten readiness, early literacy, early numeracy, receptive vocabulary, and social-emotional competence during the prekindergarten (pre-K) year.

During Year 11, Pre-K 4 SA served more girls (51.8 percent of the total sample) than boys (48.2 percent) and more 3-year-old children (55.6 percent of the total sample) than 4-year-old children (44.4 percent). Most Pre-K 4 SA children were Hispanic (73.1 percent), with the remaining children reported as Black (11.3 percent), White (7.6 percent), Asian (5.0 percent), and multiracial or other ethnicities (2.9%). The majority of children (77.8 percent) of children attended Pre-K 4 SA based on the income eligibility criteria. An additional 257 children who attended (12.1 percent) were tuition-paying.

The average attendance rate for Pre-K 4 SA children was 86.4 percent, which increased slightly to 87.8 percent when children who withdrew from the program were excluded from the sample. Average attendance increased compared to last year (84.5 percent); however, it still remains below pre-pandemic averages. This is not surprising, as similar post-pandemic trends have been evidenced across the nation.

The Early Childhood Education Municipal Development Corporation contracted with Westat, a large, employee-owned global research firm, to conduct an independent evaluation of the Pre-K 4 SA program. Westat and its evaluation partners conducted classroom observations using the Classroom Assessment Scoring System, second edition, (CLASS) to assess the quality of teacher–child interactions in Pre-K 4 SA classrooms. Overall, scores indicate that observed teachers displayed high levels of Emotional Support and Classroom Organization, while Instructional Support was, on average, in the midrange.

Kindergarten readiness outcomes for Pre-K 4 SA children (measured using the Teaching Strategies' Growth, Observation, and Learning, or GOLD, assessment) were compared from the fall to spring for six outcomes: cognitive, literacy, mathematics, oral language, physical, and social-emotional. The results showed significant improvement for Pre-K 4 SA children on all six outcomes.

Early literacy and early numeracy results suggested children gained significant understanding across the current evaluation year. However, most children were not performing at their age level and were in need of additional educational supports. Receptive vocabulary results demonstrated children experienced significant improvement and gained additional vocabulary. Moreover, a small subset (9.2 percent) of children narrowed their achievement gap when comparing their learning to a normative group of children. Social-emotional results suggested children significantly gained skills and demonstrated significant improvement in their understanding.

Taken together, results from the Year 11 evaluation suggest children are benefiting from participation in Pre-K 4 SA. Specifically, the Year 11 evaluation results indicate Pre-K 4 SA is providing high-quality instructional environments for more than 2,000 predominantly low-income children from across San Antonio. Limitations of the evaluation include the lack of a control group of children who are similar to Pre-K 4 SA children for comparison; a reliance in some instances on teacher-reported measures of child outcomes; and a vocabulary assessment that was only available in English, as the publisher discontinued the Spanish version. For the 2024-25 school year, the evaluation will use a different vocabulary assessment that is available in English and Spanish.

Introduction

Providing access to high-quality early childhood education has received, and will continue to receive, considerable attention throughout the United States (Barnett, 2011; Campbell et al., 2002; Heckman et al., 2010; Hill et al., 2015; Reynolds et al., 2011; Rolnick & Grunewald, 2003). Yet children who would benefit from high-quality education experiences do not have the ability to receive them. Previous research indicates children from racially marginalized communities, children from economically disadvantaged backgrounds, and children whose primary language is not English are more often exposed to lower quality instruction and learning environments across the United States (Bassok & Galdo, 2016; Valentino, 2018). Moreover, providing high-quality learning environments is vital to improving all children's social-emotional, behavior, and achievement outcomes (Burchinal et al., 2010; Perlman et al., 2016).

Because of limited public funding from federal and state governments, municipal governments are increasingly using funding sources in creative ways to provide more equitable access to high-quality early childhood education and care. Pre-K 4 SA, a municipality-funded initiative in San Antonio, Texas, serves approximately 2,000 children who are at risk for falling behind their peers and lacking kindergarten readiness. Four state-of-the-art early educational centers serve as model sites that use an evidenced-based curriculum, instructional supports, and content-specific learning that, taken as a whole, demonstrate the increases in education potential that young children achieve when they have access to highly skilled and well-compensated teachers. The 2023–24 school year marks an increase in the outreach of Pre-K 4 SA, as this is the second year that Pre-K 4 SA has served 3-year-old children. It is also worth noting that children who attended the education centers during Year 11 were born during the COVID-19 pandemic. There is currently mixed evidence regarding how the pandemic may have influenced children's development. Some research indicates babies born during the pandemic had lower gross and fine motor skills and less social-emotional development (Shuffrey et al., 2022). These findings suggest that there are possible differences in the neurodevelopment of babies born during the pandemic that could follow them throughout their lifespan. Other research indicates infants were resilient with respect to their social-emotional and cognitive development during the pandemic (LoBue et al., 2023). And yet, other research indicates that 3- to 5-year-old children experienced instruction losses and decreases in their social-emotional development and well-being (Jung & Barnett, 2021). Therefore, the findings that are presented here will add to the larger conversation on how the pandemic is influencing children's developmental trajectory during their pre-K years.

The Early Childhood Education Municipal Development Corporation contracted with Westat, a large, employee-owned global research firm, to conduct an independent evaluation of the Pre-K 4 SA program. Over the previous 10 years, the evaluation has consistently explored the demographics of participants in Pre-K 4 SA, child attendance in the program, teacher–child instructional quality, and kindergarten readiness outcomes. The purpose of the current report is to present Year 11 evaluation findings for the program. Investigations included (1) information on child attendance and classroom quality; (2) outcome analysis results from the Teaching Strategies' Growth, Observation, and Learning (GOLD) assessment; (3) outcome analysis results of children's early literacy, early numeracy, and receptive vocabulary; and (4) outcome analysis results of children's social-emotional development. Following the presentation of the evaluation results in this report, we summarize, synthesize, and compare all the findings across assessments. The final section of this report outlines limitations and provides recommendations.

This report is the first in a series of reports documenting results of the Pre-K 4 SA initiative during the 2023–24 school year. Alongside this report, a research brief includes a high-level summary of the findings, and a supplement provides more detailed and technical information.

Research Questions

The Year 11 (2023–24) evaluation of Pre-K 4 SA addressed the following six main research questions and subquestions:

1. A. What were the reported levels of child attendance during the pre-K year?
   B. In what ways have attendance rates changed since the COVID-19 pandemic?
2. A. What was the observed teacher–child interaction quality of Pre-K 4 SA classrooms in Year 11?
   B. Did master teachers of Pre-K 4 SA classrooms have higher observed teacher–child interaction quality in Year 11?
3. A. How did Pre-K 4 SA children compare to the normative sample on GOLD outcomes?
   B. Did Pre-K 4 SA children demonstrate significant improvement on GOLD outcomes?
   C. What percentage of Pre-K 4 SA children demonstrated kindergarten readiness as measured by GOLD outcomes?
4. A. What percentage of a random sample of Pre-K 4 SA children performed at or above their age level in early literacy and early numeracy, and to what extent did the percentage change?
   B. Did a random sample of Pre-K 4 SA children demonstrate significant improvement in early literacy and early numeracy?
   C. Did a random sample of Pre-K 4 SA children experience accelerated learning to help narrow achievement gaps in early literacy and early numeracy?
5. A. What were the receptive vocabulary performance levels of a random sample of Pre-K 4 SA children?
   B. Did a random sample of Pre-K 4 SA children demonstrate significant improvement in receptive vocabulary?
   C. What types of receptive vocabulary improvement did a random sample of Pre-K 4 SA children demonstrate?
6. A. What were the levels of Pre-K 4 SA children's social-emotional competence, and to what extent did the levels change?
   B. Did Pre-K 4 SA children demonstrate significant improvement in social-emotional competence?

Evaluation Sample and Methods

In this section, demographic characteristics for the sample (children served during the 2023–24 school year) are provided, followed by a brief discussion of the evaluative methods used.

Pre-K 4 SA Year 11 Sample

Data were provided for 2,125 children in Year 11. This is the second year Pre-K 4 SA served children aged 3 and 4. Pre-K 4 SA served more 3-year-old children[1] (55.6 of the total sample) than 4-year-old children (44.4 percent). Of the 4-year-old children served, 59.3 percent were in their second consecutive year of Pre-K 4 SA.[2] There were more girls (51.8 percent of the total sample) than boys (48.2 percent). Most Pre-K 4 SA children were Hispanic (73.1 percent of the total sample), with the remaining children reported as Black (11.3 percent), White (7.6 percent), Asian (5.0 percent), and multiracial and other ethnicities (2.9 percent). Similar percentages of boys and girls were served based on age,[3] and similar percentages of children of varying race/ethnicity were served based on age.[4]

Table 1 displays the number of children who attended Pre-K 4 SA based on four key eligibility criteria. It is important to note that there is overlap between criteria as children could qualify in more than one category. Children mostly attended based on the income criteria (77.8 percent of total children). Children also attended if their family had military affiliation[5] (15.2 percent) or they were an English-language learner (18.2 percent). An additional 257 children who attended (12.1 percent) were tuition-paying.

Table 1. Children who attended Pre-K 4 SA by eligibility criteria

Eligibility criteria	Number of children	Percentage of total children
Income	1,654	77.8
Military affiliation	322	15.2
English-language learner	387	18.2
Tuition	257	12.1
Eligible total	2,125	-

Note: The percentage of total children may exceed 100 percent as attending children can meet several eligibility criteria.

1 There were 51 children (2.4 percent of the total sample) who were included as 3-year-olds that were almost 3 on the first day of school, with ages ranging from 2.951 to 2.998 years old.

2 There were 22 children (3.9 percent of the total sample) who returned for a second year at Pre-K 4 SA and were almost 4 on the first day of school, with ages ranging from 3.951 to 3.997 years old.

3 Results based on a $\chi^2(1) = 0.331$, $p = .565$.

4 Results based on a $\chi^2(5) = 4.717$, $p = .451$.

5 Children in this category had a parent or guardian who was retired from the military, in active duty, or in the reserves. This also includes grandparents who are retired from the military and caring for children.

Among all children who attended Pre-K 4 SA, we also examined their district affiliation (see Table 2). The majority represented three districts: Northside Independent School District (ISD), North East ISD, and San Antonio ISD.[6] Table 2 includes the percentage of children per represented school district.

Table 2. Children who attended Pre-K 4 SA by district

District name	Number of children	Percentage of total children
Northside	704	33.1
North East	364	17.1
San Antonio	300	14.1
East Central	195	9.2
Judson	171	8.0
Southwest	93	4.4
Harlandale	77	3.6
Edgewood	76	3.6
Medina Valley	43	2.0
South San Antonio	31	1.5
Fort Sam Houston	31	1.5
Southside	29	1.4
Other[a]	11	0.5
Total	2125	100

Note: Because of rounding, decimals may not agree to the nearest hundredth.

[a] The other category includes four districts with small counts of children (Alamo Heights, Somerset, Comal, and Boerne).

Methods

All six research questions were addressed by analyzing existing Pre-K 4 SA databases, results from classroom observations, and results from direct child assessments. To address the first set of research questions about attendance, data collected by Pre-K 4 SA were submitted to Westat and descriptively analyzed. To address the second set of descriptive and inferential research questions pertaining to classroom quality, Westat and its partners collected and analyzed data from the Classroom Assessment Scoring System, second edition, (CLASS) for Pre-K 4 SA classrooms (Teachstone, 2023). CLASS is an observational system that assesses classroom practices in preschool by measuring the interactions between children and adults. Observations in the Year 11 evaluation consisted of five 20-minute observation periods (or cycles) followed by 10-minute coding periods.

[6] These same three districts were also the majority representation in Years 1–10 (2013–14 school year to 2022–23 school year).

To address the third set of research questions, descriptive and inferential analyses were conducted on Growth, Observation, and Learning (GOLD) outcomes. GOLD is a teacher-reported measure that, in the fall, winter, and spring, collects information on children's progress on 36 objectives across 6 main categories: cognitive, literacy, oral language, mathematics, physical, and social-emotional (Lambert, 2020; see Appendix A for more detailed information).

To address the fourth set of research questions, data collected by Pre-K 4 SA were submitted to Westat and analyzed descriptively and inferentially. Two direct assessments—early literacy (Letter-Word) and early numeracy (Applied Problems)—were administered to a random sample of Pre-K 4 SA children in the fall and spring. These two assessments are subtests from the Woodcock-Johnson IV Tests of Achievement (WJ IV; Schrank et al., 2014) and matching subtests from the Batería III Spanish assessment (Muñoz-Sandoval et al., 2005; see Appendix A for more detailed information). They were chosen because they are widely used in early childhood, and they complement the GOLD findings by providing additional insights from a different perspective: that of a trained assessor as compared to a teacher report (Bloom & Weiland, 2014; McCormick, 2022; Puma et al., 2010; Weiland, 2016). The GOLD findings provide an overall perspective and measure multiple aspects of early literacy (e.g., phonological awareness, phonics, and word recognition) and early numeracy (e.g., number concepts and operations, spatial relationships and shapes, and knowledge of patterns). Letter-Word findings are more nuanced and measure symbolic learning and the identification of isolated letters and words, while Applied Problems measures a child's ability to apply simple number concepts and solve math problems.

To address the fifth set of research questions, data collected by Pre-K 4 SA were submitted to Westat and analyzed descriptively and inferentially. A direct assessment of vocabulary was administered to a random sample of children in the fall and spring using the Peabody Picture Vocabulary Test-5 (PPVT; Dunn & Dunn, 2019; see Appendix A for more detailed information). Like WJ and Batería, this assessment was chosen because it is widely used in early childhood and complements the GOLD findings by providing additional insights from a trained assessor as compared to a teacher report (Puma et al., 2010). The GOLD findings provide an overall perspective and measure multiple aspects of early literacy (e.g., phonological awareness, phonics, and word recognition) and early numeracy (e.g., number concepts and operations, spatial relationships and shapes, and knowledge of patterns). The PPVT findings are more nuanced and measure receptive vocabulary knowledge and understanding.

To address the sixth set of research questions, data collected by Pre-K 4 SA were submitted to Westat and analyzed descriptively and inferentially. A teacher-reported assessment of social-emotional competence, the Devereux Early Childhood Assessment (DECA), was administered to children in the fall and spring (LeBuffe & Naglieri, 2012; see Appendix A for more detailed information).

Evaluation Results

Child Attendance in Pre-K 4 SA

Children began attending Pre-K 4 SA at different times. Most children (87.77 percent of the total attendees) began at the start of the school year (August 14, 2023). The last date a child began attending Pre-K 4 SA was May 24, 2024.[7] Because of these varied dates, some children had the opportunity to attend longer than other children. In fact, the number of membership days ranged from 2 to 177, with an average of 141.1. Results for research question 1A ("What were the reported levels of child attendance during the pre-K year?") demonstrated the average attendance percentage across all children was 86.4 percent. When considering children who attended Pre-K 4 SA throughout the whole school year (i.e., who did not withdraw), the average number of membership days rose to 150.3 and the attendance percentage increased to 87.8 percent.

Over the course of the year, 197 children (9.3 percent of total attendees) withdrew from Pre-K 4 SA. The earliest withdrawal occurred on August 15, 2023, and the latest on May 15, 2024. Almost 45 percent (45.7 percent; n = 107) of the withdrawals occurred before the end of December. We found no significant differences between children who did and did not withdraw in terms of gender,[8] English-language learner status,[9] or race/ethnicity.[10] We did find significant differences for children who attended based on age,[11] family military affiliation,[12] and economic disadvantage.[13] Children who were 3 years old were more likely to withdraw from Pre-K SA than children who were 4 years old; children with family military affiliation were more likely to withdraw from Pre-K SA than children with no family military affiliation; and children who attended for free or on scholarship were more likely to withdraw from Pre-K SA than children whose families paid tuition.

Attendance Rates Over Time

Prior to the pandemic, attendance rates had remained stable and were consistently between 91 and 94 percent. Table 3 displays attendance for all children who attended the program as well as attendance for the subgroup of children who did not withdraw from the program. It is not surprising that attendance in recent years has dropped below the pre-pandemic range. In the fall of the 2023–24 school year, the nationwide average attendance rate as reported by public-school leaders was 90 percent (National Center for Education Statistics, 2024). Despite these lower attendance rates nationwide, results for research question 1B ("In what ways have attendance rates changed since the COVID-19 pandemic?") demonstrate an increase in Pre-K 4 SA attendance compared with last year. Attendance increased by 1.9 percent this year (86.4 percent this year compared to 84.5 percent last year), indicating children are spending more time at Pre-K 4 SA.

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7 Although some children did not begin attendance at Pre-K 4 SA until late spring 2024, more than 97 percent of all children were in attendance by the end of the 2023 calendar year.

8 Results based on a $\chi^2(1) = 0.233$, $p = .629$.

9 Results based on a χ^2 (1) = 0. 679, $p = .410$.

10 Results based on a χ^2 (5) = 7.272, $p = .201$.

11 Age was computed based on the first day of school. Results based on a χ^2 (1) = 39.492, $p < .001$.

12 Results based on a χ^2 (1) = 16.884, $p < .001$.

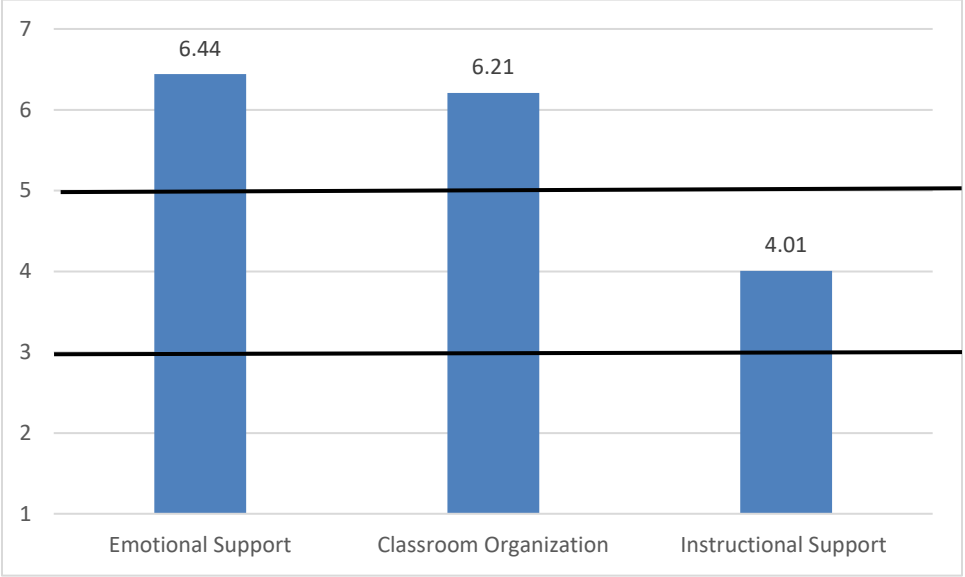
13 Results based on a χ^2 (1) = 14.883, $p < .001$.

Table 3. Pre-K 4 SA attendance over time (percentage)											
Enrollment status	Pre-pandemic						Pandemic			Post-pandemic	
	Year 1 2013–14	Year 2 2014–15	Year 3 2015–16	Year 4 2016–17	Year 5 2017–18	Year 6 2018–19	Year 7 2019–20	Year 8 2020–21	Year 9 2021–22	Year 10 2022–23	Year 11 2023–24
All enrolled children	92.3	91.3	92.5	92.4	91.0	91.5	91.0	88.2	82.6	84.5	86.4
Children who did not withdraw	93.7	92.5	93.6	93.6	92.4	92.6	92.2	90.4	85.3	85.9	87.8

Pre-K 4 SA Teacher–Child Interaction Quality

Across the four education centers, Pre-K 4 SA classrooms (n = 100) were observed using CLASS, second edition, (Teachstone, 2023) during Year 11. Results for research question 2A ("What was the observed teacher–child interaction quality of Pre-K 4 SA classrooms in Year 11?") are provided in Figure 1. The scores for the Emotional Support domain ranged from 4.45 to 7.00 (on a 1–7 scale) with most scores in the high range (with an average score of 6.44), suggesting observed teacher–child interactions in this domain were high quality. Classroom Organization domain scores ranged from 3.87 to 7.00 (with an average score of 6.21), which suggests classrooms showed effective interactions regarding Classroom Organization. Finally, Instructional Support domain scores ranged from 1.33 to 6.40, with an average score in the midrange (4.01), which suggests that in some observed interactions, teachers provided support to extend children's thinking or asked questions that encouraged children to analyze and reason. Each of the Year 11 CLASS domain scores is represented visually in Figure 1.

Figure 1. Average classroom quality scores for Pre-K 4 SA Year 11 by CLASS domain



Note: The black horizontal lines mark the boundaries between the three score ranges: low (below 3), midrange (between 3 and 6), and high (6 and above).

Looking further into the average Emotional Support domain scores, approximately 20 percent of classrooms were observed in the middle range, while 80 percent of classrooms observed provided high levels. Twenty-nine percent of classrooms were observed providing midrange Classroom Organization quality, while the remaining 71 percent scored in the high range, providing high-quality Classroom Organization. Finally, 30 percent of the classrooms that were observed provided low levels of Instructional Support, 64 percent provided midrange levels of Instructional Support, and less than 6 percent provided high levels of Instructional Support. Table 4 provides average scores by each of the 10 CLASS dimensions and 3 CLASS domains.

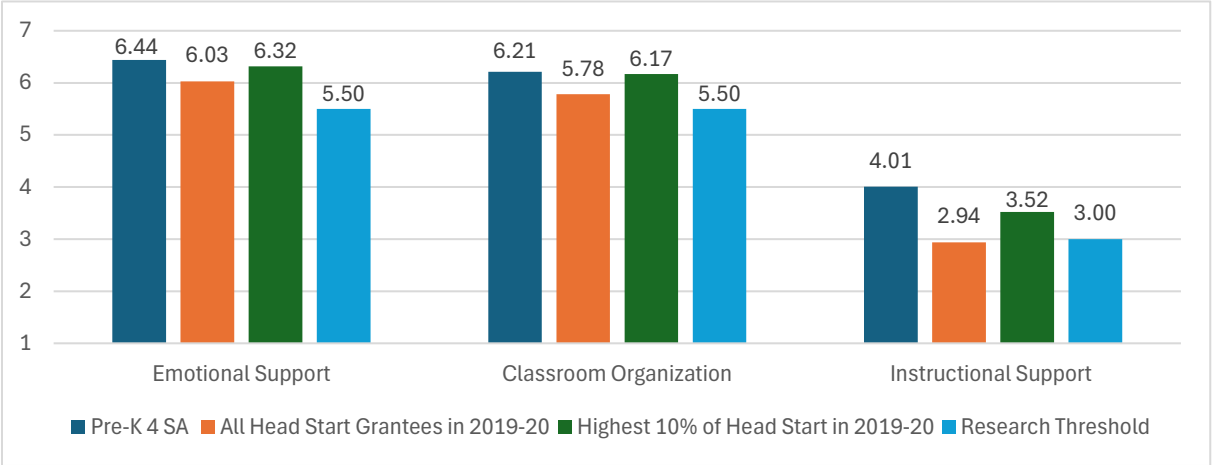
Table 4. Average Year 11 Pre-K 4 SA CLASS scores			
CLASS outcome	Average	Total range observed	Standard deviation
Emotional Support domain	6.44	4.45–7.00	0.61
Positive climate	6.50	3.80–7.00	0.74
Negative climate[a]	6.78	5.00–7.00	0.36
Educator sensitivity	6.23	4.20–7.00	0.79
Regard for child perspectives	6.26	4.00–7.00	0.74
Classroom Organization domain	6.21	3.87–7.00	0.73
Behavior management	6.38	4.20–7.00	0.73
Productivity	6.38	3.80–7.00	0.79
Instructional learning formats	5.87	3.40–7.00	0.92
Instructional Support domain	4.01	1.33–6.40	1.30
Concept development	3.55	1.00–6.40	1.37
Quality of feedback	4.29	1.40–6.60	1.39
Language modeling	4.19	1.60–6.60	1.31

[a] Negative climate is initially scored with lower values which represent no or low negative climate. These scores are then reverse-coded to reflect the same direction as the other dimensions (so higher values are positive).

Past research using CLASS has often noted the lower scores commonly seen in the Instructional Support domain (Early Childhood Learning & Knowledge Center, 2020; La Paro et al., 2004; Locasale-Crouch et al., 2007; Mashburn et al., 2008). To place Pre-K 4 SA CLASS scores in context, the Office of Head Start found in their 2019–20 annual review[14] that average scores across the United States and for the top 10 percent of Head Start grantees were lower than those found in the current study (Early Childhood Learning & Knowledge Center, 2020). In Figure 2, Pre-K 4 SA scores are visually depicted alongside the national Head Start grantees' average score, the top 10 percent of Head Start grantees' average scores based on grantee-level domain scores, and the research thresholds.

[14] This is the most recent year of publicly available data for comparison, most likely due to the pandemic.

Figure 2. Pre-K 4 SA and Head Start average classroom quality scores by CLASS domain



Note: This visual representation is for descriptive purposes only; no statistical tests have been conducted to compare Pre-K 4 SA and Head Start classrooms for this evaluation.

Source: Early Childhood Learning & Knowledge Center. (2020). *A national overview of grantee CLASS scores in 2020*. https://eclkc.ohs.acf.hhs.gov/data-ongoing-monitoring/article/national-overview-grantee-class-scores-2020.

Interaction Quality by Master Teacher Status

The 3 CLASS domains and 10 dimensions were analyzed to determine if there were significant differences in classroom teacher–child interactions based on whether a master teacher led the classroom. Results for research question 2B ("Did master teachers of Pre-K 4 SA classrooms have higher observed teacher–child interaction quality in Year 11?") revealed no significant differences (for more detailed information, see Appendix B, Table B-2). These findings indicate classroom experiences were of similar quality across all Pre-K 4 SA teachers.

Kindergarten Readiness: GOLD Results

The GOLD Assessment

Pre-K 4 SA used the GOLD assessment to collect information on children in the fall, winter, and spring of the school year. Three-year-old children (80.8 percent of the total sample; n = 955) and 4-year-old children (53.4 percent; n = 504) were included in analyses[15] if they had outcome data for all three assessment points[16] in at least one of the following six outcomes: cognitive, literacy,

[15] As children were not randomly sampled, demographic tests of differences were conducted to determine if the sample of children included in and excluded from analyses were similar (see Appendix A, Analytic Approach for more detailed information).

[16] Out of the 3-year-old children not able to be included in GOLD analyses (n = 136), 66 children (48.5 percent) appeared to have invalid data for at least one assessment. In cognitive, less than 10 children were excluded; in literacy, 45 children were excluded; in mathematics, less than 10 children were excluded; in oral language, 58 children were excluded; in physical, less than 10 children were excluded; and in social-emotional, less than 10 children were excluded. Out of the 4-year-old children not able to be included in GOLD analyses (n = 62), 40 (64.5 percent) appeared to have invalid data for at least one assessment. In cognitive, less than 10 children were excluded; in literacy, 28 children were

mathematics, oral language, physical, and social-emotional.[17] As data were not collected on a comparison or control group, comparisons were conducted using the nationally representative normed data[18] for the GOLD assessment (Lambert, 2020). Results for research question 3A ("How did Pre-K 4 SA children compare to the normative sample on GOLD outcomes?") are presented in two separate sections as the norms vary depending on age.

3-Year-Old Results

At the start of the school year, the Pre-K 4 SA 3-year-old children were significantly below the normative sample on three out of the six GOLD outcomes (oral language, physical, and social-emotional); on par[19] with the normative sample on two outcomes (cognitive and literacy); and significantly above the normative sample on the remaining GOLD outcome (mathematics; for more detailed information, see Appendix C, Table C-1).

Across all three assessment times, 3-year-old children were similar to the normative sample in cognitive and literacy outcomes. More information is needed to understand what mechanisms might be behind the Pre-K 4 SA children scoring similarly to the normative sample for these outcomes.

Across all three assessment times, 3-year-old children were significantly above the normative sample in mathematics. The effect sizes (Hedges' *g*) for the significant results were small (0.11 for fall and 0.16 for spring). Furthermore, over the course of the year, Pre-K 4 SA children gained an additional 1.65 scale score points (or 2.6 percent improvement) in mathematics than the normative sample. Over the course of our series of evaluations, the 3-year-old Pre-K 4 SA sample has appeared to increase in initial mathematics scores compared to the normative sample. More information is needed to understand what mechanisms might be behind the Pre-K 4 SA children scoring significantly above the normative sample across all three assessments for this outcome, and what might be contributing to this apparent continuing increase in mathematics readiness prior to the pre-K year.

Spring results for the other three GOLD outcomes (oral language, physical, and social-emotional) indicated 3-year-old children remained significantly below the normative sample. The gap in oral language increased from approximately 6 scale score points in the fall to approximately 13 scale score points in the spring. The gap in physical decreased from approximately 11 scale score points in the fall to approximately 9 scale score points in the spring. The gap in social-emotional decreased from approximately 12 scale score points in the fall to approximately 10 scale score points in the spring. (For more detailed information, see Appendix C, Table C-1.)

4-Year-Old Results

At the start of the school year, the Pre-K 4 SA 4-year-old children were significantly below the normative sample on five of the six GOLD outcomes (cognitive, literacy, oral language, physical, and

excluded; in mathematics, less than 10 children were excluded; in oral language, 32 children were excluded; in physical, less than 10 children were excluded; and in social-emotional, less than 10 children were excluded.

[17] There were some additional children excluded from GOLD analyses since they were not assessed correctly based on their age. About 4 percent (4.12 percent; *n* = 47) of 3-year-old children and 35 percent (34.81 percent; *n* = 315) of 4-year-old children were excluded due to invalid assessments.

[18] Pre-K 4 SA children were compared to the updated normative sample based on age bands (Lambert, 2020).

[19] While Pre-K 4 SA children technically scored higher or lower than the normative sample, this difference was not statistically significant.

social-emotional) and on par[20] with the normative sample on the remaining outcome (mathematics; for more detailed information, see Appendix C, Table C-2).

Across all three assessment times, 4-year-old children were similar to the normative sample in mathematics. More information is needed to understand what mechanisms might be behind the Pre-K 4 SA children scoring similarly to the normative sample across all three assessment times for this outcome.

Spring results for the remaining five outcomes (cognitive, literacy, oral language, physical, and social-emotional) indicated that 4-year-old children were significantly below the normative sample. The gap in cognitive increased from approximately 11 scale score points in the fall to approximately 13 scale score points in the spring. The gap in literacy increased from approximately 4 scale score points in the fall to approximately 14 scale score points in the spring. The gap in oral language increased from approximately 13 scale score points in the fall to approximately 21 scale score points in the spring. The gap in physical increased from approximately 14 scale score points in the fall to approximately 16 scale score points in the spring. The gap in social-emotional remained approximately the same at 21 scale score points for both assessment times. More information is needed to understand what mechanisms might be behind the Pre-K 4 SA children scoring significantly below the normative sample in the spring for these outcomes. (See Appendix C, Table C-2 for more information.)

3-Year-Old and 4-Year-Old Growth Results

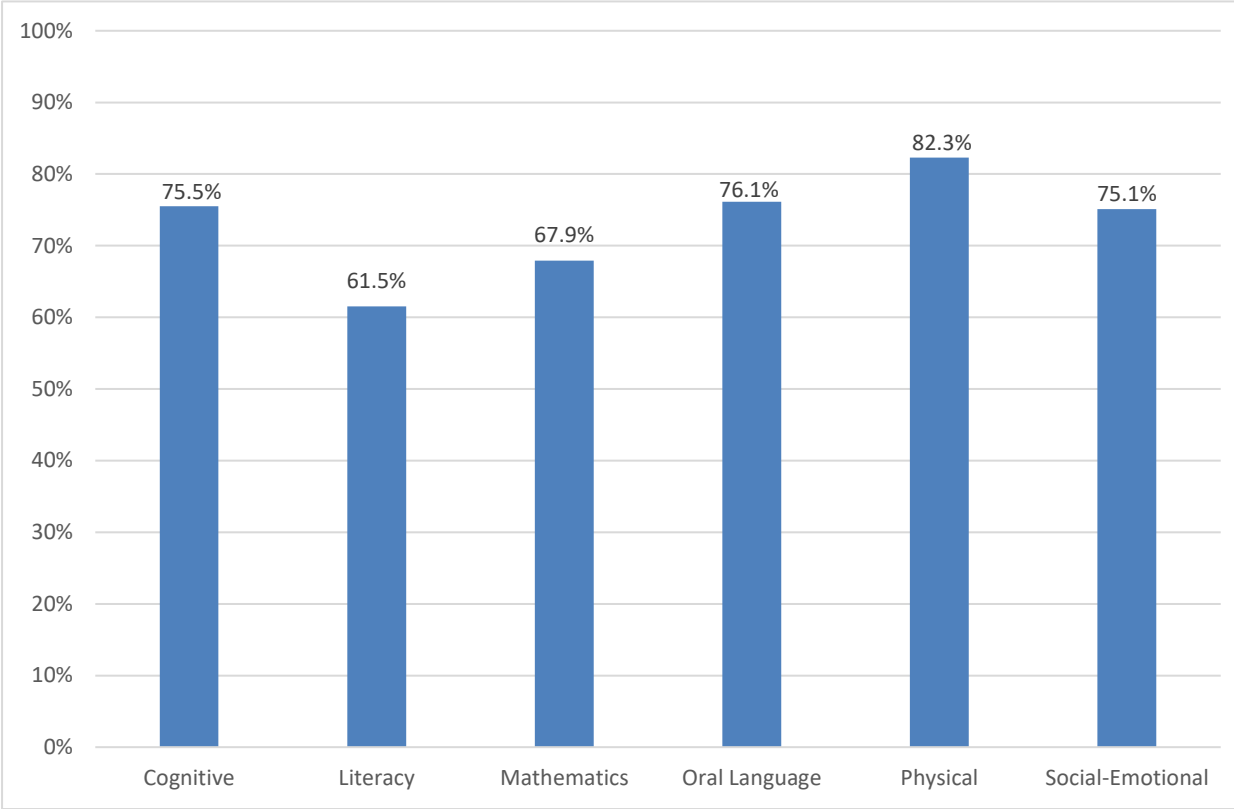
Results for research question 3B ("Did Pre-K 4 SA children demonstrate significant improvement on GOLD outcomes?") indicated there was significant improvement from fall to spring for both 3-year-old and 4-year-old children across all six outcomes. For 3-year-old children, the improvement ranged from approximately 53 (52.7) scale score points for the literacy domain to approximately 74 (73.8) scale score points for the physical domain. For 4-year-old children, the improvement ranged from approximately 43 (42.9) scale score points for the literacy domain to approximately 79 (78.7) scale score points for the physical domain. (For more detailed information, see Appendix C, Table C-3.)

Kindergarten Readiness Results

Results for research question 3C ("What percentage of Pre-K 4 SA children demonstrated kindergarten readiness as measured by GOLD outcomes?") indicated over half of 4-year-old children demonstrated kindergarten readiness in the spring across all six outcomes. This readiness was demonstrated by strong GOLD scores which ranged from 61.5 percent for the literacy domain to 82.3 percent for the physical domain, as shown in Figure 3. (For more detailed information, see Appendix C, Table C-4.)

[20] While Pre-K 4 SA children technically scored higher or lower than the normative sample, this difference was not statistically significant.

Figure 3. Percentage of 4-year-old children demonstrating kindergarten readiness at the end of the year by GOLD outcome



Direct Child Assessments

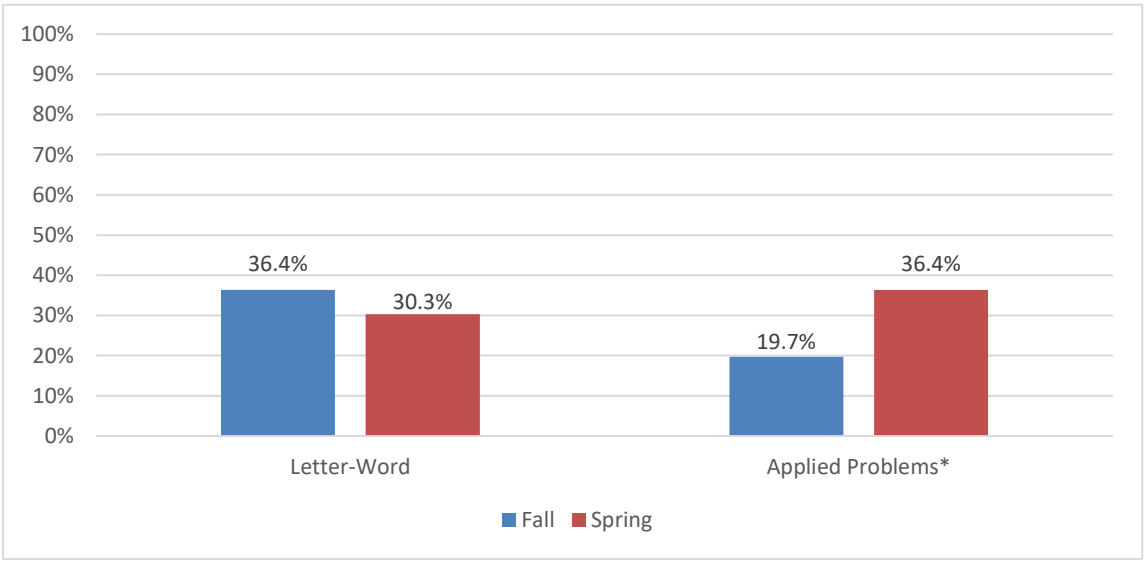
Woodcock-Johnson and Batería

Westat analyzed data from a random sample (n = 66) collected by Pre-K 4 SA on two subtests of a direct child achievement assessment: Letter-Word and Applied Problems from the WJ and Batería (collectively called WJ hereafter). Results for the first part of research question 4A ("What percentage of a random sample of Pre-K 4 SA children performed at or above their age level in early literacy and early numeracy?") are presented in Figure 4. For early literacy, 36.4 percent of Pre-K 4 SA children were at or above their age level in the fall, and 30.3 percent of children were at or above their age level in the spring. For early numeracy, 19.7 percent of children were at or above their age level in the fall, and 36.4 percent of children were at or above their age level in the spring. Therefore, these findings imply that most children are performing below their age level in the fall and spring and are behind what would be considered ready for kindergarten from a nationally representative lens.

For early literacy, these results are similar to those from last school year (2022–23). In the current school year findings, there was a decline from fall to spring for early literacy that was similar to last year's results. However, in the spring of this school year, 21.4 percent more children were performing at or above their age level in early numeracy compared to last year (15.0 percent in 2022–23 and 36.4 percent in 2023–24).

When comparing these findings over time, results for the second part of research question 4A ("To what extent did the percentage change?") indicated that there was no difference in children performing at or above their age level in early literacy (e.g., identifying isolated letters and words) across the two assessment times, but a significantly higher percentage of children performed at or above their age level in early numeracy (e.g., analyzing and solving math problems by applying simple number concepts) in the spring compared to fall. (For more detailed information and results based on number of years in Pre-K 4 SA, see Appendix D, Table D-1.)

Figure 4. Percentage of children meeting age equivalency by WJ subtest and assessment time



Note: =Letter-Word measures early literacy skills, and Applied Problems measures early numeracy skills.

* = statistically significant increase ($p < 0.05$).

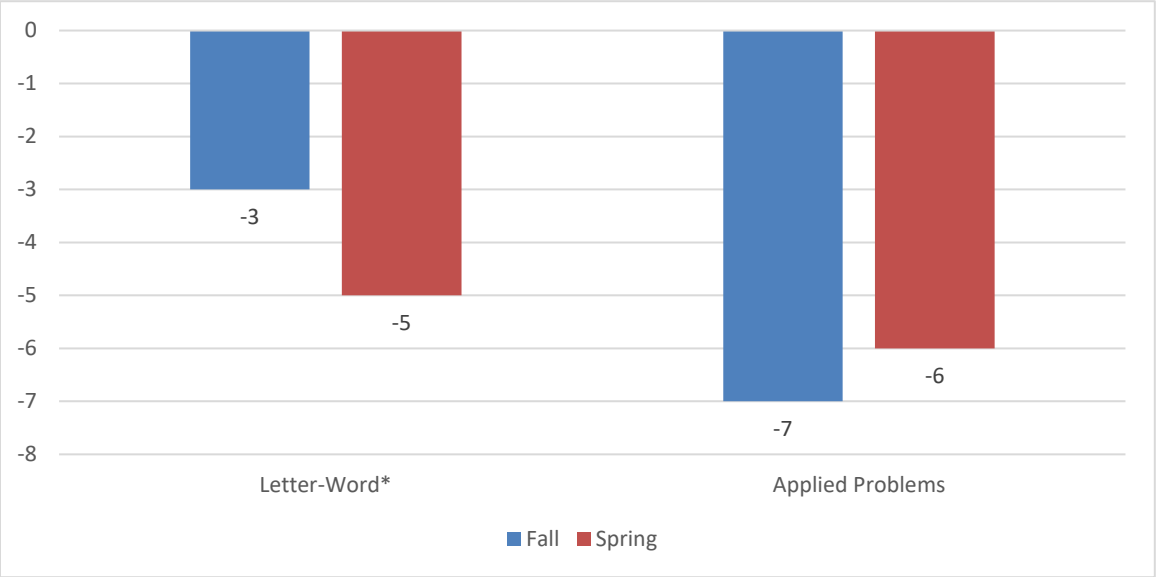
When considering growth across the year, results for research question 4B ("Did a random sample of Pre-K 4 SA children demonstrate significant improvement in early literacy and early numeracy?") indicated there was significant improvement for both outcomes. For early literacy, there was approximately 4 months of growth in learning in 6 months of time, and for early numeracy, approximately 8 months of growth in learning in 6 months of time. (For more detailed information and results based on number of years in Pre-K 4 SA, see Appendix D, Table D-2.) Therefore, these findings suggest that children gained significant knowledge of early literacy and early numeracy from fall to spring.

The results from the analyses that address research question 4C ("Did a random sample of Pre-K 4 SA children experience accelerated learning to help narrow achievement gaps in early literacy and early numeracy?") are shown in Figure 5. For early literacy, children were, on average, 3 months below the norms in the fall and 5 months below the norms in the spring. For early numeracy, children were, on average, 7 months below the norms in the fall and 6 months below the norms in the spring. Hence, the gap between Pre-K 4 SA children and the national norm significantly increased for early literacy by 2 months and was reduced for early numeracy by 1 month.[21] More information is needed to understand what mechanisms might be behind this decrease in early

[21] Because of rounding, the gap between fall and spring is not the exact difference between fall and spring.

literacy. (For more detailed information and results based on number of years in Pre-K 4 SA, see Appendix D, Table D-3.)

Figure 5. Size of achievement gap (in months) between Pre-K 4 SA and normative sample by assessment and time



Note: =Letter-Word measures early literacy skills, and Applied Problems measures early numeracy skills.

* = statistically significant increase ($p < 0.05$).

Peabody Picture Vocabulary Test

To measure children's receptive vocabulary, Westat analyzed data from a random sample (n = 65) collected by Pre-K 4 SA from children who were given the Peabody Picture Vocabulary Test (PPVT). For this assessment, children are presented pictorial images of words and asked to select the image that matched the word said by the examiner. To evaluate children's understanding, their scores are converted into five performance levels: (1) well below expected, (2) below expected, (3) expected, (4) above expected, and (5) well above expected. These levels are based on a normative sample and represent the developmental trajectory of children based on their age. To better understand how children were progressing throughout the year, analyses of vocabulary growth were conducted to assess changes over time and perform comparisons to a normative sample. Together, these two findings provide a holistic perspective of children's learning across the year.

When considering the performance levels of Pre-K 4 SA children over the year, results for research question 5A ("What were the receptive vocabulary performance levels of a random sample of Pre-K 4 SA children?") indicated the majority of children were performing in the expected range in both the fall and spring (for more detailed information and results based on number of years in Pre-K 4 SA, see Appendix E, Table E-1).

Results for research question 5B ("Did a random sample of Pre-K 4 SA children demonstrate significant improvement in receptive vocabulary?") indicated that children experienced significant improvement overall and gained additional vocabulary (approximately 6 growth scale points) when comparing their fall and spring scores across the year. (For more detailed information and results

based on number of years in Pre-K 4 SA, see Appendix E, Table E-2.) When comparing children's improvement across the year to the normative sample, there was no significant difference. This indicates Pre-K 4 SA children were progressing at a rate that is typical of children of their same age.

Results for research question 5C ("What types of receptive vocabulary improvement did a random sample of Pre-K 4 SA children demonstrate?") demonstrated children exhibited five distinct types of growth. Most children learned new vocabulary or improved their understanding of current vocabulary. (For more detailed information and results based on number of years in Pre-K 4 SA, see Appendix E, Table E-3.)

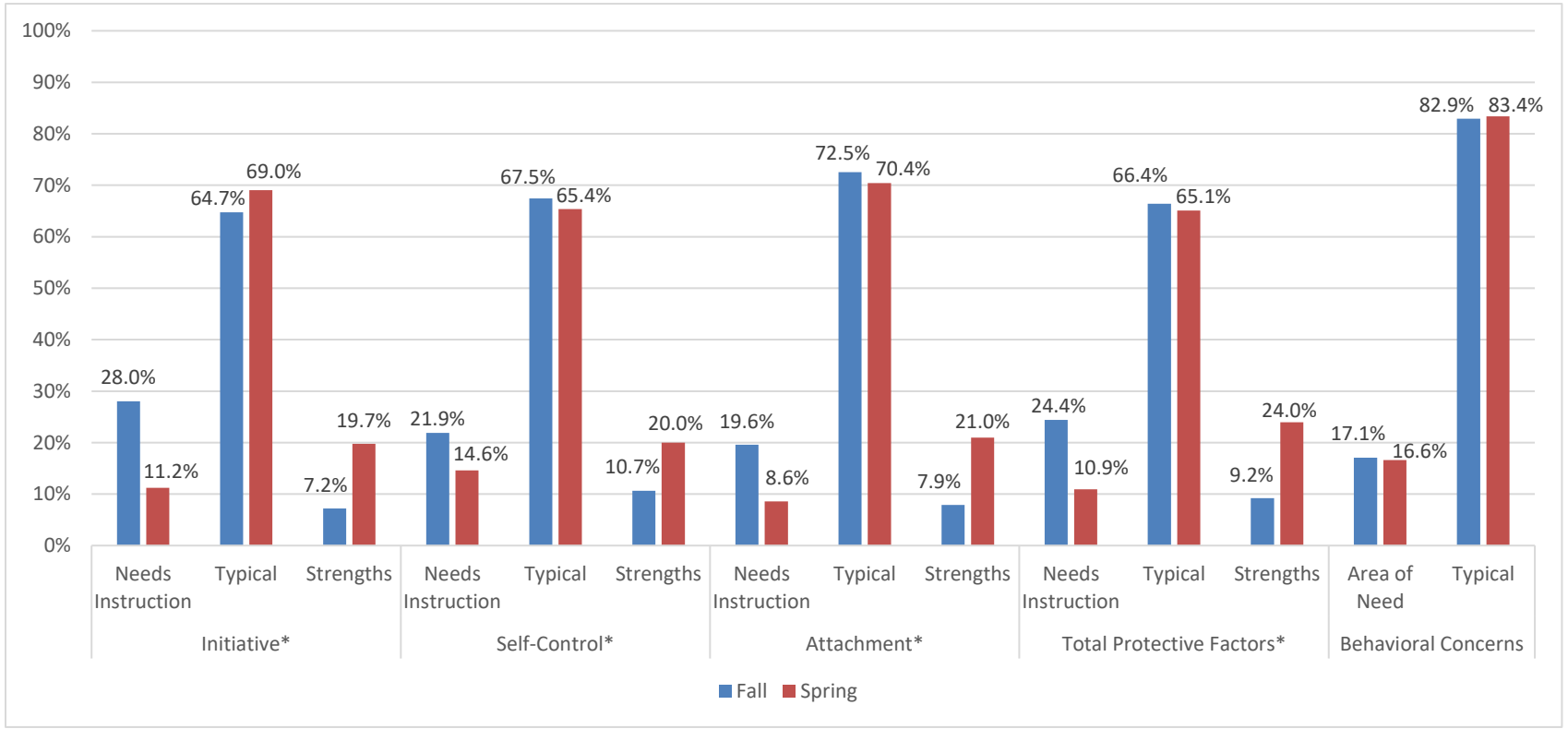
Social-Emotional Assessment

Devereux Early Childhood Assessment

To measure children's social-emotional competencies, Westat analyzed data collected from teacher ratings on the Devereux Early Childhood Assessment (DECA). The DECA uses a strengths-based approach to assessment and, as such, it focuses on building children's social-emotional strengths. It also emphasizes the importance of promoting children's social-emotional competency, because that contributes to building their resilience to overcome adversity. The outcomes related to social-emotional competency that were measured include Initiative, Self-control, Attachment, and Behavioral Concerns. Taken together, the outcomes of Initiative, Self-control, and Attachment combine to form an overall level of social-emotional competency (or the Total Protective Factors). Children were placed into one of three categories based on their scores: Needs Improvement, Typical, or Strengths.

Children were included in analyses if they had outcome data for both the fall and spring assessment points (83.4 percent of total sample, n = 1,773). Results for research question 6A ("What were the levels of Pre-K 4 SA children's social-emotional competence, and to what extent did the levels change?") demonstrated most children tested at the Typical level. The findings indicate that there was significant positive movement between levels for all outcomes except Behavioral Concerns (see Figure 6). The results showed an increasing percentage of children moving into the highest level (Strengths) by 12.5 percent for Initiative, 9.4 percent for Self-control, 13.1 percent for Attachment, and 14.8 percent for Total Protective Factors. The percentage of children who tested at

Figure 6. Percentage of children within each social-emotional performance level by outcome and assessment time



Note: =Because of rounding, decimals may not agree to the nearest tenths. The Behavioral Concerns outcome has two levels by design. It is intended to measure problematic behaviors and is reversed from the other outcomes measuring positive behaviors. Therefore, the category Area of Need comes from high scores and all other scores fall in the Typical range.

* = statistically significant increase ($p < 0.05$).

the lowest level (Needs Instruction) declined by 16.8 percent for Initiative, 7.3 percent for Self-control, 11.0 percent for Attachment, and 13.5 percent for Total Protective Factors. Moreover, children in their second year of Pre-K 4 SA demonstrated improved social-emotional competency compared to children in their first year of Pre-K 4 SA. (For more detailed information and results based on number of years in Pre-K 4 SA, see Appendix F Table F-1). Results for research question 6B ("Did Pre-K 4 SA children demonstrate significant improvement in social-emotional competence?") revealed there was significant improvement across all outcomes. On average, children grew 5.7 points in Initiative, 3.7 points in Self-control, 4.7 points in Attachment, and 5.5 points in Total Protective Factors. Additionally, on average, children decreased 1.1 points in Behavioral Concerns. For this last outcome, there was a significant decline between the fall and spring, which indicates a reduction in problematic behavior. (For more detailed information, see Appendix F Table F-2.)

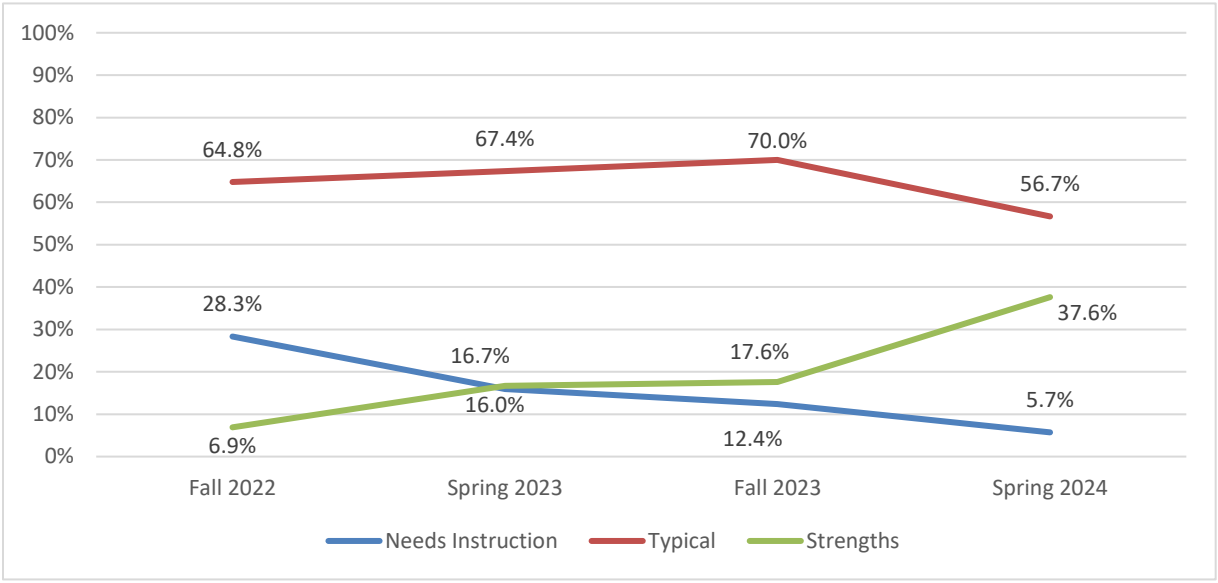
Children Attending as both 3-Year-Olds and 4-Year-Olds

In this section, we present results from an analysis of children attending Pre-K 4 SA as both three-year-olds and four-year-olds for 2 consecutive years. We adapted research question 6A (What were the levels of Pre-K 4 SA children's social-emotional competence, and to what extent did the levels change?) to focus on this subgroup of children. Children had to have data in the fall and spring assessment points for both years (2022-23 and 2023-24) to be included in the analysis (86.4 percent of total sample attending for 2 years, n = 420).

Results for this subgroup demonstrated most children tested at the Typical level across all outcomes and assessment points. For all outcomes except Behavioral Concerns there was positive movement as more children moved into the highest level (Strengths) over time. The results showed an increasing percentage of children moving into the highest level (Strengths) from fall 2022 to spring 2024 by 31.2 percent for Initiative, 22.6 percent for Self-control, 20.7 percent for Attachment, and 30.7 percent for Total Protective Factors (see Figure 7 displaying results for the Total Protective Factors outcome). Moreover, at the start of their second year (2023–24), 4-year-olds demonstrated improved social-emotional understanding compared to where they finished as 3-year-olds the previous school year (2022–23), suggesting they retained these skills over time. Additionally, children who attended Pre-K 4 SA for both years demonstrated improved social-emotional competency compared to children who attended Pre-K 4 SA for a single year, demonstrating the positive benefits of multiple years with Pre-K 4 SA. (For more detailed information, see Appendix F Tables F-3.)

Results for research question 6B ("Did Pre-K 4 SA children demonstrate significant improvement in social-emotional competence?") for this subgroup revealed there was significant improvement across all outcomes. On average, children grew 12.9 points in Initiative, 7.5 points in Self-control, 7.2 points in Attachment, and 10.7 points in Total Protective Factors. Additionally, on average, children decreased 3.2 points in Behavioral Concerns. For this last outcome, there was a significant decline between the fall and spring, which indicates a reduction in problematic behavior. (For more detailed information, see Appendix F Table F-4.)

Figure 7. **Percentage of children attending as both 3-year-olds and 4-year-olds on Total Protective Factors by assessment time and performance level**



Conclusions and Looking Ahead

Overview of Findings

The evaluation results of the education centers in 2023–24 reflect the unique post-pandemic environment and present six encouraging findings. First, overall results from the Year 11 evaluation indicate that Pre-K 4 SA has provided quality instructional environments to more than 2,000 predominantly low-income children from across San Antonio. The demographic characteristics of children served were similar to those from previous years. Classroom quality scores were high (or midrange, in the case of the CLASS Instructional Support domain), indicating strong teacher–child interaction quality.

Second, children's attendance in the program increased compared to last year (the 2022–23 school year). Despite that increase, however, overall attendance still remained lower when compared to previous years. This is not a surprising finding since national trends showed an average of 90 percent attendance at the start of the 2023–24 school year—a reduction of between 1 and 4 percent from pre-pandemic attendance rates (National Center for Education Statistics, 2024).

Third, there was significant improvement in children's academic and social-emotional skills. Teacher-reported kindergarten readiness at the end of the pre-K year (using GOLD) suggests significant improvement for all six outcomes: cognitive, literacy, mathematics, oral language, physical, and social-emotional. Similarly, teacher-reported social-emotional results (using DECA) suggest that children significantly gained social-emotional skills and demonstrated significant improvement in their understanding over the year. These results suggest children benefited from their educational experience. Given concerns among the broader education community about the implementation of necessary learning supports in response to the pandemic, these results provide one empirically evaluated example of an initiative that supports and achieves children's learning.

Fourth, teacher-reported social-emotional results (using DECA) for children attending for two consecutive years as 3-year-olds and 4-year-olds suggested children significantly gained social-emotional skills and demonstrated significant improvement in their competency. Moreover, results demonstrated when children returned to Pre-K 4 SA as 4-year-olds for their second year (2023-24), their social emotional skills had improved compared to the end of previous year (2022-23) demonstrating they retained their social-emotional competency over the summer between school years. These findings provide evidence to suggest multiple years of attending Pre-K 4 SA is associate with improved social-emotional competency. This is important given the positive associations with social-emotional understanding and achievement (Rhoades et al., 2011; Ricciardi et al., 2021).

Fifth, early literacy and early numeracy results suggest that children gained significant understanding across the year. However, most children were not performing at their age level and were in need of additional educational supports. Receptive vocabulary results showed that children experienced significant improvement over the year and gained additional vocabulary.

Six, this was the second year conducting receptive vocabulary (PPVT) and social-emotional (DECA) analyses. This allows for comparing trends over time for these outcomes and measures. For both assessments, the results from this year were similar to those from last year, suggesting a consistent pattern of findings for two consecutive years.

Comparing Assessment Results Across Measures

As was evidenced in the results section, for most measures and outcomes children demonstrated significant improvement. However, sometimes different conclusions arose when comparing early literacy and early numeracy findings across multiple measures to the normative samples. This is consistent with previous research comparing GOLD and direct child assessments (Miller-Bains et al., 2017; Qiu et al., 2021; Russo et al., 2019).

When comparing findings for early literacy as shown in Table 5, children either performed significantly below or on par with the normative sample in the fall and spring on literacy and oral language (GOLD), which agreed with the Letter-Word findings. For receptive vocabulary (PPVT), the majority of children performed in the expected range in the fall and spring. All findings indicate that children demonstrated significant improvement.

Table 5. Summary of early literacy findings across assessments

Outcome	Assessment	Age	Domain	Growth	Percentage change	Gap closure[a]	Benchmark and performance levels[b]		Norm comparisons[b]	
				Fall to Spring			Fall	Spring	Fall	Spring
Early Literacy	GOLD	3	Literacy	↑					—	—
			Oral language	↑					↓	↓
		4	Literacy	↑					↓	↓
			Oral language	↑					↓	↓
	WJ[c]	3 & 4	Letter-Word	↑	—	↓			↓	↓
	PPVT[c]	3 & 4	Receptive vocabulary	↑		—	↑	↑		

Note: A green arrow or triangle that points up indicates a positive significant result; a dash or yellow bar indicates a nonsignificant result; a red arrow or triangle that points down indicates a negative significant result. Analyses were conducted based on the assessment scoring methods indicated in the technical manuals. Columns and rows without icons indicate those analyses were not conducted.

GOLD = Growth, Observation, and Learning; PPVT = Peabody Picture Vocabulary Test; WJ = Woodcock-Johnson and Batería.

[a] PPVT findings for gap closure are based on descriptive statistics; no inferential tests were conducted.

[b] WJ findings for norm comparisons are based on descriptive statistics; no inferential tests were conducted. Across all assessments, the norm comparisons were created prior to the COVID-19 pandemic and do not reflect pandemic-related disruptions to learning and well-being. Therefore, they represent a normative sample taken from environments which are most likely quite different from the environments experienced by Pre-K 4 SA children.

[c] Assessments conducted for a random sample of children.

When comparing findings for early numeracy as shown in Table 6, some findings were consistent, and others were not. Children were either significantly above or on par with the normative sample in the GOLD findings. However, this disagrees with Applied Problems findings, which demonstrate that children were significantly below the normative sample. All findings indicate children demonstrated significant growth.

Table 6. Summary of early numeracy findings across assessments

Outcome	Assessment	Age	Domain	Growth	Percentage change	Gap closure	Benchmark and performance levels		Norm comparisons[a]	
				Fall to Spring			Fall	Spring	Fall	Spring
Early Numeracy	GOLD	3	Mathematics	▲					▲	▲
		4		▲					—	—
	WJ[b]	3 & 4	Applied Problems	▲	▲	—			▼	▼

Note: A green arrow or triangle that points up indicates a positive significant result; a dash or yellow bar indicates a nonsignificant result; a red triangle that points down indicates a negative significant result. Analyses were conducted based on the assessment scoring methods indicated in the technical manuals. Columns and rows without icons indicate those analyses were not conducted.

GOLD = Growth, Observation, and Learning; WJ = Woodcock-Johnson and Batería.

[a] WJ findings for norm comparisons are based on descriptive statistics; no inferential tests were conducted. Across all assessments, the norm comparisons were created prior to the COVID-19 pandemic and do not reflect pandemic-related disruptions to learning and well-being. Therefore, they represent a normative sample taken from environments which are most likely quite different from the environments experienced by Pre-K 4 SA children.

[b] Assessments conducted for a random sample of children.

When assessing findings for social-emotional competency as shown in Table 7, children were significantly below the normative sample for GOLD. For DECA, findings demonstrated the majority of children were performing at the Typical or Strengths levels. Given the varying nature of these comparisons, they offer different perspectives of measuring children's social-emotional understanding. All findings indicate that children demonstrated significant improvement.

Table 7. Summary of social-emotional findings across assessments

Outcome	Assessment	Age	Domain	Growth	Percentage change	Gap closure	Benchmark and performance levels[a]		Norm comparisons[b]	
				Fall to Spring			Fall	Spring	Fall	Spring
Social-Emotional	GOLD	3	Social-Emotional	▲					▼	▼
		4		▲					▼	▼
	DECA	3 & 4	Initiative	▲	▲		▲	▲		
			Self-Control	▲	▲		▲	▲		
			Attachment	▲	▲		▲	▲		
			Total Protective Factors	▲	▲		▲	▲		
			Behavioral Concerns	▲	—		▲	▲		

Note: A green arrow or triangle that points up indicates a positive significant result; a dash or yellow bar indicates a nonsignificant result; a red triangle that points down indicates a negative significant result. Analyses were conducted based on the assessment scoring methods indicated in the technical manuals. Columns and rows without icons indicate those analyses were not conducted.

GOLD = Growth, Observation, and Learning; DECA = Devereux Early Childhood Assessment

[a] These findings are based on descriptive statistics; no inferential tests were conducted.

[b] Across all assessments, the norm comparisons were created prior to the COVID-19 pandemic and do not reflect pandemic-related disruptions to learning and well-being. Therefore, they represent a normative sample taken from environments which are most likely quite different from the environments experienced by Pre-K 4 SA children.

When comparing all these results, there are four reasons why these assessments could provide different conclusions. First, they each used a different type of assessor. The GOLD and DECA are teacher-reported assessments, and the WJ and PPVT are collected by an independent assessor. Therefore, differences could be attributable to the data collector or collection method (e.g., teacher or independent assessor bias and teacher or independent assessor training) and not the content intended to be captured by the assessment. Second, the GOLD oral language, literacy, and mathematics outcomes assess more content than WJ and PPVT. It is possible children score similarly on the GOLD content that mirrors the WJ and PPVT content but score differently on the content that is only captured on GOLD. Third, there are different scoring methods for each assessment. GOLD results are based on comparing children to a single normative average, WJ and PPVT have age-specific (measured in months) normative averages, and DECA is measured across three levels (no normed comparisons are available). Therefore, it may be possible for children to show more nuanced understanding in WJ and PPVT than with GOLD, leading to different conclusions. Fourth, there is limited validity evidence in which these measures have been compared to determine how much content is similar and different across measures (e.g., Barghaus et al., 2022; Miller-Bains et al., 2017; Qiu et al., 2021; Russo et al., 2019). Therefore, these measures may be measuring different and distinct aspects of early literacy, early numeracy, receptive vocabulary, and social-emotional competency.

Directions for Future Research

Taken together, these findings demonstrate that children benefited from attending the centers. However, moving forward, work is needed to further accelerate the learning of these children. The significant improvement in early literacy and early numeracy, receptive vocabulary, and social-emotional competence provided empirical evidence of a step in the right direction. However, most

results demonstrate that children were performing below what would be expected for their grade based on national norms. Taken together, these findings shed light on children in these education centers who were born during the pandemic, and they add to the larger conversation that seeks to better understand the developmental trajectory of children born during the pandemic.

Moreover, this marks the first year of being able to evaluate children who attended Pre-K 4 SA for 2 consecutive years. Detailed results by number of years attending Pre-K 4 SA are provided in the supplemental appendices. Moving forward, it will be interesting to explore relationships between the findings for children who attend for 2 years compared to the findings for children who attend a single year to determine what patterns and trends emerge based on increased program participation.

Limitations and Recommendations

We wish to highlight four limitations related to these findings. First, because of resource constraints, Westat was not able to collect information on a control or comparison group of children with whom to compare the Pre-K 4 SA children for all outcomes at the end of the pre-K year. This is important because the normative sample that was used for comparison purposes is most likely quite different from the Pre-K 4 SA children: they likely did not experience learning in the context of the COVID-19 pandemic. Normative samples are created to be reflective of the demographic proportions similar to those found in the U.S Census and were constructed prior to the pandemic during a "typical" school year. There can be more confidence in interpreting the differences on outcomes when a comparison or control group is formed with children who are most like the Pre-K 4 SA children, and who have experienced learning during the pandemic. A matched comparison group will mean that there can be more confidence that any differences in outcomes can be attributed to Pre-K 4 SA and are not a result of other factors.[22]

Second, the learning and growth children displayed during the school years following the COVID-19 pandemic is most likely different than the school years prior to the pandemic. Based on the National Assessment of Education Progress test scores, students on average experienced one-half (−0.494) of a grade level of learning loss in math and almost a third (−0.309) of a grade level of learning loss in reading between 2019 and 2022 (Fahle et al., 2023). When comparing this to student learning trends prior to the pandemic, students recovered 20–30 percent of learning loss in the 1st year but did not make any further recovery in the subsequent 3–4 years (Center for Education Policy Research, 2023). Given these disruptions and setbacks, it is likely most children are exhibiting different amounts of growth and learning in the 2023-24 school year compared to the growth and learning demonstrated in the normative comparisons. Given this, the normative comparisons are not ideal because children's current learning and their trajectories have been altered as a result of the COVID-19 pandemic. However, this is the best research evidence currently available for comparison. Therefore, these results should be interpreted with caution. Moving forward, it will be necessary to obtain new normative sample results from test publishers in order to perform more comparable analyses. Given the amount of effort it takes to create normative samples, at a minimum it will be several years before such analyses can be conducted.

The third limitation is the vocabulary assessment, PPVT, was only available in English. Therefore, it was not possible to assess children in Spanish. The Spanish version, Test de Vocabulario en

[22] One way to form such a group of children similar in nature to Pre-K 4 SA children would be to work with an organization (e.g., Teaching Strategies) to create a matched comparison group from the normative sample of children in the future.

Imagenes Peabody (Dunn et al., 1986), has been discontinued by the publisher.[23] Beginning with the 2024–25 school year, children will be assessed using the Receptive and Expressive One-Word Picture Vocabulary Tests in English and Spanish (Martin, 2013a, 2013b; Martin & Brownell, 2011a, 2011b).

Fourth, the GOLD and DECA findings are based on children for whom data were available and do not represent all Pre-K 4 SA children.[24] Pre-K 4 SA is aware of this limitation and is working to increase the data availability for the 2024–25 school year.

[23] The testing easels to administer the assessment in Spanish have been discontinued but the score sheets are still available. As the measure is being phased out, this led the team to assess children in English only and use a different measure with an accompanying version for Spanish speaking children for the 2024-25 school year.

[24] Demographic tests of differences were conducted to determine if the sample of children included in and excluded from analyses were similar (see Appendix A, Analytic Approach for more detailed information).

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