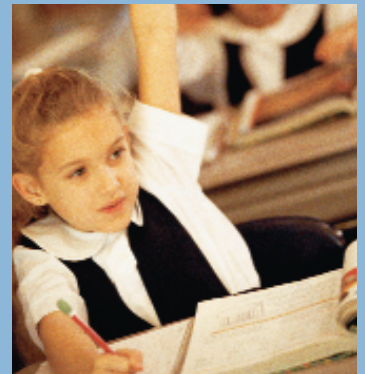
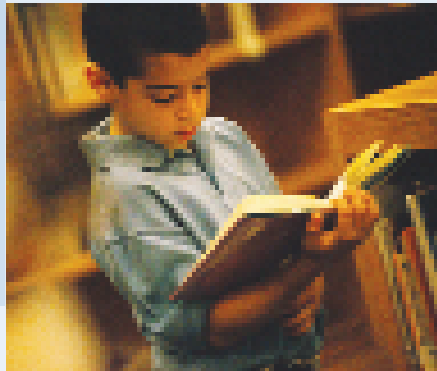
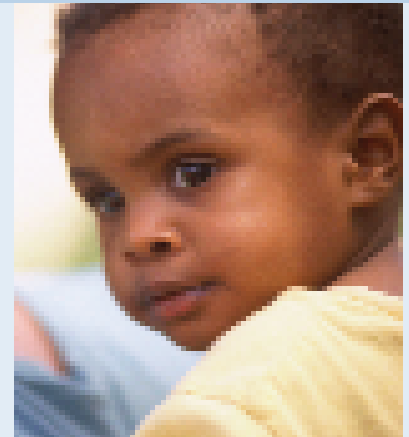


# Early Learning Coalition of Duval

Report  
2005-06



Early Learning Coalition  
of Duval



# THE EARLY LEARNING COALITION OF DUVAL 2005-2006 REPORT

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## THE EARLY LEARNING COALITION OF DUVAL 2005-2006 REPORT

School readiness begins long before children enter kindergarten—in fact, it is a continuous process that begins at birth. Research findings support the benefits of programs aimed at preparing young children for school, and show that high-quality early education is particularly beneficial for economically disadvantaged children, many of whom begin formal schooling under-prepared for the challenges they will face. In 1999, the Florida Legislature recognized the economic and social importance of preparing our youngest children for kindergarten and passed the School Readiness Act, which sought an integrated, seamless delivery system for early education and care programs through county or regional school readiness coalitions. In Duval County, the *Early Learning Coalition of Duval, Inc.* (the ELC) filled this role, with a goal of ensuring the school readiness of children as they enter kindergarten.

The ELC (formerly known as the *Duval County Ready Child Coalition*) understood that to accomplish its goal, a system of services supported by local government and community agencies was required. With an explicit focus on economically disadvantaged children, the ELC developed and coordinated an integrated system of health, education, and support services. Families, working in concert with local organizations, have access to resources to help their children develop cognitively, affectively, socially, and physically, thereby better preparing these children for entry into kindergarten.

In addition to meeting a child's basic needs, the ELC recognized early literacy as an important key to future academic success. Children who do not learn to read early and read well will not easily master other important skills as they progress through school. Consequently, beginning with the 2002-2003 academic year, the ELC funded a three-year initiative designed to

improve the early literacy achievement of economically disadvantaged children. In the first two years, the *Duval County Professional Development Consortium* (using multiple funding streams) worked with approximately 250 preschool teachers and 3,700 preschool children.

In the third year of the project (the 2004-2005 academic year), the *Duval County Professional Development Consortium* and the ELC joined the newly convened *Jacksonville Early Literacy Partnership* (JELP), led by Jacksonville Mayor John Peyton. The additional funding available through JELP increased the number of centers served and expanded technical assistance and coaching beyond preschool classes to infant and toddler classrooms in the partnership centers, creating a more seamless system of school readiness services in centers located in low-income neighborhoods. This report reflects the combined efforts of the ELC and the JELP.

### **2005-2006 PARTICIPATING CHILDREN AND SITES**

In 2005-2006, the ELC continued its leadership role in improving the quality of early care and learning services for Jacksonville's school readiness children and children attending child care centers in low-income neighborhoods. As a function of the JELP collaboration and blended funding, the ELC provided services to 366 preschool and 296 infant/toddler classrooms in 165 child care settings serving 7,851 children (2,493 infant/toddlers and 5,358 preschoolers). Table 1 lists the number of centers, classrooms, and children served by partner organizations.

Table 1

*The Number of Sites, Teachers, and Children Served by Affiliated Partners (as of March 2006)*

Collaborative Partner	Number of		
	Sites	Classes	Children
<b>Duval County Public Schools</b>	11	14 Preschool 11 Infant/Toddler	179 74
<b>Episcopal Children’s Services</b>	69	142 Preschool 140 Infant/Toddler	1962 1229
<b>Florida Institute of Education at the University of North Florida</b>	4	10 Preschool	172
<b>Jacksonville Children’s Commission</b>	56	113 Preschool 145 Infant/Toddler	1578 1190
<b>Jacksonville Urban League Head Start Program</b>	25	87 Preschool	1468

For the participating preschool classrooms, the blended funding was used in part to purchase the materials needed to craft a rich environment. To ensure that children were exposed to learning and literacy experiences, the participating classrooms needed to be language- and print-rich—in fact, *learning-rich*. In a learning-rich classroom, posters and materials are affixed to the walls at the child's eye-level. The upper- and lowercase letters of the alphabet are prominently displayed, as are the names and photographs of the children in the class and picture/word cards. Activity centers are created to provide opportunities for frequent, purposeful early literacy and learning experiences.

In addition, the funding provided coaches for the preschool teachers. Coaches were available to assist the teachers as they created and sustained their learning-rich environments and began to implement one of two research-based and literacy-focused curricula developed by either Episcopal Children's Services or the Florida Institute of Education (FIE). The knowledge and pedagogical skills of preschool teachers grew through continual job-imbedded, literacy-focused training.

The infant/toddler classrooms served by ELC and JELP also received visually stimulating materials to facilitate child learning. Coaches in these classrooms focused their efforts on helping participating infant/toddler teachers create learning-rich environments, establish warm and caring relationships with the children in their care, and engage in literacy-focused experiences that provide a strong foundation for later learning.

### **THE EARLY LEARNING COALITION ASSESSMENT PLAN**

Each year the ELC develops a work plan to submit to the *Florida Agency for Workforce Innovation* (AWI). The work plan includes an assessment plan that lists the measurement instruments used to satisfy the legislative mandates and statutory regulations governing the administration and operation of school readiness programs in Florida. FIE provided technical assistance in guiding the choice of sound measures for use with preschool children, measures that would also provide reliable and useful data to answer questions raised by coalition stakeholders. Therefore, the two needs addressed by the choice of instruments were to provide:

- a pretest to assess children when they enter a program and a posttest to assess children when they leave the program; and
- valid data from standardized measures that can be used by the ELC to answer questions about program effectiveness and progress toward meeting ELC goals.

To address these needs, FIE, in collaboration with ELC staff and the Quality Rating System (QRS) Work Team, reviewed available instruments that can be used for assessing young children. They then developed an assessment plan to meet the legislative mandates and the assessment standards. After selecting instruments, assessments were carried out in child-sensitive, time-conscious, and unobtrusive ways. FIE-trained assessors administered the

standardized measures in one-on-one settings, and classroom teachers, trained by preschool coaches, administered the Alphabet Letter Recognition Inventory (ALRI).

### **MEASUREMENT INSTRUMENTS**

Three instruments were selected to measure the children's achievement. The *Test of Early Reading Ability-Third Edition* (TERA-3) and the Alphabet Letter Recognition Inventory (ALRI) assess important components of children's reading readiness. Results of the ALRI, a measure of letter recognition, were reported in ways that allow teachers to more effectively meet the individual needs of children. The *BRIGANCE Screens* (Preschool Screen-II and K&1 Screen-II) were used to inform instruction as well as to serve as a pretest and posttest assessment of children enrolled in the ELC school readiness program. Responses to all three assessments were recorded on scannable forms and computer scored.

#### ***Test of Early Reading Achievement - Third Edition (TERA-3)***

The TERA-3 is a norm-referenced test that assesses components of early reading skills, including familiarity with the letters of the alphabet and numerals, discovery of the arbitrary conventions used in reading and writing English, and recognition that print conveys information, ideas, and thought. The test is composed of three scales: Alphabet, Conventions of Print, and Meaning, each measuring one of the three components. In addition, a composite score, called the Reading Quotient, is the standardized sum of the three standardized scale scores.

- The *Alphabet* scale includes measures of whether children can recognize different forms of printed letters; recognize the names of letters; and distinguish beginning, middle, and ending sounds in words.
- The *Conventions of Print* scale includes measures of whether children are familiar with the ways that books are organized (front to back) and how text on a page is read (left to right and top to bottom).

- The *Meaning* scale includes measures of whether children can understand the meanings of printed words.

TERA-3 can be administered to children as young as three years, six months and as old as eight years, six months. Because children undergo rapid development over the age span covered by the TERA-3, raw scores are *normed* relative to fourteen different groups of children covering the age range of the test. Depending on the time between pretest and posttest and the age of the child at pretest, a posttest score may be interpreted relative to a different age group than the pretest. This process adjusts standardized scores for natural maturation and allows detection of gains that result from programs.

The TERA-3 Reading Quotient scores are reported as norm-referenced, standardized scores with a mean of 100 and a standard deviation of 15. The TERA-3 scale scores are reported as norm-referenced, standardized scores with a mean of 10 and a standard deviation of three. Because reported scores are norm-referenced, a change in scores represents a change in the rankings of scores relative to the normative populations and does not represent an absolute gain in knowledge. Based on the normative populations, the performance of children assessed with the TERA-3 can be displayed in seven categories ranging from *Very Poor* to *Very Superior*. Table 2 shows the ranges of the TERA-3 Reading Quotient and the scales scores relative to the national normative population. These scores and categories are used in this report to indicate the participating children's emergent literacy ability.

Table 2  
 TERA-3 Reading Quotient and Scale Scores by Ability Categories

Score	Categories						
	<i>Very Poor</i>	<i>Poor</i>	<i>Below Average</i>	<i>Average</i>	<i>Above Average</i>	<i>Superior</i>	<i>Very Superior</i>
<b>Reading Quotient Score Intervals</b>	Below 70	70-79	80-89	90-110	111-120	121-130	Above 130
<b>Scale Score Intervals</b>	Below 4	4-5	6-7	8-12	13-14	15-16	17-20
<b>Percentiles</b>	2 <sup>nd</sup> or lower	3 <sup>rd</sup> to 9 <sup>th</sup>	10 <sup>th</sup> to 25 <sup>th</sup>	26 <sup>th</sup> to 75 <sup>th</sup>	76 <sup>th</sup> to 90 <sup>th</sup>	91 <sup>st</sup> to 97 <sup>th</sup>	98 <sup>th</sup> or higher

### Alphabet Letter Recognition Inventory (ALRI)

The ALRI is a locally developed inventory measuring children’s ability to recognize and name the upper- and lowercase letters of the alphabet when presented in non-alphabetic order. The test is given by the classroom teacher and is used, in part, to guide classroom instruction.

Teachers use alphabet letter flashcards to administer the ALRI in one-on-one settings. The uppercase letters are presented first, followed by the lowercase letters. The score represents the number of correctly identified letters. ALRI scores are reported in four recognition categories: 0 to 13 letters, 14 to 26 letters, 27 to 39 letters, and 40 to 52 letters.

The *Early Childhood Longitudinal Study-Kindergarten* (ECLS-K) provides a national benchmark for alphabet letter recognition. In this study, a random sample of upper- and lowercase letters were presented to children. ECLS-K researchers classified letter recognition as *proficient* if children named at least 75% of the sampled letters.<sup>1</sup> Reports using ECLS-K data

<sup>1</sup> U.S. Department of Education, National Center for Education Statistics. *Early childhood longitudinal study, kindergarten class of 1998-1999: Data files and electronic codebook*. NCES2001-028 {CD ROM} On-line ordering at <http://www.ed.gov?pbus/edpubs.html>

indicate that 66% of children entering kindergarten for the first time were *proficient* in letter recognition.<sup>2</sup>

### **The *BRIGANCE Screens***

The *BRIGANCE Screens* (BRIGANCE Screens) include a series of four instruments (*Infant & Toddler Screen, Early Preschool Screen-II, Preschool-II, and K & I Screen-II*) that are intended to quickly and accurately identify those children who may have developmental problems, including language impairments, learning disabilities, or cognitive delays. Because the BRIGANCE Screens sample all developmental domains, they can be used to refer children for services as well as to measure learning over time.

The BRIGANCE Screens were administered to all school readiness children (who were four years old on or before September 1, 2005) in Jacksonville child care centers; to a sample of eligible ELC school readiness children cared for in Family Child Care Homes; and to participating children enrolled in Quality Rating System (QRS) centers who had informed parental consent. The scores from the BRIGANCE Screens can be used in three ways:

- to inform instruction,
- to compare the performance of individual children to the mastery of the content, and
- to compare the scores of children to the performance of a national sample of similarly aged children.

### **ASSESSING PARTICIPATING CHILDREN**

Data for this report are drawn from three populations: a sample of preschool children enrolled in approximately 100 centers receiving intensive support to prepare the centers for the

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<sup>2</sup> U.S. Department of Education, National Center for Education Statistics. *Entering kindergarten: A portrait of American children when they begin school: Findings from the condition of education*, Nickolas Zill and Jerry West, NCES2001-035, Washington DC: U.S. Government Print Office, 2001. Available at <http://nces.ed.gov/pubs2001/2001023.pdf>

ELC *Quality Rating System* (QRS); a sample of preschool children enrolled in the Jacksonville Urban League Head Start program; and all school readiness children served by the ELC in centers plus a random sample of 10% of school readiness children served in Family Child Care Homes (FCCH). Children who were four years old by September 1, 2005 were eligible for assessment. The 2005-2006 assessment plan, depicted in Table 3, used three strategies:

- a random sample of children from partner agencies with informed parental consent was administered the TERA-3;
- all children enrolled in QRS centers who had informed parental consent, all eligible ELC school readiness children enrolled in partnership centers, and a 10% sample of school readiness children enrolled in FCCH were administered the BRIGANCE; and
- all eligible children were administered the ALRI.

Table 3  
2005-2006 ELC Sampling Plan

<b>2005-2006 Assessment Sample</b>	
<u>Assessment</u>	<u>Children</u>
<b>TERA-3</b> (a proportionate random sample of 4-year-old children with informed consent from DCPS, ECS, FIE/UNF, JCC, and JULHS)	949
<b>BRIGANCE</b> (all eligible 4-year-old school readiness children enrolled in centers, a 10% sample of school readiness children enrolled in FCCH; and all children with informed consent enrolled in QRS centers)	1662
<b>ALRI</b> (all eligible 4-year-old children at participating sites)	2948

#### **ATTRITION OF CHILDREN**

Attrition of children was due to both child and site factors, because some locations closed during the school year. The study of the attrition of the participating children is based on the TERA-3 scores, as they are the best indication of the initial achievement of the children and data were collected by trained assessors. The discrepancy between the number of TERA-3 pretest and posttest scores represents the attrition of 20% of the children. This percentage was due in part to

the closing of three sites whose children were part of the stratified, random sample used for TERA-3 testing, and the closings accounted for the attrition of 28 children. To determine if attrition occurred at random, the TERA-3 pretest scores of the participating children who were not administered the TERA-3 posttest were compared to pretest scores of children who were administered the TERA-3 posttest. Table 4 presents the results of the comparison.

Table 4

*Summary Statistics and ANOVA Results: TERA-3 Reading Quotient and TERA-3 Scale Pretest Scores by Attrition Category*

	Incomplete Scores (n=191)	Complete Scores (n=758)	
<b>TERA-3 Test</b>	<b>Pretest Mean</b>	<b>Pretest Mean</b>	<b>Probability</b>
<b>Reading Quotient</b>	88.1	89.4	.0002
<b>Alphabet Scale</b>	8.5	9.0	<.0001
<b>Conventions Scale</b>	7.6	7.7	.0043
<b>Meaning Scale</b>	8.3	8.4	.1012

With the exception of the TERA-3 Meaning scale, children not completing the preschool year in their original classes had lower initial emergent literacy achievement than children who did complete the year. This finding limits the generalizability of the evaluation results to children with low initial status as they were not necessarily represented in their true proportion in the study.

### EVALUATION QUESTIONS

- **Question 1: What preschool children formed the population for the 2005-2006 evaluation?**
- **Question 2: Were services sponsored by the ELC, with joint funding and collaboration from the JELP, effective in improving the emergent literacy ability of preschool children based on the TERA-3 Reading Quotient and scale scores?**
- **Question 3: How did the participating preschool children's year-end ability to recognize the upper- and lowercase letters of the alphabet compare to national performance benchmarks in letter recognition?**

- **Question 4: Were services sponsored by the ELC, with joint funding and collaboration from the JELP, effective in improving the school readiness of preschool children based on scores from the BRIGANCE Screens?**

The answers to these questions come from data obtained in the fall and spring using the TERA-3, BRIGANCE, and ALRI. Both summary statistics and statistical testing of pretest and posttest mean differences provide the answers. Data from all scales were analyzed as repeated measures ANOVA models. To determine the importance of all statistically significant differences, effect sizes are reported. Cohen classified effect sizes of 20 to 49 percent of a standard deviation as small, between 50 and 79 percent of a standard deviation as medium, and 80 percent or more of a standard deviation as large.<sup>3</sup> Small, medium, and large effect sizes represent meaningful differences.

## EVALUATION RESULTS

### Question 1: What preschool children formed the population for the 2005-2006 evaluation?

The answer to this evaluation question involves a description of the children by gender, ethnicity, and age and comes from the ALRI data as it is most representative of the participating children.

#### Gender

There were 1,139 boys and 1,161 girls with complete ALRI scores.

#### Ethnicity

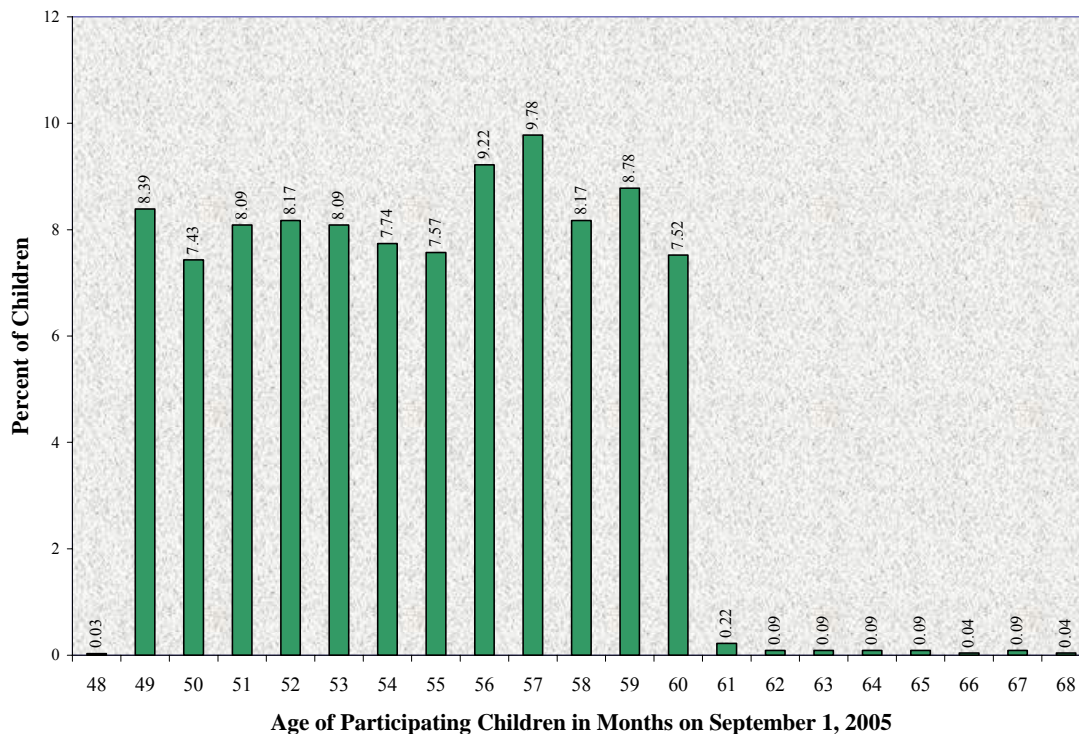
Ethnicity of the children was reported in five categories: *Black*, *White*, *Hispanic*, *Asian*, and *Other*. Of the children with complete ALRI scores, 57.7% were *Black*, 31.3% were *White*, 5.4% were *Hispanic*, 1.5% were *Asian*, and 5.0% were *Other*.

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<sup>3</sup> Cohen, J. (1988). *Statistical power analysis for behavioral sciences (2<sup>nd</sup> ed.)*. Hillsdale, NJ: Lawrence Erlbaum Associates.

## Age

The categorization of the children as four years old does not indicate the distribution of the age of the children. Because of the birthday cut-off for children attending public school kindergarten in Florida, the typical 4-year-old child is between 48 and 60 months old on September 1 of the school year. Figure 1 displays participating children's ages in months on the cut-off date.



*Figure 1.*  
Age on September 1, 2005 of the 2,300 participating children with complete ALRI scores.

The age of the participating children with complete ALRI scores was evenly distributed across the expected span of months. Forty-eight percent of the children were 54 or fewer months old, the median age of the typical age distribution. However, there were 17 children who were older than the typical age of preschool children.

**Question 2: Were services sponsored by the ELC, with joint funding and collaboration from the JELP, effective in improving the emergent literacy ability of preschool children based on the TERA-3 Reading Quotient and scale scores?**

Table 5 presents summary statistics and results from the analyses of the TERA-3 pretest and posttest scale scores of the participating children.

Table 5  
Summary Statistics and ANOVA Results: Participating Children’s TERA-3 Scores

	Pretest	Posttest		
<b>Scale</b>	<b>Mean</b>	<b>Mean</b>	<b>p-value</b>	<b>Effect Size</b>
<b>Reading Quotient</b>	<b>94.22</b>	<b>96.46</b>	<.0001	0.15
<b>Alphabet</b>	<b>10.60</b>	<b>11.48</b>	<.0001	0.30
<b>Conventions of Print</b>	<b>8.18</b>	<b>8.16</b>	.8563	
<b>Meaning</b>	<b>8.53</b>	<b>8.70</b>	.0329	0.07

□ Denotes a statistically significant difference between the pretest and posttest mean scores (n=758).

The positive gains in the abilities measured on the TERA-3 Reading Quotient, Alphabet, and Meaning scales were statistically significant ( $\alpha \leq .05$ ). The small, but meaningful, gain on the Alphabet scale was almost one third of a standard deviation, and the mean Alphabet posttest score (11.5) ranks above the mean of the TERA-3 normative population (10.0).

Another way to look at the ELC children’s year-end achievement in emergent literacy ability is by looking at the differences in the percentage of scores ranked in the top, middle, and bottom quartiles from the beginning to the end of the school year. Figure 2 shows the percentage of scores in these categories at the beginning and end of the school year across the TERA-3 scales.

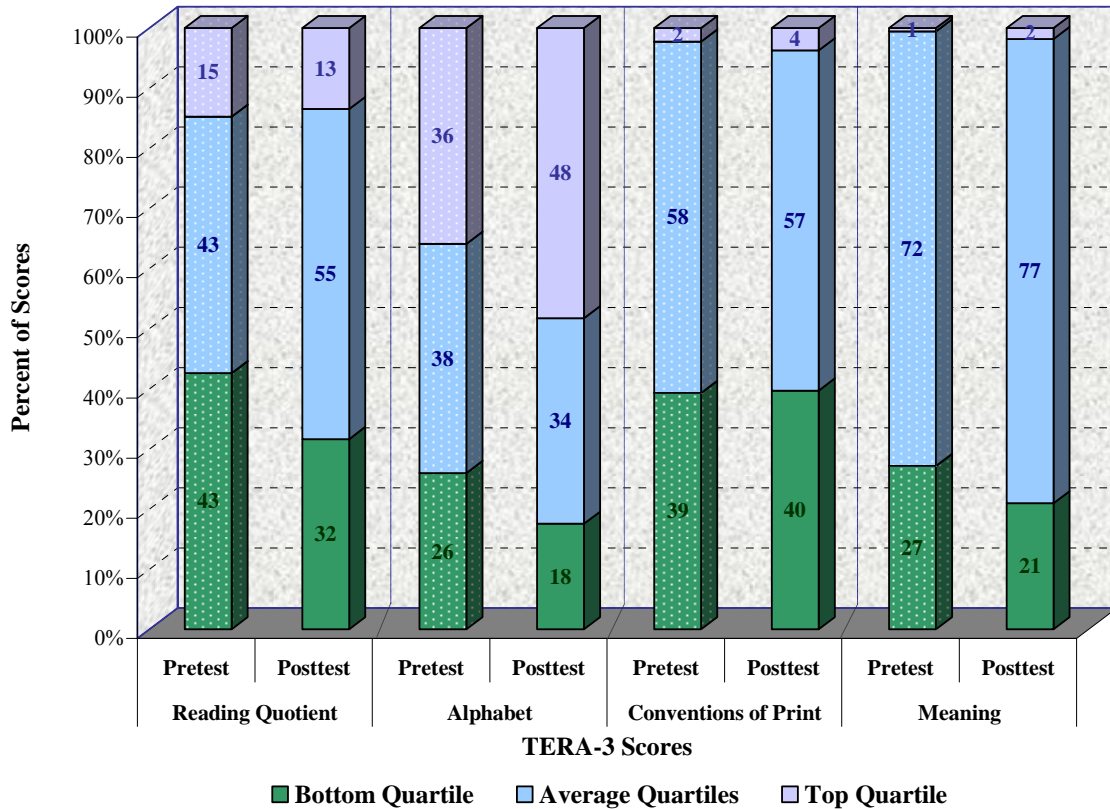


Figure 2. The percentage of TERA-3 scale scores ranked in the bottom, middle, and top quartiles at the beginning and end of the school year (n=758).

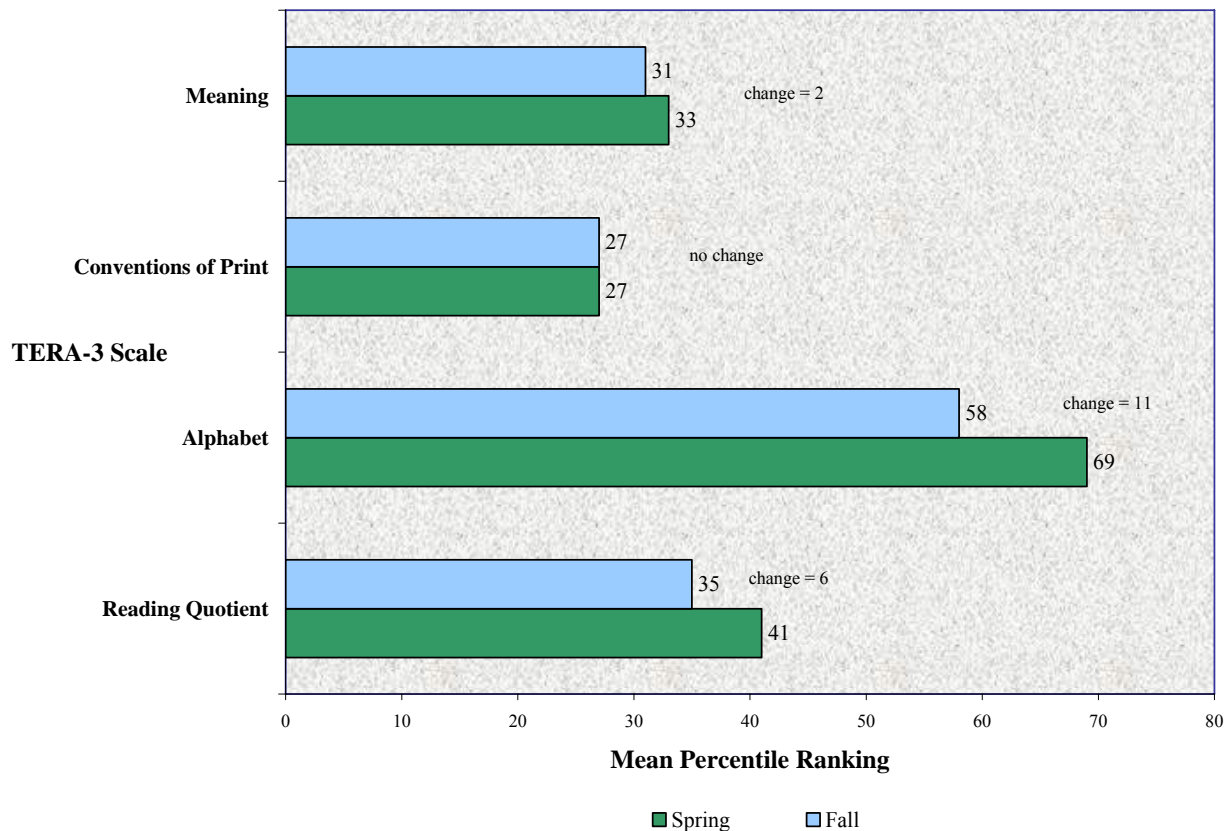
Reading Quotient The predominant change in the percentage of Reading Quotient scores in the quartiles results from scores ranked in the bottom quartile (green portion) at pretest moving to the middle quartiles at posttest. The percentage of Reading Quotient scores ranked in the top quartile (lavender) was basically unchanged from the beginning to the end of the school year.

Alphabet Scale The changes in the percentage of scores in the quartiles for the Alphabet scale results from scores moving across all three categories, and the percentage of Alphabet scale posttest scores ranked in the bottom quartile, 18 percent, is well under the expected 25 percent. Additionally, there was a higher percentage of Alphabet scale pretest and posttest scores ranked in the top quartile, 36 and 48 percent, respectively, than the 25 percent expected.

Conventions of Print Scale The percentage of Conventions of Print scale scores in the three categories was relatively unchanged from pretest to posttest.

Meaning Scale The predominant change in the percentage of Meaning scale scores in the quartiles results from scores ranked in the bottom quartile (green portion) at pretest moving to the middle quartiles at posttest. The percentage of scores ranked in the top quartile (lavender) was basically unchanged from the beginning to the end of the school year.

A second way to look at the emergent literacy achievement is through the percentile rankings of the mean scores in the fall and spring of the school year. Figure 3 shows the percentile rankings of the mean TERA-3 scores.



*Figure 3.*  
The percentile ranking of the mean TERA-3 scale scores in the fall and spring of the school year.

The two greatest increases in percentile rankings from fall to spring occurred in the achievement measured by the Reading Quotient and the Alphabet scale. Moreover, at year’s end the mean ranking of all TERA-3 scales was above the bottom quartile (25<sup>th</sup> percentile), and the mean Alphabet scale score ranked almost 20 percentiles above the national average.

To enable a closer look at the improvement on the TERA-3 Alphabet scale, scores are displayed in Figure 4 in seven ability categories: three categories representing the lowest 25 percentiles, one category representing the middle 50 percentiles, and three categories representing the highest 25 percentiles. (See Table 2 on page 7 of this report.)

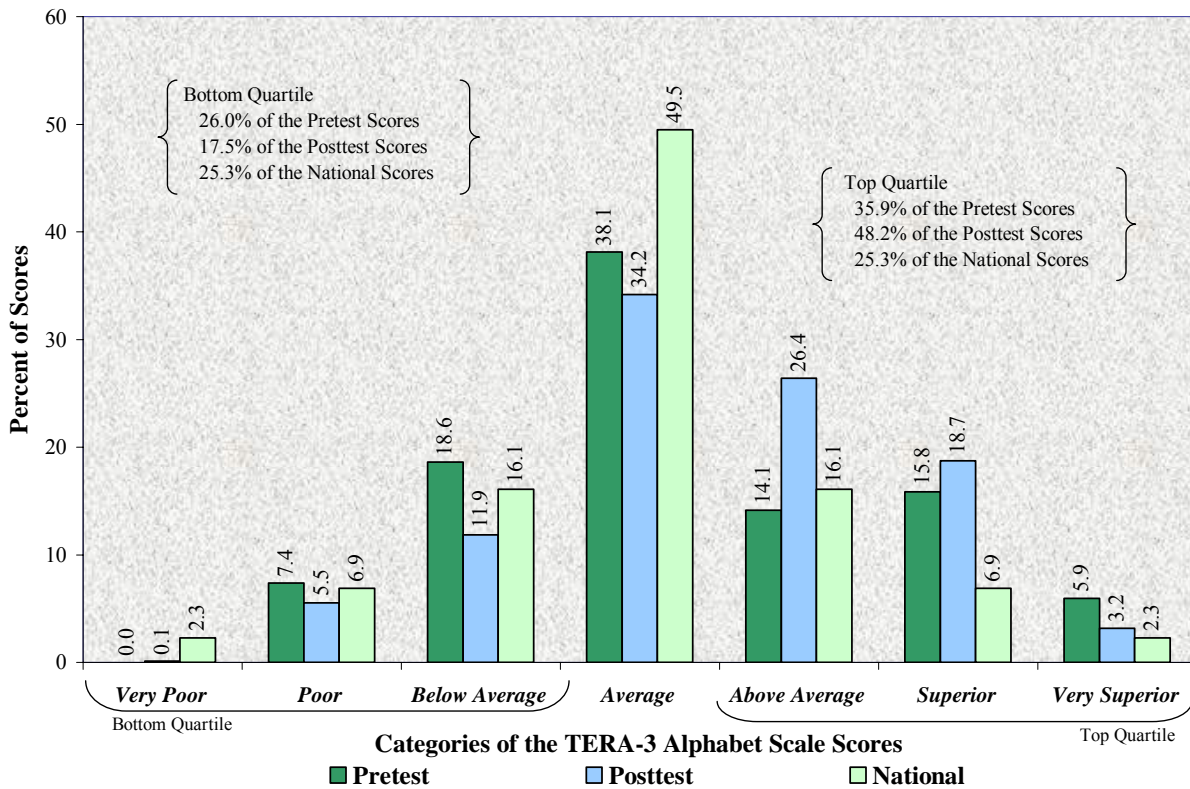


Figure 4. The percentage of TERA-3 Alphabet scale pretest, posttest, and national normative population scores in the seven categories of the ability scale (n=758).

The percentage of posttest scores (blue bars) ranked in the bottom quartile (three bars at the left of the figure) is 8% less than in the national normative population (light green bars), and there were 9% fewer participating children's posttest scores ranked in the bottom quartile than at pretest (dark green bars). Additionally, 6% of the participating children's posttest scores ranked below the 9<sup>th</sup> percentile (the *Very Poor* and *Poor* categories combined). This is fewer than the percentage in the national normative population. Twelve percent more of the children's posttest scores ranked in the top quartile than at pretest, and the percentage of posttest scores (blue bars) ranked in the top quartile (three bars at the right of the figure) was 23% more than in the normative population. Additionally, 22% of the participating children's posttest scores ranked above the 90<sup>th</sup> percentile (the *Superior* and *Very Superior* categories combined). As can be seen, the distribution of posttest scores shifted further toward the top quartile than the distribution of the national normative population.

**Question 3: How did the participating preschool children's year-end ability to recognize the upper- and lowercase letters of the alphabet compare to national performance benchmarks in letter recognition?**

In 2005-2006, 2,300 participating children had complete Alphabet Letter Recognition Inventory (ALRI) scores. The ALRI mean fall score indicates the typical participating child recognized 53% of the letters (28 letters), and the mean spring score indicates the typical child recognized 82% of the letters (43 letters). The *Early Childhood Longitudinal Study-Kindergarten* (ECLS-K) describes recognizing 75% of the sampled letters as *proficient*; therefore, the typical participating child was *proficient* in letter recognition at the end of the school year. Additionally, at the end of the school year, 4% of the children recognized seven or fewer letters, 52% of the children recognized 50 or more letters, and 35% of the children recognized all 52 letters.

To determine the range of alphabet letter recognition ability of the children, the ALRI scores are displayed in Figure 5 using four recognition categories: 0-13 letters, 14-26 letters, 27-39 letters, and 40-52 letters.

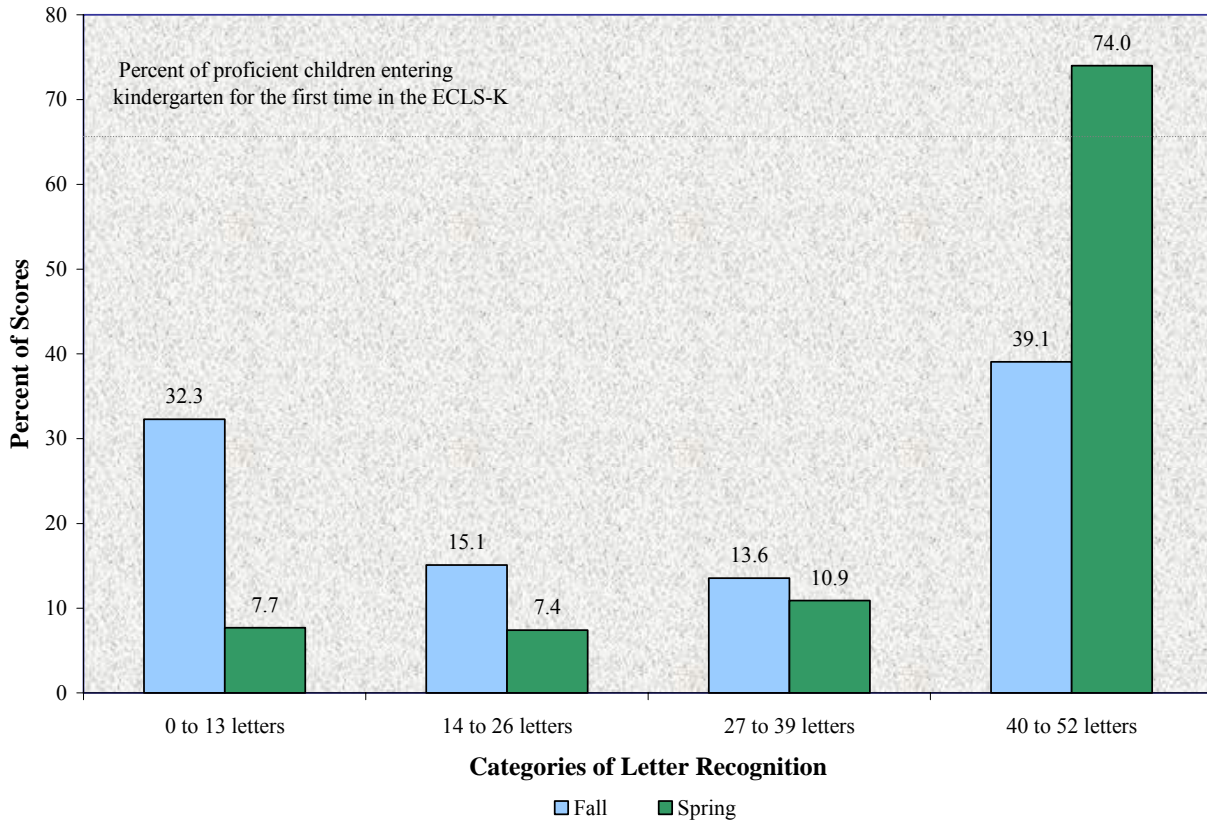


Figure 5. The Alphabet Letter Recognition Inventory scores of the 2,300 participating children.

Inspection of Figure 5 shows that at year’s end 74% of the 2,300 children were *proficient*, recognizing at least 75% of the letters. The end of the 4-year-old preschool year is somewhat similar to entering kindergarten for the first time, and ECLS-K researchers reported 66% of all children entering kindergarten for the first time were *proficient*. The participating children’s letter recognition ability more than matches the national ECLS-K sample of all children entering kindergarten for the first time.

**Question 4: Were services sponsored by the ELC, with joint funding and collaboration from the JELP, effective in improving the school readiness of preschool children based on scores from the BRIGANCE Screens?**

The answer to this evaluation question requires that the raw scores from the BRIGANCE Screens be placed on a common scale. All fall data were obtained using the *BRIGANCE Preschool Screen-II, Four-Year-Old Child Basic Assessments* which is designed for use with children between 48 and 60 months old at the time of testing. Spring data were obtained using both the *BRIGANCE Preschool Screen-II, Four-Year-Old Child Basic Assessments* and the *BRIGANCE Preschool Screen-II, Kindergarten Basic Assessments* which is designed for use with children between 60 and 72 months old at the time of assessment. Scores from the two different instruments were placed on a common norm-referenced scale, thereby forming the BRIGANCE Quotient, which is a standardized scale with mean 100 and standard deviation 15.

There were 1,305 children with both pretest and posttest BRIGANCE Screens scores; however, some of the pretest raw scores would not form valid standardized scores because at the time of fall assessments the children were considerably older than the upper age range for the test's use. The standardization process resulted in 1,260 reasonably valid BRIGANCE Quotients. Of these 1,260 scores, 1,165 were obtained from participating partnership children and 95 were from the non-participating school readiness children. These 95 school readiness children participated in settings not funded by the ELC or JELP. These 1,165 scores were used to determine the ELC program's effectiveness in improving the school readiness of participating children. Table 6 shows the results of the analysis.

Table 6  
*Summary Statistics and ANOVA Results: Participating Children's BRIGANCE Quotient Scores*

Scale	Pretest Mean	Posttest Mean	p -value	Effect Size
<b>BRIGANCE Quotient</b>	88.40	97.88	<.0001	0.63

□ Denotes a statistically significant difference between the pretest and posttest mean scores (n=1195).

The participating children’s school readiness achievement significantly improved by almost two-thirds of a standard deviation.

The BRIGANCE Screens also allow the identification of children who may need additional services and the identification of children who are possibly gifted or talented. A decrease in the number of children referred for additional services or an increase in the number of children identified as possibly gifted or talented is also an indication of improved school readiness. Table 7 shows these numbers of children and the results of the Fisher’s Exact Test which indicated whether the distributions of pretest and posttest scores are different.

Table 7  
*BRIGANCE Screens Results for Children Referred for Additional Services and Children Identified as Possibly Gifted or Talented*

	Pretest Percentage	Posttest Percentage	Fisher’s Exact Test ChiSq p-value
<b>Referral</b>	38.7	13.8	<.0001
<b>Gifted &amp; Talented</b>	1.9	3.3	<.0001

□ Denotes a statistically significant difference between the distributions of the pretest and posttest scores (n=1195).

The percentage of participating children referred for additional services significantly decreased over the school year and the percentage of children identified as possibly gifted and talented significantly increased over the school year.

Furthermore, the sampling plan allows a comparison of the developmental gains made by school readiness children in participating and non-participating settings. All school readiness children in preschool centers and a sample of 10% of the school readiness children in Family Child Care Homes who could be assessed were assessed. Furthermore, there was 30% attrition (77 children) of the assessed school readiness children, and the children who were not available

at the time of the posttest assessment had significantly lower pretest scores than the children who were available for the posttest. Moreover, the children who were not available at the time of the posttest were equally divided between participating and non-participating settings.

There were 85 school readiness children in participating sites (5 in DCPS, 26 in ECS, 11 in FIE/UNF, and 43 in JCC sites) and 95 children in the non-participating settings who have valid BRIGANCE Quotient scores. Table 8 shows the mean pretest and posttest scores of these two groups of school readiness children and the results of the ANCOVA analysis of the scores.

Table 8  
*Summary Statistics and ANCOVA Results of BRIGANCE Quotient Scores of School Readiness Children in Participating and Non-Participating Settings*

<b>Categorization</b>	<b>Mean Participating Sites N=85</b>	<b>Mean Non-Participating Sites N=95</b>	<b>p-value</b>	<b>Effect Size</b>
<b>Fall BRIGANCE Quotient</b>	82.04	82.83	<.0001	0.22
<b>Spring BRIGANCE Quotient</b>	95.22	91.36		

□ Denotes a statistically significant difference between the adjusted posttest mean scores of the two groups of school readiness children (n=180).

The children served in participating sites had greater year-end mean school readiness achievement after adjusting for beginning of the year achievement than the children served in the non-participating settings. The advantage represent between one-fifth and one-fourth of a standard deviation.

## CONCLUSIONS

### **Question 1: What preschool children formed the population for the 2005-2006 evaluation?**

- Slightly less than 60% of the participating children were *Black* and slightly less than one third were *White*. Additionally, 49.5% were boys. Their ages were evenly spaced across the expected span for 4-year-old preschool children in Florida.
- TERA-3 data for participating children indicated 20% attrition that resulted from attrition of both children and sites, and there was evidence suggesting the attrition did not occur at random. Children with lower initial emergent literacy ability were not included in the study proportional to their enrollment in the participating preschool classes.

### **Question 2: Were services sponsored the ELC, with joint funding and collaboration from the JELP, effective in improving the emergent literacy ability of preschool children based on the TERA-3 Reading Quotient and scale scores?**

- All TERA-3 mean pretest and posttest mean scores ranked in the broad *Average* ability category.
- The TERA-3 Reading Quotient, Alphabet, and Meaning mean posttest scores of the participating children were significantly higher than their respective mean pretest scores. The gain on the Alphabet scale represents a small, but meaningful gain.
- The Alphabet scale mean posttest score ranked almost 20 percentiles above the national average ranking at the 50<sup>th</sup> percentile.
- At the end of the school year, almost 48% of the participating children's Alphabet scale posttest scores ranked at the 75<sup>th</sup> percentile or higher (25% expected), and 22% of the children's scores ranked at or above the 90<sup>th</sup> percentile (10% expected).

### **Question 3: How did the participating preschool children's year-end ability to recognize the upper- and lowercase letters of the alphabet compare to national performance benchmarks in letter recognition?**

- At the end of the school year, 74% of the participating children recognized at least 75% of the upper- and lowercase letters (categorized as *proficient* by ECLS-K), which exceeds the 66% of all children in the ECLS-K national sample of children entering kindergarten for the first time.
- At the end of the school year, 35% of the participating children recognized all upper- and lowercase letters of the alphabet, and 52% of the children recognized 50 or more letters.

**Question 4: Were services sponsored by the ELC, with joint funding and collaboration from the JELP, effective in improving the school readiness of preschool children based on scores from the BRIGANCE Screens?**

- The mean school readiness achievement of the 1,165 participating children with BRIGANCE Quotient scores increased by two thirds of a standard deviation over the school year.
- There were fewer participating children referred for additional services and more participating children identified as gifted and talented at the spring assessment than at the fall assessment.
- The mean school readiness of school readiness children served in participating centers was greater than that of school readiness children served in non-participating settings.

During the 2005-2006 school year, the ELC, in partnership with the JELP, was successful in significantly increasing participating children's mastery of emergent literacy achievement in the area of alphabet letter knowledge. The three areas of alphabet letter knowledge include knowing the names of letters, recognizing upper- and lowercase letters arranged in non-alphabetic order, and understanding the function of the letters of the alphabet. This achievement is documented through posttest TERA-3 and ALRI results. The ELC, in partnership with the JELP, was also successful in significantly increasing the level of school readiness of participating children as measured by the BRIGANCE Screens BRIGANCE Quotient mean scores.

## **PART II**

**A QUASI-EXPERIMENTAL STUDY OF THE SCHOOL READINESS OF KINDERGARTEN  
CHILDREN WHO EXPERIENCED LITERACY-FOCUSED PRESCHOOL CURRICULA  
SPONSORED BY THE *EARLY LEARNING COALITION OF DUVAL COUNTY, INC.* AND  
*THE JACKSONVILLE EARLY LEARNING PARTNERSHIP***

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**A QUASI-EXPERIMENTAL STUDY OF THE SCHOOL READINESS OF KINDERGARTEN CHILDREN WHO EXPERIENCED LITERACY-FOCUSED PRESCHOOL CURRICULA SPONSORED BY THE *EARLY LEARNING COALITION OF DUVAL COUNTY, INC.* AND THE *JACKSONVILLE EARLY LEARNING PARTNERSHIP***

During the 2004-2005 school year, the *Early Learning Coalition of Duval County, Inc.* (ELC) and the *Jacksonville Early Learning Partnership* (JELP) provided 5,100 children attending child care programs in low-income neighborhoods high-quality preschool experiences. The initiative provided literacy-focused curricula with job-embedded training for the children's 376 teachers. The ELC/JELP initiative continues with preschool centers; however, the question of the children's school readiness cannot be answered solely with ELC/JELP evaluation data. School readiness is determined by state-mandated testing during the beginning weeks of kindergarten. Thus, the specific research question addressed in this study is:

**Were children who participated in ELC/JELP preschool classes more ready for kindergarten than similar children who did not participate in ELC/JELP preschool classes?**

Outcome variables in the study, obtained from the 2005-2006 Florida school readiness data, include the *Early Screening Inventory – Kindergarten* (ESI-K) and two measures from the *Dynamic Indicators of Basic Early Literacy Skills* (DIBELS), Letter Naming Fluency (LNF) and Initial Sounds Fluency (ISF).

#### **DATA**

ELC/JELP researchers combined their 2004-2005 evaluation data (EVALD), the 2005-2006 Duval County Public School kindergarten data (DCKD), and the 2005-2006 Florida school readiness data (FSRD). The initial task involved forming a treatment variable by locating the 2004-2005 ELC/JELP 4-year-old preschool children in the 2005-2006 DCKD. The only

information available to facilitate tracking children from preschool to public school was information common to the EVALD and the DCKD and included gender, name, and date of birth. The second task involved combining the DCKD and FSRD. The EVALD observations with complete assessments (indicating participation in ELC/JELP preschool classes for the entire school year) and DCKD observations with scores in the FSRD were used to form the final data (FD), which includes observations from 1,581 ELC/JELP and 6,166 comparison children. These numbers were further reduced in the analyses of each school readiness outcome because the state did not consider all scored assessments valid; therefore, the categorical readiness results were not reported.

## METHODOLOGY

### Propensity Score Methods (Subclassification)

Paraphrased from Rubin, D. B. (1997). Estimating causal effects from large data sets using propensity scores. *Annals of Internal Medicine, Part 2, 127, 757-763*:

Observational studies based on large databases often attempt to estimate the causal effects of an intervention relative to a control condition; however, it is necessary to control for naturally occurring systematic differences in background characteristics between the treatment and control groups that would not occur in the context of a randomized experiment. Propensity score methods address this situation by reducing the collection of background characteristics to a single characteristic that summarizes the entire collection. Thus, the propensity score adjusts for differences in all observed background characteristics.

Furthermore, a straightforward method to adjust for a single continuous background characteristic is to divide the entire sampled population into equal-sized strata of the specific characteristic; compare mean outcomes within each stratum, and then average the background characteristic-adjusted mean outcomes across strata to obtain an overall estimate of the outcome variable. Unfortunately, this *subclassification* method becomes more difficult when there is more than one background characteristic, and there usually are many characteristics available.

However, subclassification techniques can be applied with many background characteristics by using propensity score methods. The basic idea is to replace the collection of confounding characteristics with one, the propensity score. Each

child in the data has an estimated propensity score, which is the estimated probability of being exposed to treatment 1 rather than treatment 2.<sup>4</sup> Subclassification on the basis of the propensity score then has the property of adjusting for all of the background characteristics that went into its estimation, no matter how many there are. Moreover, if two children, one exposed to treatment 1 and the other exposed to treatment 2, have the same value of the propensity score, these two children would have the same predicted probability of being assigned to treatment 1 or treatment 2. So, as far as the collection of background characteristics goes, a coin was tossed to decide who received treatment 1 and who received treatment 2.

### **Propensity Score Strata**

In the longitudinal study of the school readiness-related effectiveness of the ELC/JELP preschool initiative, propensity scores that represent the propensity to have participated in a ELC/JELP preschool class the year prior to kindergarten were assigned to children in the FD. Gender, ethnicity (defined as Black or non-Black), free/reduced lunch status, language minority status (ESOL), age on September 1 of the kindergarten year, living within a Reading First school attendance boundary, and the public elementary school attended were used to estimate the propensity scores. The observations were ranked by propensity score, and the ranked data were divided into 10 equally-sized strata. Using the DIBELS Letter Naming Fluency (LNF) data, Table 1 provides the ELC/JELP participants' mean scores on the background characteristics disaggregated by stratum. Stratum 1 represents the 625 Duval County Public School kindergarten children in the DIBELS LNF data who were most likely to have participated in a ELC/JELP preschool class the previous year.

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<sup>4</sup> In this case, treatment 1 is participation in a ELC/JELP preschool class and treatment 2 is participation in a non-ELC/JELP preschool class or no preschool participation.

Table 1

*ELC/JELP Participants' Summary Statistics Disaggregated by Stratum for Some of the Variables Used to Form the Propensity Scores*

Stratum	n	Percent ESOL	Percent Free Lunch	Percent Paid Lunch	Percent Reading First School	Percent Black	Percent Boys	Mean Age*	Mean Propensity Score
1	374	0.00	73.11	19.19	63.81	99.56	48.69	67.01	.54
2	301	0.00	71.70	21.48	22.79	100.00	52.83	67.28	.43
3	255	0.00	54.94	34.16	19.33	88.52	51.45	67.45	.35
4	166	0.29	44.12	46.44	12.77	54.43	50.80	67.11	.25
5	141	0.29	29.80	62.21	8.28	11.92	47.38	66.85	.19
6	111	0.00	27.00	65.60	3.05	9.72	52.25	67.32	.15
7	89	1.45	24.09	66.47	4.21	8.56	54.86	67.43	.12
8	59	1.16	23.40	69.91	0.87	5.23	49.27	67.35	.09
9	45	6.38	24.53	67.20	4.64	6.24	46.88	67.45	.06
10	20	27.03	24.27	65.84	1.50	5.52	46.37	67.69	.03

Note: Age (in months) at the 2005-2006 state public school kindergarten eligibility cut-off date of September 1.

The mean scores of the background characteristics used to estimate the propensity scores of the ELC/JELP children disaggregated by probability stratum indicate that ELC/JELP children were more likely than comparison children to be economically disadvantaged, Black, attend Reading First schools, and not classified as ESOL. However, 70% of the observations of the ELC/JELP children are located in the first four strata. Therefore, for ease of interpretation, the summary statistics for the ten strata are further collapsed into three groups. Table 2 provides the ELC/JELP participants' mean scores on the background characteristics disaggregated by group rather than stratum.

Table 2

*ELC/JELP Participants' Summary Statistics Disaggregated by Group for Some of the Variables Used to Form the DIBELS LNF Propensity Scores*

Group	Strata	n	Percent of ELC/JELP Children	Percent Free Lunch	Percent Reading First School	Percent Black	Percent ESOL
1	1-4	1096	70.2	64.3	34.5	90.3	0.0
2	5-8	400	25.6	26.8	4.8	9.6	0.6
3	9-10	65	4.2	24.5	3.7	6.0	12.7

Group 1 represents 70% of the ELC/JELP children in the DIBELS LNF data. Most of the children are English-speaking, Black, and economically disadvantaged, and one third of them attend Reading First schools. Group 2 represents 25% of the ELC/JELP children, and one fourth of them are economically disadvantaged. The children are English-speaking, not Black, and do not attend Reading First schools. Group 3 represents 4% of the ELC/JELP children and differs from Group 2 primarily in the percentage of language minority children (ESOL).

## RESULTS

### Outcome Measures

The three measures of school readiness obtained from Florida school readiness data (FSRD) are the *Early Screening Inventory – Kindergarten* (ESI-K) and two scales from the *Dynamic Indicators of Basic Early Literacy Skills* (DIBELS), the Letter Naming Fluency (LNF) and Initial Sounds Fluency (ISF).

The ESI-K is a brief assessment intended to identify children who have a condition that may place them at risk for school failure. The broad focus of the instrument is speech, language, cognition, perception, and fine and gross motor coordination. However, the items sample domains of development rather than specific accomplishments that indicate academic readiness. The total score is used to determine the screening outcome. *Ready* indicates the child is presumed to be developing normally, and *Refer* indicates the child should be further evaluated by an assessment team and, if the problems identified by the ESI-K are confirmed, a definitive plan of action should be designed. The FD includes 7,004 ESI-K observations from ELC/JELP and comparison children.

The DIBELS measures were designed to measure three of the five big ideas of early literacy – phonological awareness, alphabetic principle, and fluency with connected text. The DIBELS Letter Naming Fluency (LNF) measure is designed for use with children from the beginning of kindergarten through the first grade. In the LNF measure, children are presented a page of randomly ordered upper- and lowercase letters and asked to name as many letters as they can in one minute. The score represents the number of letters correctly named. A benchmark goal is not established for LNF as it does not directly correspond with one of the three big ideas assessed by DIBELS; however, the numerical scores are categorized as *Above Average*, *Low Risk*, *Medium Risk*, and *High Risk* based on percentages of the local population. The FD includes 6,965 LNF scores from the ELC/JELP and comparison children.

The DIBELS Initial Sounds Fluency (ISF) is a measure of phonological awareness that measures the children’s ability to recognize and produce the initial sound in an orally presented word. The DIBELS Initial Sounds Fluency (ISF) measure is designed for use with children from the beginning of preschool to mid-kindergarten. The numerical score represents the number of onsets (initial sounds) the child correctly produces in one minute. The numerical scores are categorized as *Above Average*, *Low Risk*, *Medium Risk*, and *High Risk*. The FD includes 6,556 ISF observations from ELC/JELP and comparison children.

### **Statistical Tests**

A *t*-test was used to determine whether the observed differences between the ELC/JELP and comparison children’s mean outcome scores occurred by chance or represent true differences. A statistically significant *p*-value ( $p \leq .05$ ) indicates there is a true difference in the mean scores of the two populations for the particular stratum.

A chi-squared test was used to determine whether or the distributions of the percentage of scores in the readiness categories depend on the treatment (participation in ELC/JELP preschool classes). A significant chi-squared p-value ( $\alpha \leq .05$ ) means the distributions of scores across ELC/JELP and comparison children in the particular stratum are truly different and depend on ELC/JELP participation.

### ***Early Screening Inventory – Kindergarten (ESI-K)***

Valid ESI-K scores were available for 1,563 ELC/JELP and 5,441 comparison children. Table 3 provides the comparisons across treatment levels for the ESI-K mean scores and the distributions of the percentage of scores in each readiness category disaggregated by propensity score stratum.

Table 3  
*Comparisons Across Treatment Levels for the ESI-K Scores by Propensity Score Stratum*

	<i>Stratum</i>		<i>Numerical Scores</i>		<i>Categorical Scores</i>			<i>ChiSq test p-value</i>
	<i>Status</i>	<i>n</i>	<i>Mean Score</i>	<i>t test p-value</i>	<i>% Ready</i>	<i>% Getting Ready (Rescreen)</i>	<i>% Not Yet Ready (Refer)</i>	
1	Trt	379	22.41	.1275	83.1	13.7	3.2	.2473
	Com	321	21.96		78.5	16.5	3.0	
2	Trt	306	22.34	.0118*	84.0	12.4	3.6	.0601**
	Com	394	21.58		77.4	15.7	6.9	
3	Trt	240	22.83	.0245*	84.2	14.6	1.3	.0635**
	Com	461	22.19		79.8	15.6	4.6	
4	Trt	159	22.19	.5402	82.4	13.2	4.4	.4543
	Com	541	21.98		79.9	12.9	7.2	
5	Trt	147	23.22	.2139	89.1	10.2	0.7	.2222
	Com	554	22.83		85.9	10.8	3.3	
6	Trt	119	23.50	.0092*	94.1	4.2	1.7	.0265*
	Com	581	22.65		84.9	11.5	3.6	
7	Trt	87	23.86	.0018*	93.1	5.8	1.2	.1942
	Com	614	22.86		86.2	11.1	2.8	
8	Trt	63	23.38	.2490	88.9	9.5	1.6	.7644
	Com	637	22.89		86.5	10.4	3.1	
9	Trt	45	22.48	.8744	82.2	13.3	4.4	.8875
	Com	656	22.58		84.6	11.0	4.4	
10	Trt	18	22.06	.6503	88.9	0.0	11.1	.1409
	Com	682	21.66		76.0	17.2	6.9	
All	Trt	1563	22.71	.0095*	85.6	11.7	2.7	.0009*
	Com	5441	22.34		82.3	13.0	4.7	

\* Indicates a statistically significant difference at  $\alpha \leq .05$ .

\*\* Indicates a statistically significant difference at  $\alpha \leq .10$ .

In all strata except strata 1 and 9, a smaller percentage of the ELC/JELP than comparison children was referred for further evaluation to design a definitive plan of action. This is the most important ESI-K result, as the purpose of the ESI-K is to identify children who have a condition that may place them at risk for school failure. Furthermore, with the exception of stratum 9, a greater percentage of the scores of ELC/JELP than comparison children were classified as *Ready*, and the true differences in the distributions of the percentages of scores in the readiness categories in strata 2, 3, and 6 depend on the children’s participation in ELC/JELP preschool classes ( $\alpha \leq .10$ ). When strata are collapsed (All), there are true differences in the mean scores and in the distributions of percentage of scores in the readiness categories.

### *DIBELS Letter Naming Fluency (LNF)*

Valid DIBELS LNF scores were available for 1,561 ELC/JELP and 5,404 comparison children. Table 4 provides the comparisons across treatment levels for the LNF mean scores and the distributions of the percentage of scores in each readiness category disaggregated by propensity score stratum.

Table 4  
*Comparisons Across Treatment Levels for the DIBELS Letter Naming Fluency Scores by Propensity Score Stratum*

<i>Stratum</i>		<i>Numerical Scores</i>			<i>Categorical Scores</i>				
<i>Status</i>	<i>n</i>	<i>Mean Score</i>	<i>t test p-value</i>	<i>% Above Average</i>	<i>% Low Risk</i>	<i>% Medium Risk</i>	<i>% High Risk</i>	<i>ChiSq test p-value</i>	
1	Trt	374	26.66	>.0001*	73.8	13.6	7.8	4.1	>.0001*
	Com	314	17.82		45.9	12.7	16.9	24.5	
2	Trt	301	24.08	>.0001*	68.8	16.9	7.6	6.6	>.0001*
	Com	388	17.10		48.2	14.4	16.0	21.4	
3	Trt	255	24.67	>.0001*	68.4	16.9	9.8	4.9	>.0001*
	Com	463	18.64		49.5	15.6	14.0	21.0	
4	Trt	166	27.28	>.0001*	77.1	6.6	10.8	5.4	>.0001*
	Com	573	19.56		51.4	14.9	14.7	18.9	
5	Trt	141	25.21	.0008*	70.9	13.5	7.1	8.5	.0003*
	Com	547	20.29		51.7	16.3	15.7	16.3	
6	Trt	111	27.02	.0006*	77.5	11.7	7.2	3.6	>.0001*
	Com	578	21.76		55.5	14.2	14.7	15.6	
7	Trt	89	30.37	>.0001*	84.3	10.1	2.3	3.4	>.0001*
	Com	600	20.61		54.5	14.0	15.7	15.8	
8	Trt	59	28.47	.0035*	74.6	11.9	6.8	6.8	.0412*
	Com	629	21.85		56.9	12.6	14.6	15.9	
9	Trt	45	29.18	.0010*	77.8	6.7	8.9	6.7	.0174*
	Com	644	20.67		53.6	15.8	14.4	16.2	
10	Trt	20	20.20	.7818	65.0	25.0	0.0	10.0	.0663**
	Com	668	19.47		49.9	13.2	15.0	22.0	
All	Trt	1561	26.06	>.0001*	73.0	13.5	7.8	5.4	>.0001*
	Com	5404	20.02		52.2	14.4	15.1	18.4	

\* Indicates a statistically significant difference at  $\alpha \leq .05$ .

\*\* Indicates a statistically significant difference at  $\alpha \leq .10$ .

The mean letter naming fluency of the ELC/JELP children in all strata except stratum 10 was significantly greater than the comparison children's fluency. The true differences in mean scores represent the naming of between five (stratum 5) and ten (stratum 7) additional letters in

the allotted time (one minute). When strata are collapsed (All), the true difference represents the naming of six additional letters. The chi-squared test of whether the distributions of the percentage of DIBELS LNF scores in the readiness categories depend on treatment mirrors the numerical results; however, unlike the numerical scores, the distributions of scores in stratum 10 do depend on treatment ( $\alpha \leq .07$ ). Additionally, across all strata, there are approximately 20% more ELC/JELP than comparison children's scores categorized as *Above Average*.

### ***DIBELS Initial Sounds Fluency (ISF)***

Valid DIBELS ISF scores were available for 1,472 ELC/JELP and 5,084 comparison children. Table 5 provides the comparisons across treatment levels for the DIBELS ISF mean scores and the distributions of the percentage of scores in each readiness category disaggregated by propensity score stratum.

Table 5

*Comparison Across Treatment Levels for the DIBELS Initial Sounds Fluency Scores by Propensity Score Stratum*

Stratum		Numerical Scores			Categorical Scores				
Status	n	Mean Score	t test p-value	% Above Average	% Low Risk	% Medium Risk	% High Risk	ChiSq test p-value	
1	Trt	363	12.06	.1249	44.6	21.8	19.3	14.3	.0071*
	Com	292	10.91		38.7	16.8	20.2	24.5	
2	Trt	283	10.86	.4151	43.8	16.6	22.3	17.3	.0920**
	Com	373	10.29		34.3	18.8	24.9	22.0	
3	Trt	221	12.30	.0390*	42.5	19.0	25.3	13.1	.1198
	Com	435	10.55		34.9	20.2	25.3	19.5	
4	Trt	155	14.46	.0128*	54.8	11.6	15.5	18.1	.0148*
	Com	500	11.89		42.2	19.0	22.0	16.8	
5	Trt	133	13.35	.1475	52.6	19.6	19.6	8.3	.0731**
	Com	523	11.99		45.5	18.9	18.2	17.4	
6	Trt	111	14.81	.2065	55.9	19.8	9.9	14.4	.2292
	Com	545	13.23		49.9	17.4	17.6	15.1	
7	Trt	82	14.61	.0181*	66.2	20.7	13.4	3.7	.0137*
	Com	573	12.32		45.9	21.5	19.9	12.7	
8	Trt	61	13.25	.9319	45.9	26.2	18.0	9.8	.4637
	Com	595	13.36		48.9	19.5	16.3	15.3	
9	Trt	41	15.54	.0326*	61.0	12.2	12.2	14.6	.2463
	Com	615	11.94		45.4	19.2	19.5	15.9	
10	Trt	22	11.32	.8988	27.3	36.4	13.6	22.7	.0911**
	Com	633	11.59		41.9	16.3	18.8	23.1	
All	Trt	1472	12.70	.0094*	48.0	19.0	19.0	14.0	.0018*
	Com	5084	11.95		43.5	18.8	19.9	17.7	

\* Indicates a statistically significant difference at  $\alpha \leq .05$ .

\*\* Indicates a statistically significant difference at  $\alpha \leq .10$ .

The mean initial sounds fluency of the ELC/JELP children in all strata except strata 8 and 10 was greater than the comparison children’s fluency, and the differences were statistically significant in strata 3, 4, 7, and 9. When strata are collapsed (All), the true difference across treatment levels represents the ELC/JELP children’s ability to correctly produce approximately one more onset than the comparison children. The comparisons of the distributions of the percentage of DIBELS INF scores in each readiness category across treatment levels do not mirror the numerical results. The distributions of readiness scores in strata 1, 2, 4, 5, 7, and 10 depend on the children’s participation in ELC/JELP preschool classes ( $\alpha \leq .10$  for strata 2, 5, and 10). A closer look at Group 2 (strata 5-8) shows that the 387 children who represent middle-

class, predominately non-Black children benefited as much from ELC/JELP participation relative to their comparison children as the ELC/JELP children in Group 1 who represent economically disadvantaged, Black children.

### *Summary of the Results*

Table 6 summarizes the results presented in Tables 3, 4, and 5.

Table 6  
*Summary of the Results Across Readiness Measures by Stratum*

Test	Statistical Test	Strata										
		1	2	3	4	5	6	7	8	9	10	All
ESI-K	<i>t</i> -test		✓ <sup>+</sup>	✓ <sup>+</sup>			✓ <sup>+</sup>	✓ <sup>+</sup>				✓ <sup>+</sup>
	Chi-Sq		✓	✓			✓ <sup>+</sup>					✓ <sup>+</sup>
LSF	<i>t</i> -test	✓ <sup>+</sup>	✓ <sup>+</sup>	✓ <sup>+</sup>	✓ <sup>+</sup>	✓ <sup>+</sup>	✓ <sup>+</sup>	✓ <sup>+</sup>	✓ <sup>+</sup>	✓ <sup>+</sup>		✓ <sup>+</sup>
	Chi-Sq	✓ <sup>+</sup>	✓ <sup>+</sup>	✓ <sup>+</sup>	✓ <sup>+</sup>	✓ <sup>+</sup>	✓ <sup>+</sup>	✓ <sup>+</sup>	✓ <sup>+</sup>	✓ <sup>+</sup>	✓	✓ <sup>+</sup>
ISF	<i>t</i> -test			✓ <sup>+</sup>	✓ <sup>+</sup>			✓ <sup>+</sup>		✓ <sup>+</sup>		✓ <sup>+</sup>
	Chi-Sq	✓ <sup>+</sup>	✓		✓ <sup>+</sup>	✓		✓ <sup>+</sup>			✓	✓ <sup>+</sup>

Note: ✓<sup>+</sup> Indicates a significant difference at  $\alpha \leq .05$ .  
 ✓ Indicates a significant difference at  $\alpha \leq .10$ .

True differences in the mean scores and in the distributions of readiness categories are found across all measures when the strata are collapsed (far right column). All but one of the *t*- and chi-squared tests of differences across the ten DIBELS LNF strata are statistically significant at either  $\alpha \leq .05$  or  $\alpha \leq .10$ . Additionally, six of the chi-squared tests across the ten DIBELS ISF strata indicate the distributions of the scores in the readiness categories are truly different and depend on the children’s ELC/JELP participation. Across all strata and measures, the greatest number of true differences occurs in strata 2, 3, and 7, indicating the ELC/JELP initiative was often effective among non-Black, middle-class, English-speaking children as well as Black, economically disadvantaged, English-speaking children.

## CONCLUSIONS/DISCUSSION

Results indicate that:

- Children who participated in 2004-2005 ELC/JELP preschool classes and were attending Duval County Public School kindergarten in 2005-2006 were likely to be English speakers, economically disadvantaged, Black, and attend kindergarten classes in Duval County Reading First elementary schools.
- Across all probability strata except strata 1 and 9, a smaller percentage of ELC/JELP than comparison children were referred for further evaluation based on their ESI-K scores, and across all strata except stratum 9 a greater percentage of ELC/JELP children's scores of were categorized as *Ready*.
- Across all probability strata, ELC/JELP children scored higher on the DIBELS Letter Naming Fluency measure than comparison children with similar background characteristics, and the differences for all strata except strata 10 were statistically higher.
- Across all probability strata except stratum 8, ELC/JELP children scored higher on the DIBELS Initial Sounds Fluency measure than comparison children with similar background characteristics, and the differences for strata 3, 4, 7, and 9 were statistically higher.

Table 7 allows a closer look at the achievement of the Group 1 ELC/JELP children relative to the comparison children who have similar background characteristics. Group 1 represents 70% of the 1,561 ELC/JELP children with valid DIBELS LNF scores, and the children were mostly Black, economically disadvantaged, and English-speaking.

Table 7  
*Summary of the Results Across the Readiness Measures for Group 1*

Measure	Statistic	Trt	Comp
ESI-K	Mean	22.45	21.94
	% at High Risk	3.07	5.65
LNF	Mean	25.58	18.45
	% at High Risk	5.17	21.03
ISF	Mean	12.14	10.95
	% at High Risk	15.45	20.15

When the four strata are collapsed to form Group 1:

- 2.6% fewer of the ELC/JELP than comparison children who have valid ESI-K scores were *Referred* for further evaluation.
- 15.9% fewer of the ELC/JELP than comparison children who have valid DIBELS LNF scores were categorized as at *High Risk* of future academic failure.
- 4.7% fewer of the ELC/JELP than comparison children who have valid DIBELS ISF scores were categorized as at *High Risk* of future academic failure.
- ELC/JELP children named seven more letters in one minute on the DIBELS LNF measure than comparison children with similar background characteristics.
- ELC/JELP children produced one more onset in one minute on the DIBELS ISF measure than comparison children with similar background characteristics.

ELC/JELP children in Group 1 were better prepared for kindergarten than comparison children on all three measures of school readiness used by Florida to assess school readiness. Furthermore, the achievement of ELC/JELP children in Group 2, especially strata 6 and 7, indicates that the predominately non-Black, middle-class children who participated in the ELC/JELP preschool initiative were often better prepared for kindergarten than comparison children with similar background characteristics.