WHITE PAPER

Getting a Jump on Head Start Readiness: Frog Street Pre-K and Closing the Early Achievement Gap

By Pam Schiller, Ph.D.

Summary

In general, the "achievement gap" in education refers to the observed, persistent disparity in academic performance between groups of students from different racial, ethnic, gender and socioeconomic backgrounds. Specifically, the gap in achievement is most often used to describe ominous differences in educational measures between African-American and Hispanic students, at the lower end of the performance scale, and their non-Hispanic white peers—and the similar academic disparity between lower income students and higher income students. Nearly 50 years of research findings have identified several factors that appear related to the achievement gap including students' racial and/or economic background, their parents' education level, access to high-quality preschool instruction, school funding, peer influences, teachers' expectations and experience, and curricular and instructional quality. Other findings indicate that the gap in achievement actually begins well before students reach kindergarten as a gap in school readiness. A variety of standardized tests at elementary school entry provide evidence of an early childhood achievement gap, including the Early Childhood Longitudinal Survey of Kindergarten (ECLS-K) children. Still other findings reveal that children who score poorly on tests of cognitive skills before starting kindergarten are highly likely to be low performers throughout their school careers. While challenging, the aforementioned findings present the opportunity to think more broadly about expanding the use of evidence-based curriculum to increase school readiness, provide universal access to opportunities for quality prekindergarten, promote investment in high-quality Pre-K-3 education, and boost achievement among minority students. Consistently, Frog Street Pre-K (FSPK) is a comprehensive bilingual curriculum designed for three and four year olds to promote progress toward school readiness goals. In order to help all children start school ready to succeed, this cutting-edge curriculum clearly aligns to the Head Start Program Performance Standards in all learning domains: language, cognitive, physical, social and emotional, as well as support for Approaches to Learning goals. Also, a value-added benefit of FSPK is the Head Start goals are at point of use for each lesson. In addition, the high-quality curriculum is based on the most current research in early childhood education including brain development findings. Moreover, preliminary data from selected school districts/agencies utilizing the FSPK curriculum show significant gains in the achievement of ethnic and racial minority students. Well-grounded in a deep knowledge of child development, the curriculum is uniquely positioned to empower Head Start educators and policymakers to know not only what to teach but also the how and why of innovative instructional strategies to increase school readiness and close the gap in early childhood achievement. The Frog Street difference is our teacher-driven dedication to continually improving state-of-the-art programs and products based on current research and input from early childhood experts, classroom educators and caregivers.

Frog Street Pre-K Fundamentals

Frog Street Pre-K (FSPK) is a comprehensive, research-based program that integrates instruction across developmental domains and early learning disciplines. The bilingual curriculum is organized into five domains and five skill/content areas that support integration and builds connections between and among all disciplines. In addition, the high-quality curriculum is engaging for both teachers and children (three and four year olds)—and is easy to implement.

The foundation of the FSPK curriculum includes five strategic cornerstones:

- Integration of theme, disciplines, and learning domains
- Social and emotional development
- Differentiation of instruction
- Equity of English and Spanish materials and instruction
- Child-centered approaches toward learning.

In general, FSPK aligns to the Head Start Program Performance Standards in all learning domains: language, cognitive, physical, social and emotional, as well as support for Approaches to Learning goals. Specifically, the cutting-edge curriculum encompasses a growing body of evidence-based practices to encourage: physical development and health; social and emotional development; approaches to learning; logic and reasoning; language development; creative arts expression; and literacy, mathematics, science, and social studies knowledge and skills. This white paper provides a brief discussion of state-of-the-art Frog Street strategies to increase school readiness—and presents preliminary evidence of progress toward narrowing the gap in achievement.

FSPK aligns to the Head Start Program Performance Standards in all learning domains.

I. Integration of Developmental Learning Domains, Disciplines and Themes

Developmental Learning Domains:

A unique benefit of FSPK is the Head Start goals are at point of use for each lesson. The curriculum provides a carefully crafted program of intentional instruction in four domains: physical development, social and emotional development, cognitive development, language development and includes approaches to teaching. Children are exposed to varied activities from each domain each day, providing an optimal learning environment (Schiller, 1999, 2001, and 2010). Physical activities are built into the instructional day and social and emotional needs are addressed through classroom routines, child centered activities as well as explicit instruction.

Frog Street Pre-K utilizes a variety of proven early childhood teaching approaches including small groups, individual activities, cooperative strategies and whole group instruction. Also, a variety of modalities are addressed through music, movement, problem solving, and interactive activities. This ensures all are provided opportunities to experience the curriculum in a variety of ways which in turn leads to greater mastery of concepts (Scott, et al, 2010).

Early Literacy:

Frog Street recognizes that early literacy plays a key role in enabling the kind of early learning experiences that research shows are linked with academic achievement, reduced grade retention, higher graduation rates and enhanced productivity in adult life (Strickland, Riley-Ayers, 2006). Consistent with findings of the National Early Literacy Panel (NELP) report *Developing Early Literacy*, FSPK comprehends the importance of language as a social and academic function—and academic areas of early childhood literacy which include: phonological awareness; alphabet knowledge; oral language and vocabulary; comprehension and written expression (National Early Literacy Panel, 2008; and Lonigan and Shanahan, 2012).

Mathematics:

FSPK provides purposeful, engaging mathematical investigations and activities that build upon children's informal understandings of patterns, numbers, measurement and shape. The knowledge and skills learned can be summarized in relationship to the critical focal points and connections to focal points for prekindergarten recommended by the National Council of Teachers of Mathematics. Frog Street Pre-K recognizes that although young children have an innate number sense,

certain instructional strategies (e.g., sequential development of skills with validation) can enhance those capabilities and prepare children to be more successful in learning arithmetic operations (Sousa 2008b). FSPK also incorporates STEM education, an approach to teaching and learning that integrates the content and skills of science, technology, engineering, and mathematics. Thus, the curriculum provides a detailed scope and sequence of intentional mathematics instruction—and relates this intuitive knowledge to academic vocabulary and concepts that form a foundation for children to succeed in both kindergarten and primary school.

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Themes:

FSPK was designed to meet current early childhood standards within the learning disciplines. Consistent with Head Start, a series of nine themes provide instruction across domains and content areas: Social and Emotional Development, Language and Literacy, Mathematics, Science, Social Studies, Fine Arts, Physical Development, Social Studies, and Technology. Because the brain learns through patterns and connections, a thematic approach is best suited for younger learners (Sousa 2008a). Research results have consistently shown that children in integrated programs demonstrate academic performance equal to, or better than, children in discipline-based programs. Also, these children are more engaged in school, and less prone to attendance and behavior problems (Drake and Reid, 2010). In addition, children learn by active engagement with their environment and through social engagement with other human beings. Multiple complex and concrete experiences are essential for meaningful learning and teaching (Caine and Caine, 1991). The aforementioned themes and the instruction contained therein provide these elemental experiences.

II. Social and Emotional Development

At the heart of FSPK is Conscious Discipline ® (Becky Bailey, 2001), a research-based program that develops social and emotional intelligence. Children learn best in an environment where they feel safe and free from stress (Jensen, 2005, Sousa, 2005). This is particularly true for the preschool classroom because the optimum window for children to wire for social and emotional intelligence is between birth and four (Ramey and Ramey, 1999 and 2004). Daily routines such as Greeting Circle, Kindness Tree and the Celebration Center are among the many ways that children learn to share emotions appropriately and interact socially with peers and teachers. In addition, appropriate behaviors are modeled throughout each instructional day and children are encouraged to share Conscious Discipline strategies, songs and rituals with their family at home. The Family Connections CD provides various take home resources for this purpose.

III. Differentiation of Instruction

In order to meet the diverse needs of the children in the prekindergarten classroom, Frog Street Pre-K provides options for English Language Learners, Special Needs students as well as advanced learners. Differentiation of instruction recognizes and responds to student differences in readiness, interests and

learner profiles. FSPK also provides for small group instruction which allows teachers to teach within each child's optimal learning level, or "zone of proximal development" (ZPD) (Vygotsky, 1978). ZPD is based on the understanding that learning will not occur at its optimal level if children are not challenged enough (Tomlinson et al., 2003) or if they are over-challenged and frustrated (Kapusnick and Hauslein, 2001). Recommendations for adapting the instruction to meet the needs of the small group are available in the Frog Street Pre-K Teacher Guides at point of use. Teachers are given simple tools to monitor student progress so that instruction can be tailored to meet the need of the child. Materials such as the Developmental Storybook and Strategy Cards provide appropriately leveled instruction for children in the Frog Street Pre-K classroom. Learning Center and Practice Center adaptations are at point of use in each teacher guide to meet individual needs. *Adaptations for Young Learners* Teacher Guide targets forerunner skills in Literacy and Mathematics for children in need of prerequisites needed for four year old competencies.

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IV. Equity of English and Spanish Instruction and Materials

FSPK enhances the bilingual and dual language classroom by providing equitable materials in both languages. Bilingual education is defined as the use of two languages in school—by teachers or students or both—for a variety of social and pedagogical purposes (National Association for Bilingual Education, 2014). Because it is impossible to totally separate language and culture, the term bilingual education includes *the concept of bicultural education (Thomas and Collier, 2003). Frog Street Pre-K provides all teachers dialogue and instructional materials in both English and Spanish. Literature and oral stories feature adaptations from English into Spanish to preserve instructional content. Many stories originated in Spanish and were sensitively adapted into English---and authentic stories from Hispanic culture are featured by authors, Isabel Campoy, Ph.D. and Alma Flor Ada, Ph.D. The Cultural Rhymes Flip chart is a resource to celebrate the various rhymes and chants from nine cultures. Research results show a clear link between appropriate bilingual materials and curriculum and academic achievement (Oakes and Saunders, 2002). Children in the bilingual FSPK classroom are well positioned for future success in both school and the community.*

V. Child-Centered "Joyful" Approaches Toward Learning

FSPK teacher training and resources encourage "joyful" child-centered approaches that foster learning opportunities based on brain development research and best practices in early childhood. Daily activities allow children to explore, create and play within the framework of the curriculum. These practices have been shown to improve academic achievement as well as to increase social and emotional competence and a sense of well-being.

Frog Street Pre-K encompasses a growing body of evidence-based practices and brain based research.

Frog Street Pre-K's definitions of high-quality preschool settings often include characteristics of the adult–child interactions, such as sensitivity and stimulation (e.g.,

responsiveness to the children's needs and signals, positive affect, and frequent verbal and social interaction). Factors important for school readiness also include the amount of time being read to, one-to-one teaching interactions, engagement with functional and environmental print, use of well-planned lessons, and incorporating materials in play that promote literacy, math, and science in play settings. In addition, other significant factors described as key for an effective learning environment include the physical setup and richness of a child's classroom.

FSPK recognizes that learning is inhibited when children do not feel emotionally safe (Jensen, 2005; Sousa, 2008a; Goleman, 1998). The curriculum offers specific social interactions and daily routines to encourage a foundation of safety and caring. Also, children learn better in smaller spaces (Epstein, 2007); this practice is supported through small group instruction and learning centers. In addition, when children are offered choices, especially about learning activities, they feel more positive about their work and, at the same time, they feel less anxiety (Jensen, 2005). Choices allow learners to reach self-determined goals, sparking and maintaining motivation among children, which is critical to learning (Schiller, 1999 and 2010). Finally, adult-child verbal and social interactions are encouraged via reciprocal exchanges in dialogue and included in lessons through Read Aloud, Literacy and Math Small Group, and Learning Center Reflect questions.

VI. Brain-based Learning

In "How the Brain Learns", Dr. David Sousa notes that sustained practice over time, called distributed practice or the spacing effect, is the key to retention. Practice that is distributed over longer periods of time sustains meaning and consolidates the learnings into long-term storage in a form that will ensure accurate recall and applications in the future (Sousa, 2008a). Consistently, Frog Street Pre-K provides a lesson structure that empowers the teacher to present information in such a way that will optimize children's ability to learn and then retain and apply that new knowledge to other areas of learning.

FSPK encourages a brain smart learning environment with suggestions for transitions, scheduling and room layout. Too much stimuli is overwhelming to young children who are not as skilled at determining which stimuli to accept and which to reject. Less is more visually but less is also more when it comes to the amount of information. Working memory must process the information that is allowed into the brain which has limited capacity (Sousa, 2008). For children younger than age five, an average of two items are memorized—and for children between age five and fourteen, an average of five items are memorized (Cowan, 2001). Thus, when providing new information to children we must be careful not to over stimulate (Perry, 2001). In summary, the curriculum encompasses a growing body of evidence-based practices and brain based research to encourage the social and emotional, physical, language and cognitive development of a child.

VII. Research-Based Best Practices

Leveraging Results of the NELP Report:

Using the landmark National Early Literacy Panel (NELP) Report as a guide, FSPK incorporates research based instructional models and innovative strategies to strengthen early literacy outcomes for young children—and ensure long term memory, alertness, and information processing based on brain science research. The NELP report represents a systematic synthesis of the research literature concerning children's early literacy skills. Results of the meta-analyses show that a wide range of interventions had a positive impact on children's early literacy

learning. However, these positive results were due to the nature and intensity of the instructional activities. Other results show that high-impact instructional strategies usually occurred frequently, were adult-directed, and delivered as one-on-one or small-group activities. Education and policy-makers are provided with important information about the early skills that are implicated in later literacy learning, the type of instruction that can enhance these skills, and the areas in which further research is required. Still other results show that the development of a more comprehensive knowledge base concerning early literacy skill development demands more rigorous research combined with strong methodology (Lonigan and Shanahan, 2012).

FSPK integrates research based instructional models and innovative strategies to strengthen early literacy outcomes for young children.

Focusing on Family Connections:

Frog Street Pre-K supports a supportive and positive learning environment (both at home and at school) that allows children to explore and test their abilities, improve their skill levels and enhance their social behavior. The curriculum incorporates important strategies to highlight ways in which those positive environments can be created—and ways to bridge the gap between them to ensure early literacy development. FSPK features distinct home/school/community connections linked to thematic units and the scope and sequence. Dr. Patricia Edwards, author and past IRA President, contributed invaluable research-based best practices on family involvement to the curriculum. Family Connections resources are available for print or online (Lazar, A., Edwards, P., and McMillon, G., 2012).

VIII. Closing the Achievement Gap

Today, the achievement gap is perhaps the most pervasive problem in education and continues to function as focal point of U.S. Department of Education reform efforts including the No Child Left Behind Act of 2001 and Race to the Top (funded by the ED Recovery Act as part of the American Recovery and Reinvestment Act of 2009). While National Assessment of Educational Progress results show that black and Hispanic students have improved performance in reading and mathematics, a gap in achievement still separates these minorities from their white peers (NCES, 2009, 2011). For nearly 50 years, research results have identified a variety of home, community, school and social factors that appear to impact the academic success of students and contribute to school readiness, achievement and opportunity gaps. Among these factors are students' racial and/or socioeconomic background, their parents' education level and access to quality preschool instruction, school funding and performance, teachers' expectations and experience, the quality of curricular and instructional content. Other research results show that achievement disparities are often attributed to socioeconomic factors. Out-of-school factors influencing children in poverty differ significantly from those affecting middle income children (Berliner, 2009; 2006). Still other research results show that disparities in achievement appear to begin well before students reach kindergarten as a gap in school readiness (Rouse, Brooks-Gunn and McLanahan, 2005).

Narrowing the Gap in School Readiness

The Early Childhood Longitudinal Survey of Kindergarten (ECLS-K) children and other standardized tests at elementary school entry provide evidence of an early childhood achievement gap (Rock and Stenner, 2005).

Frog Street acknowledges that gaps in school readiness and achievement are the result of socio-economic factors and "opportunity gaps" in resources available to children in impoverished environs.

Research findings indicate that while black children are more likely to attend preschool than white children, they may experience lower-quality care. The same study also found that Hispanic children are much less likely to attend preschool than white children (Magnuson and Waldfogel, 2005). Other findings reveal that by age 3, children in poverty have smaller vocabularies and lower language skills than children from middle-income families. In addition, children in poverty and those who are members of racial minority groups are overwhelmingly concentrated in the lowest-achieving schools with lesser experienced teachers (The Teaching Commission, 2004; Hanushek, Kain and Rivkin, 1998). Still other research findings suggest that children who score poorly on tests of cognitive skills prior to starting kindergarten are highly likely to become low performers throughout their school careers (Duncan et al, 2007). Consistently, children who both live in poverty and read below grade level by 3rd grade are three times as likely to not graduate from high school as students who have never been poor (Hernandez, 2011).

Frog Street recognizes that minority and poor children have disproportionately less access to quality early childhood education. The aforementioned research findings demonstrate that significant disparities in children's early-learning and development experiences result in school readiness gaps. As the new millennium advances, providing universal access to opportunities for quality prekindergarten is recommended to help narrow the gap in readiness. In addition, promoting increased investment in high-quality Pre-K-3 education (i.e., early education from age 3 to grade three) is recommended to close the achievement gap and ensure that minority and low-income children begin school on even footing with their peers (Magnuson and Waldfogel, 2005) and (Heckman, 2010). Among studies concluding that increased access to quality prekindergarten programs can have a positive and long-term impact on the academic achievement of minority and low-income students are the Carolina Abecedarian study, Child-Parent Center study, and High Scope Perry Preschool study (Campbell and Ramey, 1995; Reynolds, 1997). Moreover, increasing access to and investment in Pre-K-3 education programs that provide high-quality learning experiences for young children, followed by full-day kindergarten and other elementary reforms that sustain early learning gains, is essential to closing school readiness and early achievement gaps (Mead, 2012).

FSPK recognizes that the lack of access to high-quality education in a child's early years has a deep and enduring impact on development and academic achievement.

IX. Achieving Measurable Learning Goals

Frog Street Pre-K is committed achieving measurable learning goals to increase school readiness, provide universal access to quality prekindergarten, and promote investment in high-quality Pre-K-3 education. Preliminary data from selected school districts/agencies utilizing the FSPK curriculum show significant gains in the achievement of ethnic and racial minority students. While End of the Year data

is forthcoming, the following discusses initial findings from four (4) school districts or agencies: United Way of Metropolitan Nashville; San Antonio ISD; Houston ISD; and Beaumont ISD. Across sites, student and classroom demographics are similar due to consistent child participant selection criteria—English as a Second Language, below poverty level family income, homeless status, or military family. The percentages of ethnic/racial and military family populations, however, vary across sites.

United Way of Metropolitan Nashville

The United Way of Metropolitan Nashville began implementation of the FSPK curriculum in the late fall of 2010. Read to Succeed, United Way's early literacy initiative, gathers test data to monitor school success and prevent dropouts via targeted literacy skill instruction and measurement. Annual assessment targets vocabulary, phonological awareness, concepts of print, and alphabet knowledge. The National Early Literacy Report recommends measuring these essential skills for reading achievement in first grade and beyond. The agency sets annual target goals for growth and analyses reports to compare Beginning of the Year skills with End of the Year data using norm-referenced assessments: Get It, Got It, Go! (GGG); Getting Ready to Read (GRTR); and Phonological Awareness Literacy Screening (PALS).

In general, three years of FSPK data scores show significant increases from Beginning of the Year to End of the Year outcomes in classrooms implementing the curriculum. The Frog Street Pre-K goal to ensure that children enter school ready to learn was consistently met. Specifically, 1,200 pre-school children, age 4, were assessed individually with norm-referenced tests by an appropriate instructor or United Way mentor. The agency then aggregated beginning of the year data from all classrooms and set end of the year goals for each performance indicator. End of the Year assessment data was collected and compared to measure growth and development from the Beginning of the Year—and to determine whether the target goal was met.

Overall, FSPK assessment results show significant increases in literacy skills needed for reading success in classrooms implementing the curriculum during each school year (2010-11, 2011-12, 2012-13). First, Getting Ready to Read test scores show an: increase of 30% from Fall 2010 to Spring 2011; increase of 41% from Fall 2011 to Spring 2012; and increase of 15% from Fall 2012 to Spring 2013.

Second, Get It, Got It, Go! findings show a significant increase in performance indicators for rhyming, picture naming, and alliteration.

- Rhyming - 50% increase in the 2010-2011 school year, 30% increase in the 2011-2012 school year and 32% increase in the 2012-2013 school year.
- Picture Naming showed similar increases over the three year period ranging from 14% to 22%.
- Alliteration scores increased overall by 35% on average.

Third, Phonological Awareness Literacy Screening subtests increased significantly and met or exceeded targeted goals.

- Letter knowledge - an average of 43% increase over the three years;
- Beginning Sounds - an average increase of 38% over three years;
- Letter Sounds - 34% average increase over three years;
- Rhyme Awareness - an average increase of 39% over three years;
- Print Awareness - an average increase of 43% over three years of implementation of FSPK;
- and Nursery Rhymes - 44% average increase in skills over the three year implementation period.

San Antonio Independent School District

The San Antonio Independent School District (ISD) initiated FSPK curriculum implementation in during the academic year 2011-12. The full implementation of the curriculum began in the academic year 2012-13. The district assessed 2,323 children using the Frog Street Assessment (FSA), an online assessment of 30 subtests measuring knowledge in ten learning domains. The following are findings:

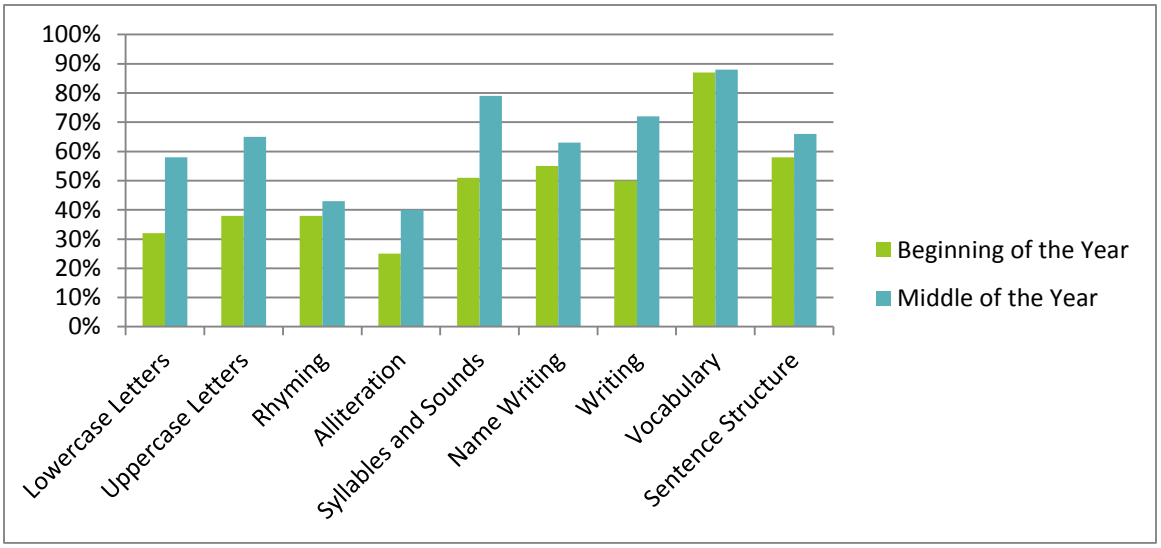
San Antonio ISD
Enrollment Demographics

Hispanic	31.3%
African American	6.3%
White (not Hispanic)	1.8%
Asian	0.2%
Native American / other Pacific Islander	0.1%
Two or more races	0.3%
Economically Disadvantaged	92.8%

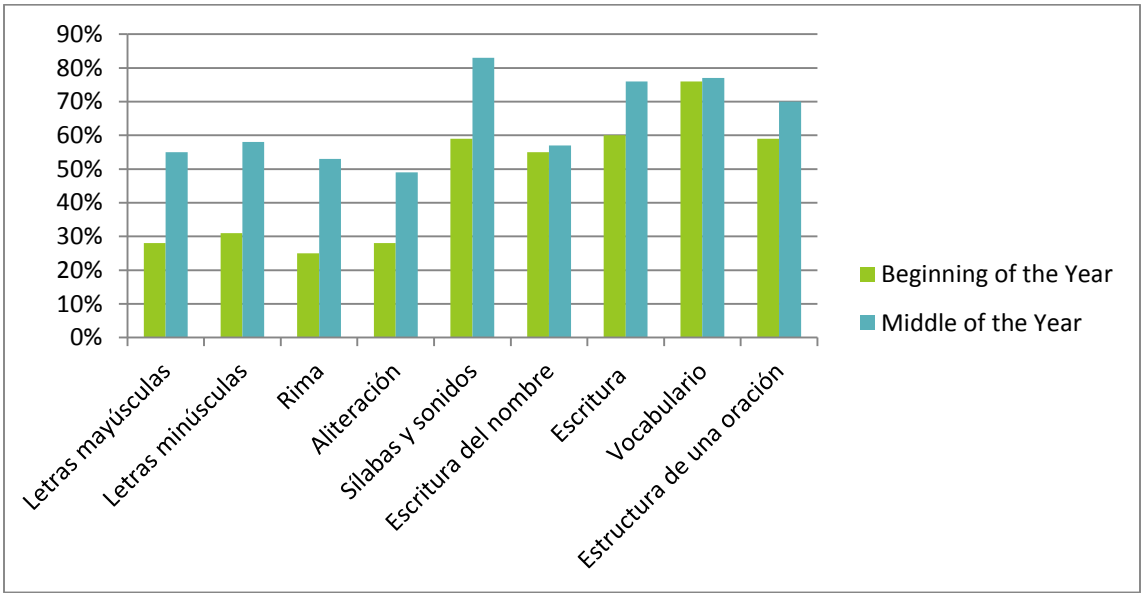
Literacy Findings:

- Students were administered tests in their primary language. Each area of literacy showed significant gains, specifically on subtests identified as highly predictive of later literacy achievement.
- Letter knowledge and phonological awareness subtests based on the Texas Prekindergarten Guidelines showed the most significant increases from Beginning of the Year to Middle of the Year.

San Antonio ISD
FSA Year-to-Date Test Results – Literacy, English
Academic Year 2012 – 2013



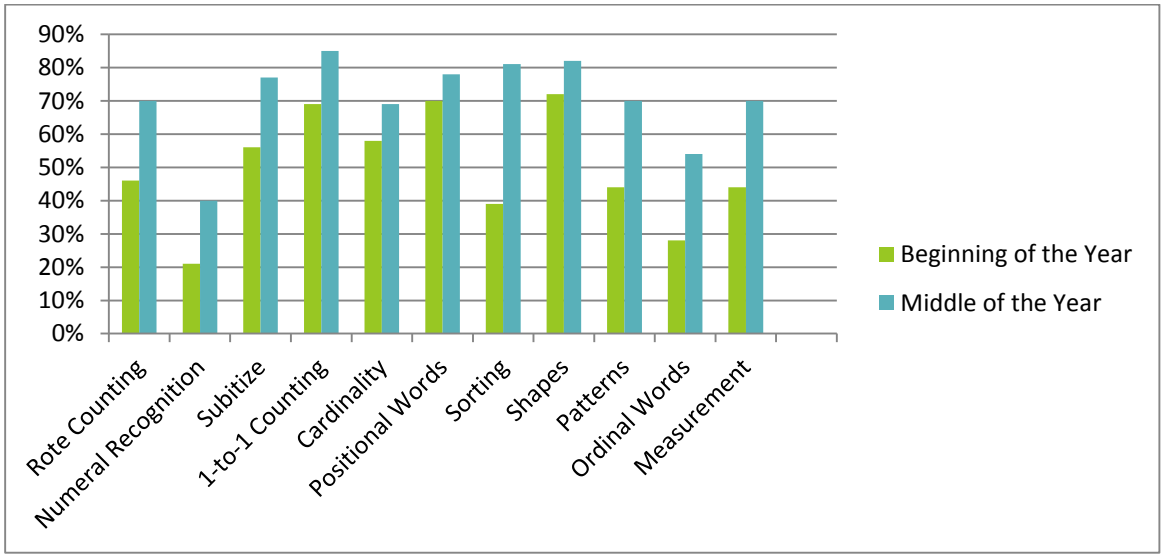
San Antonio ISD
FSA Year-to-Date Test Results – Literacy, Spanish
Academic Year 2012 – 2013



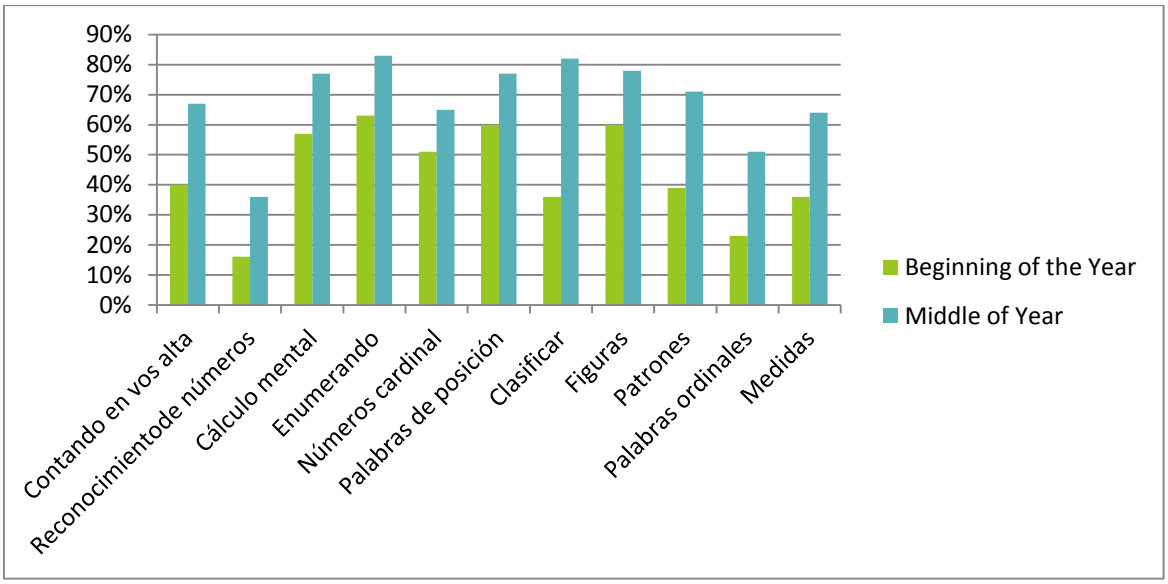
Math Findings:

- San Antonio ISD Prekindergarten children were assessed on knowledge and skills in FSPK based on critical content domains specified and recommended by the National Council of Teachers of Mathematics. The domains measured are Number and Operations, Geometry and Spatial Awareness, Measurement, Classification and Patterning, and Data Collection and Analysis.
- Each subtest, including Sorting, Patterns, and Measurement, specifically incorporates STEM standards of practice including inquiry, logical reasoning, collaboration and investigation. The robust instruction contributes to an increase in scores for both English and Spanish speakers.
- Cardinality, the ability to name the quantity of a group of objects, is the highest level of counting skills. Both groups show increased abilities in cardinality.

San Antonio ISD
FSA Year-to-Date Test Results – Math, English
Academic Year 2012 – 2013



San Antonio ISD
FSA Year-to-Date Test Results – Math, Spanish
Academic Year 2012 – 2013



The aforementioned preliminary results are promising and San Antonio ISD continues to aggregate data for each academic year based on Beginning, Middle and End of the Year assessments. In addition, 2013 Beginning of the Year TPRI and Tejas Lee scores are currently being analyzed based on state funded prekindergarten attendance in the district.

Houston Independent School District

The Houston Independent School District (HISD) implemented the FSPK curriculum in the academic year 2011-12. The number of students enrolled in prekindergarten classrooms that year was 16,422. The purpose of the HISD Prekindergarten on Kindergarten Performance Evaluation was to determine the academic benefits of prekindergarten via examining program effects on kindergarten performance. In general, the academic performance of students who attended prekindergarten was compared to students who were not enrolled in prekindergarten the previous year (academic year 2010-11). Specifically, measures of student performance included: Stanford 10 and Aprenda 3 reading and math scores, and reading comprehension levels on the TPRI Early Reading Assessment and Tejas LEE (Kindergarten Readiness assessments).

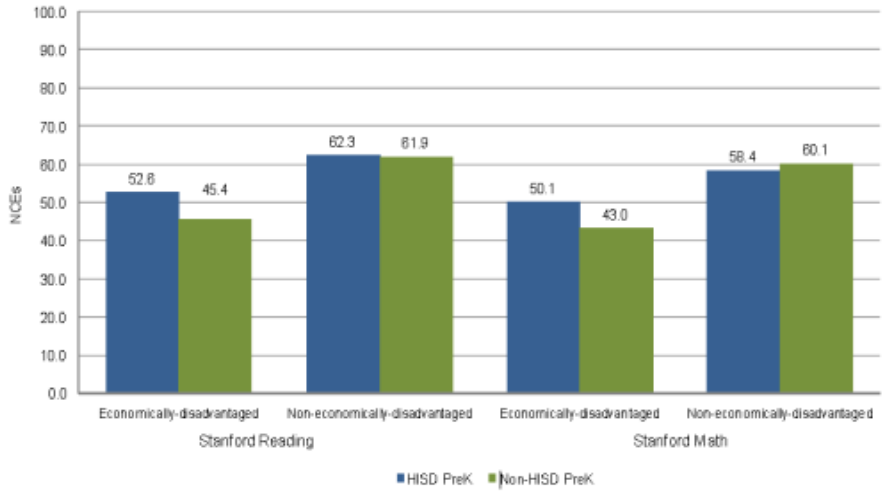
Highlights of preliminary findings include:

- Statistically significant differences in performance on the 2011-12 Stanford 10 were found between economically disadvantaged students who attended HISD prekindergarten in 2010-11 and their economically disadvantaged peers who did not attend HISD prekindergarten.
- Economically disadvantaged students who attended HISD prekindergarten in 2010-11 outperformed their economically disadvantaged peers who did not attend HISD prekindergarten by seven NCEs on the reading subtest and by seven NCEs on the math subtest in 2012. However, effects of HISD prekindergarten on student performance on the Stanford were small.
- The effects of HISD prekindergarten on 2012 kindergarten Stanford performance were stronger for students who are economically disadvantaged.
- Attending HISD prekindergarten mitigates the effects of economic disadvantage status on kindergarten Stanford performance.
- Students who attended HISD prekindergarten in 2010-11 and who took the Aprenda, outperformed the student groups who did not attend HISD prekindergarten, regardless of economic status.
- On the 2011-12 Aprenda, students who attended HISD prekindergarten in 2010-11 outperformed their peers who did not attend HISD prekindergarten by fourteen NCEs on the reading subtest and by fourteen NCEs on the math subtest.
- Students who attended HISD prekindergarten in 2010-11 were 29 percent more likely to score at the developed level on the end-of-year TPRI screening assessment in 2012 compared to their counterparts who did not attend HISD prekindergarten, after accounting for the effects of age, gender, economic status, LEP, and special education classification on performance.
- On the end-of-year 2012 TPRI inventories assessing Phonological Awareness and Graphophonemic Knowledge, the economically disadvantaged HISD prekindergarten student group had a greater percentage of students scoring at the “developed” level compared to the economically disadvantaged student group who did not attend HISD prekindergarten.
- On the end-of-year 2012 Tejas Lee inventories assessing Phonological Awareness and Graphophonemic Knowledge, the HISD prekindergarten student group had a greater percentage of students scoring at the “developed” level compared to the economically disadvantaged student group who did not attend HISD prekindergarten in 2010-11.

Houston ISD Demographics of Prekindergarten Students

Gender	
Female	49.5%
Male	50.5%
Race/Ethnicity	
African American	21.2%
Hispanic	72.7%
White	2.3%
Asian	2.0%
American Indian	.02%
Pacific Islander	.01%
More than 2 Races	.04%
Other Demographics	
Limited English Proficient (LEP)	25.8%
Economically Disadvantaged	62.5%
Special Education	3.0%

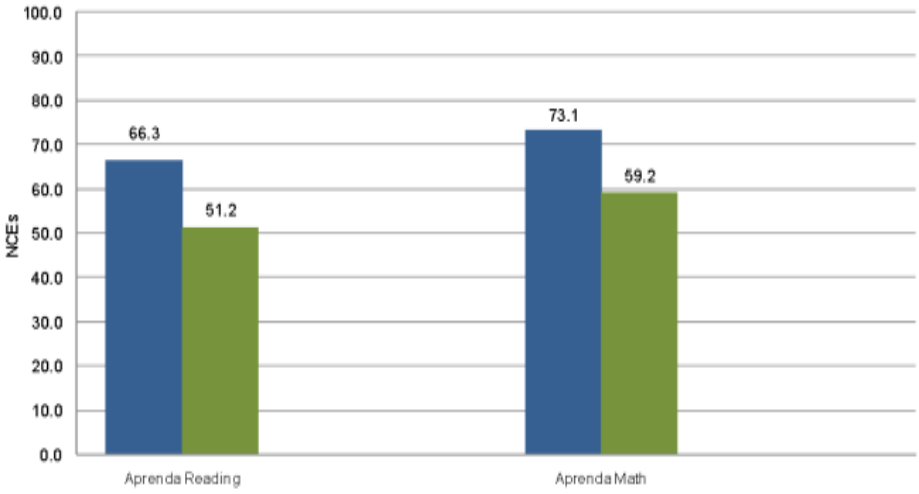
Houston ISD Stanford Reading and Math Mean Scores



Findings:

- Economically disadvantaged students who attended HISD prekindergarten scored significantly higher on the reading subtest compared to economically disadvantaged students who did not attend HISD prekindergarten (7 normal curve equivalent scores).
- Economically disadvantaged students who attended HISD prekindergarten the previous year scored significantly higher on the math subtest compared to economically disadvantaged students who did not attend HISD prekindergarten (7 normal curve equivalent scores).
- The extent to which HISD prekindergarten had an influence on Stanford math performance varied by students' economic status.

Houston ISD Aprenda Reading and Math Mean Scores

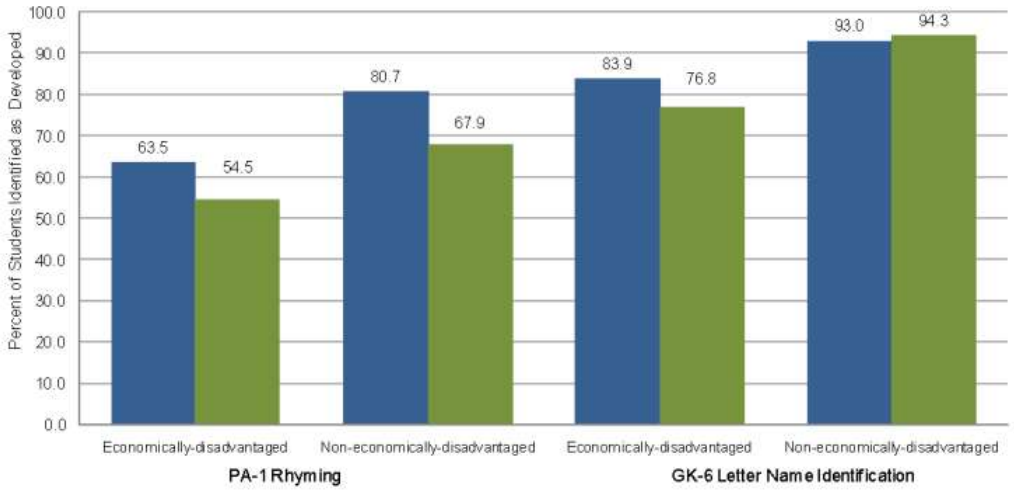


Highlights:

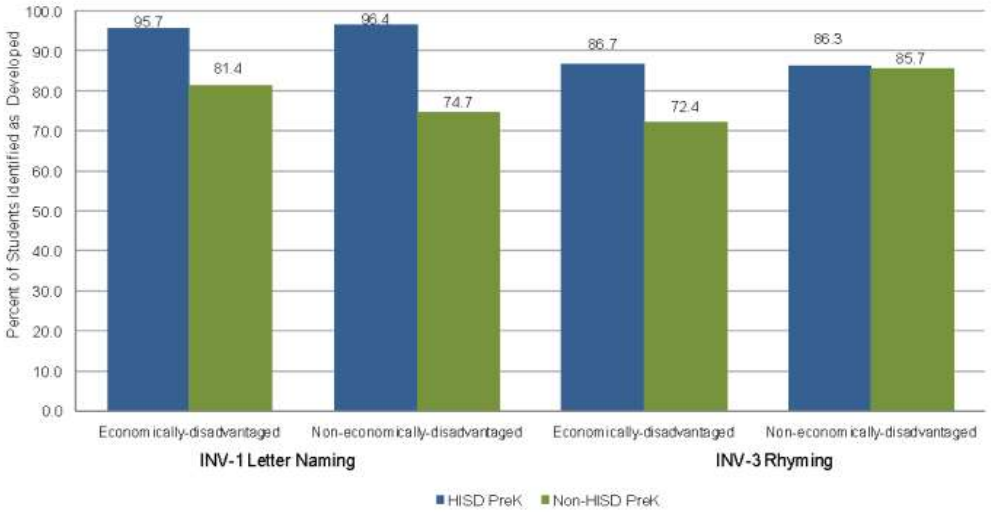
- Students who attended HISD prekindergarten scored significantly higher on the reading subtest compared to students who did not attend HISD prekindergarten (15 normal curve equivalent scores), regardless of economic status.
- Economically disadvantaged students who attended HISD prekindergarten the previous year scored significantly higher on the math subtest compared to economically disadvantaged students who did not attend HISD prekindergarten (7 normal curve equivalent scores).

Houston ISD TPRI and Tejas Lee Inventories

Texas Primary Reading Inventory for Kindergarten



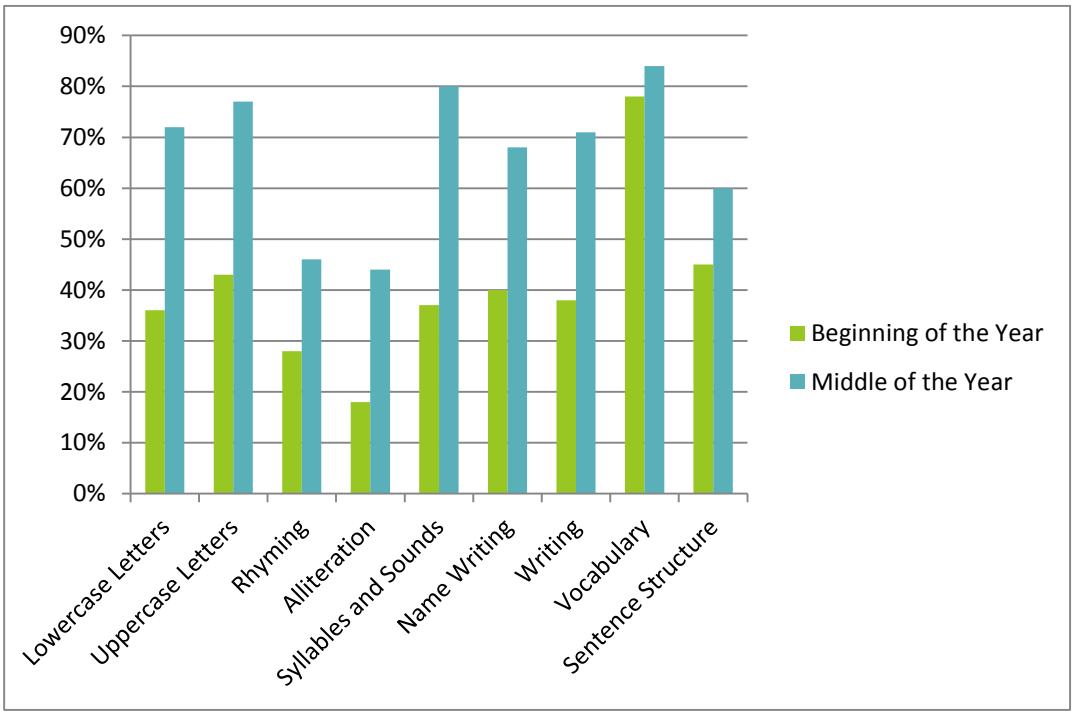
Tejas Lee for Kindergarten



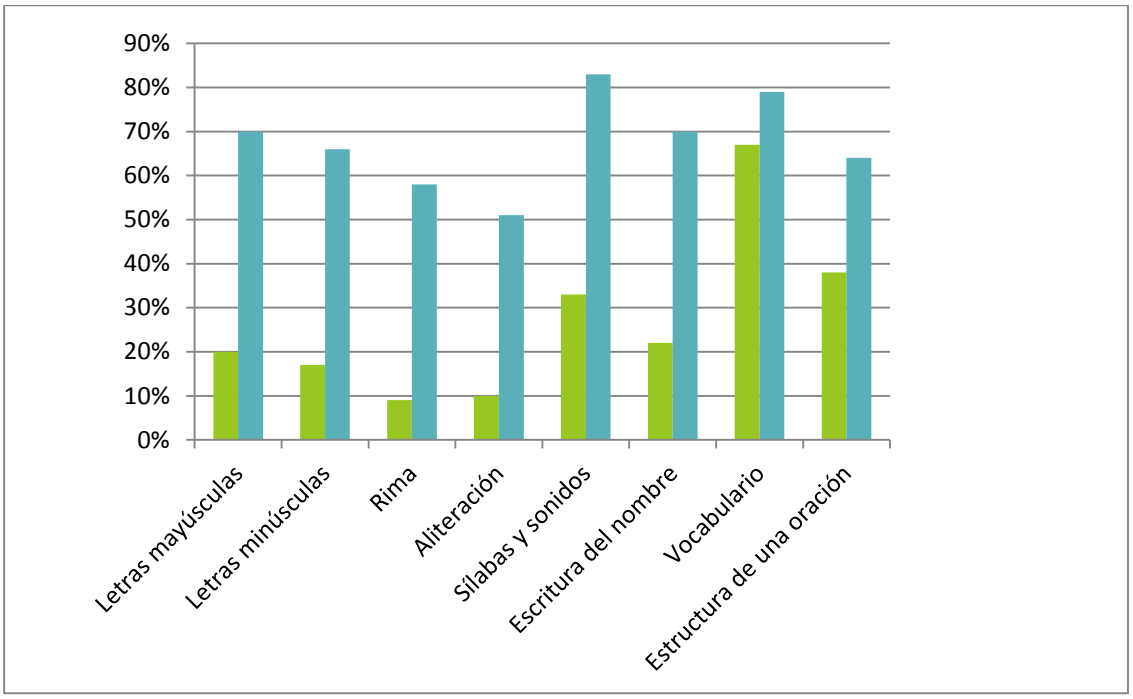
Findings:

- The economically disadvantaged HISD prekindergarten group had a greater percentage of students scoring at the “developed” level compared to the economically disadvantaged student group who did not attend HISD prekindergarten on both the “Rhyming” and “Letter Naming” inventories on the TPRI in kindergarten.
- Both economically disadvantaged and non-economically disadvantaged HISD prekindergarten groups had a greater percentage of students scoring at the “developed” level compared to their counterparts who did not attend HISD prekindergarten on the “Letter Naming” and “Rhyming” inventories, regardless of economic status
- Five demographic characteristics (economic status, gender, special education status, age, LEP classification) emerged as significant predictors of students’ scoring at the “developed” level (not at risk for developing reading difficulties).
- When accounting for all five demographic characteristics mentioned, students who attended HISD prekindergarten were 29 percent more likely to score at the “developed” level compared to their counterparts who did not attend HISD prekindergarten.

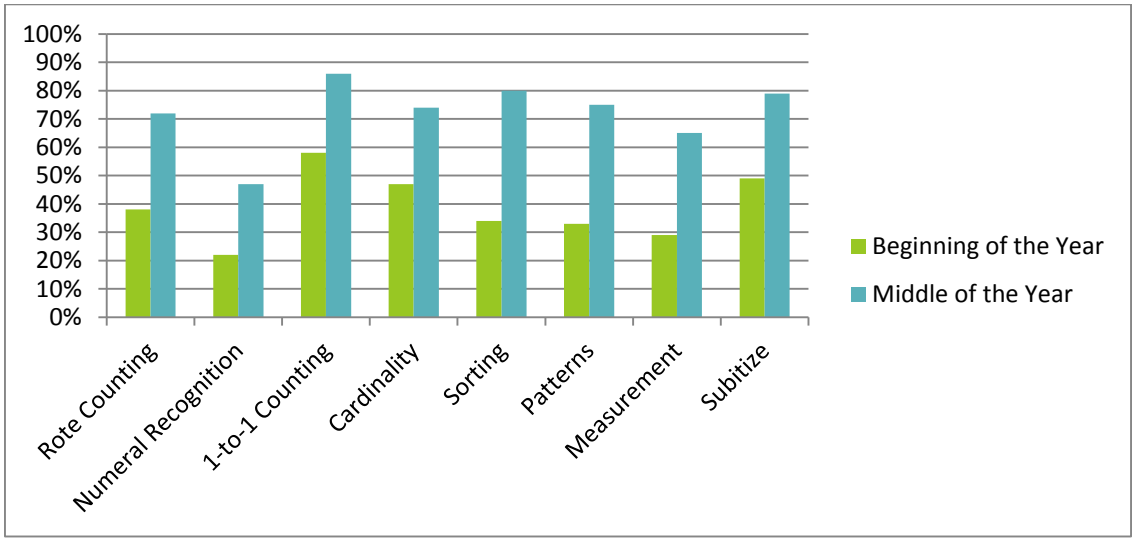
Houston ISD Academic School Year 2012 – 2013
Year-to-Date Scores – Literacy, English
Frog Street Online Assessment



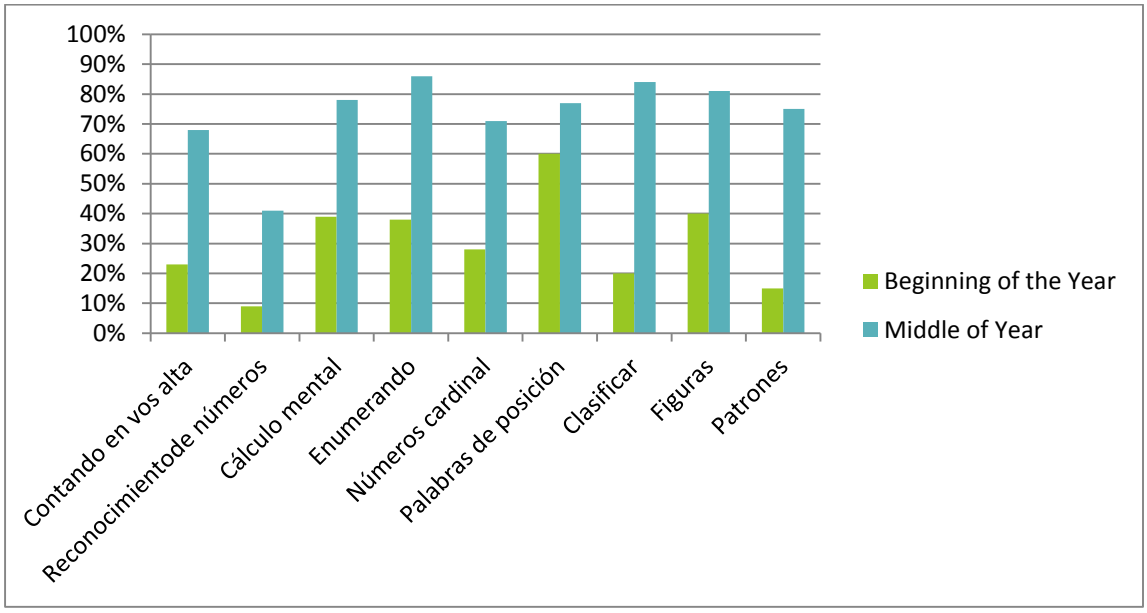
Houston ISD Academic School Year 2012 – 2013
Year-to-Date Scores – Literacy, Spanish
Frog Street Online Assessment



Houston ISD Academic School Year 2012 – 2013
Year-to-Date Scores – Math, English
Frog Street Online Assessment



Houston ISD Academic School Year 2012 – 2013
Year-to-Date Scores – Math, Spanish
Frog Street Online Assessment



Houston ISD Findings on Frog Street Online Assessment

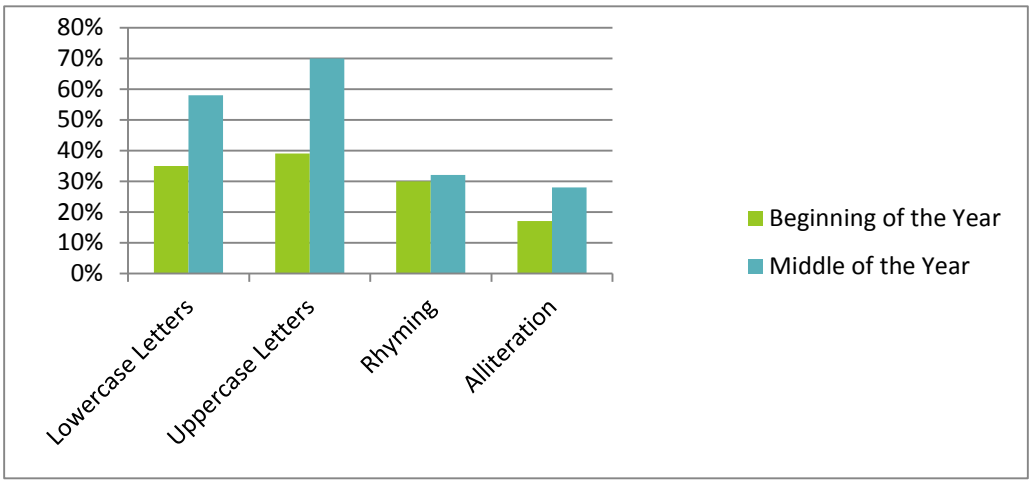
- Houston ISD assessed 16,128 students using the Frog Street Online Assessment at Beginning of the Year (BOY) and Middle of the Year (MOY). Students will be assessed on End of the Year skills in early May, 2013. The district will continue to provide on-going evaluations.
- Houston ISD Prekindergarten teachers administered the Frog Street Online Assessment using computers and/or tablets.
- Professional Development and alignment of assessment to curriculum (FSPK) has shown a significant increase of skills from BOY to MOY.
- Students who were administered the test in Spanish at BOY performed lowered on baseline skills scores than those students who were administered the test in English at BOY.
- Middle of the Year scores show distinctive increases over BOY for both English and Spanish scores. English and Spanish subtests indicated only a slight gap between the MOY scores.

The aforementioned preliminary findings are promising and the HISD continues to share data results after Year Two. The district anticipates score increases due to the alignment of curriculum, instruction and assessment methods implemented in academic year 2012-13. In addition, future evaluations will attempt to determine whether and under what circumstances parental involvement influences the kindergarten performance of students who attended an HISD Early Childhood Center for prekindergarten classes.

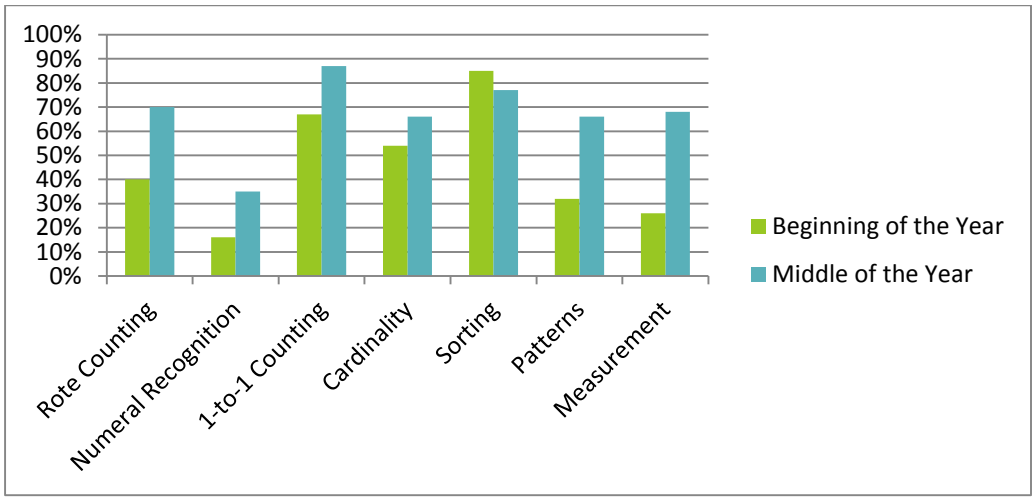
Beaumont Independent School District

Beaumont ISD implemented the FSPK curriculum mid-year of the academic year 2011-12. The district began full implementation in the academic year 2012-13. Beaumont ISD assessed 484 three and four year old children using the Frog Street Assessment (FSA), an online assessment of 30 subtests measuring knowledge in ten learning domains. The early childhood campus serves an economically disadvantaged population. The following are preliminary findings:

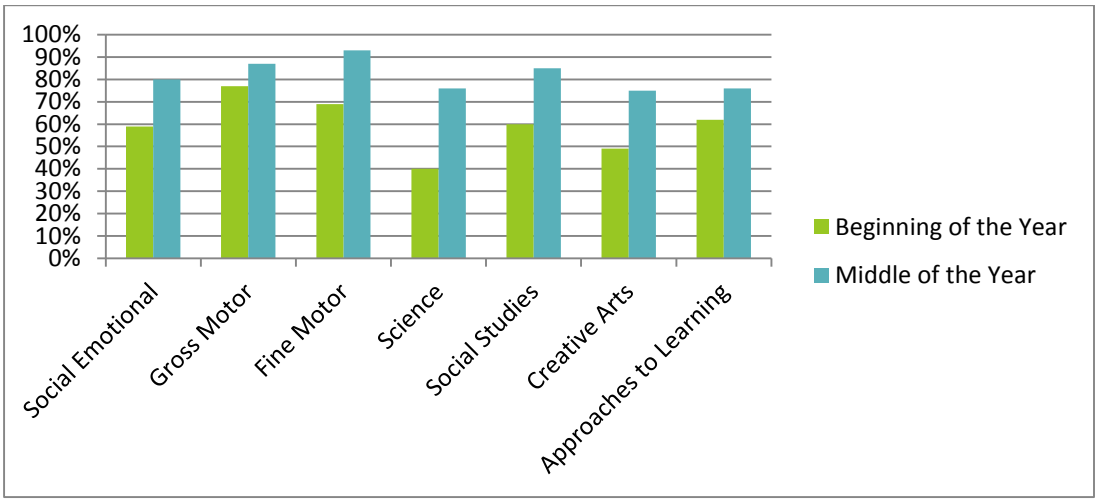
FSA Year-to-Date Test Results – Literacy
Academic Year 2012 – 2013



FSA Year-to-Date Test Results – Mathematics
Academic Year 2012 – 2013



FSA Year-to-Date Test Results – Additional Domains
Academic Year 2012 – 2013



Beaumont ISD Early Childhood Campus findings:

- The early childhood campus population is economically disadvantaged.
- All areas of the curriculum have shown significant increases.
- The school has identified the literacy areas to focus on for the remainder of the school year with intentional instruction, daily small group instruction and follow-up teacher training in the areas of phonological awareness.

Beaumont ISD Early Childhood Campus recommendations:

- The district administration recommends ensuring fidelity of curriculum instruction using administrator observation checklists. The focus will be in the area of literacy.

The aforementioned preliminary findings are promising and the Beaumont ISD intends to continue to gather additional data and provide ongoing classroom results.

In summary, preliminary data from selected school districts/agencies utilizing the FSPK curriculum show significant gains in achievement among ethnic and racial minority students.
While further research is required, these findings support expanding the use of evidence-based curriculum to increase school readiness, provide universal access to opportunities for quality prekindergarten, promote investment in high-quality Pre-K-3 education, and boost achievement among ethnic and racial minority students. Furthermore, these findings contribute to a growing body of empirical evidence that supports quality Pre-K programs, followed by full-day kindergarten, as a strategy to improve ethnic and racial minority student achievement and to narrowing achievement gaps as children progress in school.

IX. Conclusion

In general, the “achievement gap” in education refers to the observed, persistent disparity in academic performance between groups of students from different racial, ethnic, gender and socioeconomic backgrounds. Specifically, the gap in achievement is most often used to describe ominous differences in educational measures between African-American and Hispanic students, at the lower end of the performance scale, and their non-Hispanic white peers—and the similar academic disparity between lower income students and higher income students.

Nearly 50 years of research findings have identified several factors that appear related to the achievement gap including students' racial and/or economic background, their parents' education level, access to high-quality preschool instruction, school funding, peer influences, teachers' expectations and experience, and curricular and instructional quality. Other findings indicate that the gap in achievement actually begins well before students reach kindergarten as a gap in school readiness. A variety of standardized tests at elementary school entry provide evidence of an early childhood achievement gap, including the Early Childhood Longitudinal Survey of Kindergarten (ECLS-K) children. Still other findings reveal that children who score poorly on tests of cognitive skills before starting kindergarten are highly likely to be low performers throughout their school careers.

While challenging, the aforementioned findings present the opportunity to think more broadly about expanding the use of evidence-based curriculum to increase school readiness, provide universal access to opportunities for quality prekindergarten, promote investment in high-quality Pre-K-3 education, and boost achievement among minority students. Consistently, Frog Street Pre-K (FSPK) is a comprehensive bilingual curriculum designed for three and four year olds to promote progress toward school readiness goals. In order to help all children start school ready to succeed, this cutting-edge curriculum clearly aligns to the Head Start Program Performance Standards in all learning domains: language, cognitive, physical, social and emotional, as well as support for Approaches to Learning goals. Also, a value-added benefit of FSPK is the Head Start goals are at point of use for each lesson. In addition, the high-quality curriculum is based on the most current research in early childhood education including brain development findings.

Preliminary data from schools utilizing FSPK show significant gains in achievement among ethnic and racial minority students.

This white paper concludes that preliminary data from selected school districts/agencies utilizing the FSPK curriculum show significant gains in the achievement of ethnic and racial minority students. Well-grounded in a deep knowledge of child development, the curriculum is uniquely positioned to empower Head Start educators and policymakers to know not only what to teach but also the how and why of innovative instructional strategies to increase school readiness and close the gap in early childhood achievement. In summary, the Frog Street Pre-K difference is our teacher-driven dedication to continually improving state-of-the-art programs and products based on current research and input from early childhood experts, classroom educators and caregivers.

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The Frog Street Difference

As a company built by early childhood educators, we understand that childhood is a period of incubation. With so much to learn and such a short period of opportunity, we have made it our mission to help teachers and caregivers make the journey both joyful and purposeful. At Frog Street, our exclusive focus is on the development of early childhood minds. We are dedicated to continually improving our programs and products based on current research and input from early childhood classroom educators and caregivers.

We Work with Early Childhood Experts

We work with the best and brightest in the early childhood field to develop programs tailored to challenge each child to the edge of his or her competency. Our expert author team includes Pam Schiller, PhD; Alma Flor Ada, PhD; F. Isabel Campoy, PhD and Brian Mowry. We also have incorporated content from many other early childhood experts including leading methodologies like Becky Bailey's Conscious Discipline® strategies for social-emotional development.

Our Programs Create a Joyful Environment

Children are joyful creatures. Our curriculum and resources are designed to tap into a child's nature and create a joyful experience from the first moments of the day until it is time to say goodbyes. Our programs are filled with songs, music, hands-on materials and activities, chants, games, and make-believe designed to stimulate a child's imagination, helping make each day a wonderful one!

Our Focus is on Intentionality of Instruction

All of the curriculum and programs are aimed at one thing: igniting the minds of young children by fostering their academic, social and emotional growth through purposeful lessons and materials that intentionally produce a positive outcome. Our comprehensive, research-based programs integrate instruction across developmental domains and early learning disciplines.

We Strive to Enhance Bilingual Instruction

We understand how challenging it can be for early learners to receive instruction in English while being raised in a predominantly Spanish-speaking household. This is why many of our programs offer instruction with teacher dialogue in both languages for ease of teaching in bilingual classrooms.

We Foster Professional Development

With a program designed to be as engaging for teachers and caregivers as it is for children, our focus is on fostering the continual professional development of those implementing Frog Street resources in the classroom. We offer training both onsite and at our annual Splash conference to help each educator hone their skills at providing differentiated instruction and a joyful approach to learning.

For more information, visit http://www.frogstreet.com/